臨床研究組壁報發表 Clinical Poster

【Clinical】

Acute Kidney Injury and Critical Care Nephrology

C001-C017　Chair(s)：黃道民/ Tao-Min Huang、張智翔/ Chih-Hsiang Chang

C001 Perioperative alternation of Kinetic Estimated Glomerular Filtration Rate (KeGFR) affecting postoperative complications within 30 days following craniotomy for primary malignant brain tumors

Yao-Chung Yang[1] and Jin-Shuen Chen[2]

Division of Neurosurgery, Department of Surgery, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[1]

Department of Administration, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[2]

C002 Characteristics of Acute Kidney Injury among Patients Receiving Aerosolized Colimycin Therapy

Hung-Ju Fan[1], Shu-Chuan Tai[2], Wen-Sheng Liu[3,4,5], Yi-Hsin Chou[3,4]

[1]Department of Nursing, Taipei City Hospital Zhongxing Branch

[2]Infection Control Center, Taipei City Hospital Zhongxing Branch

[3]Division of Nephrology, Taipei City Hospital Zhongxing Branch

[4]School of Medicine, National Yang Ming Chiao Tung University

[5]College of Science and Engineering, Fu Jen Catholic University

C003 The current status of recieving AKD case management for inpatients after recovering from dialysis-requiring AKI

AKI 的透析住院病人康復後接受 AKD 個案管理的現狀

Hsou-Li Chu[1], Chih-Ying Huang[1], Pei-Lin Lin[1], Chun-Chieh Tsai[2] , Ping-Feng Chiu[2], Chew-Teng Kor[3]

朱秀麗[1], 黃智英[1], 林沛伶[1], 蔡俊傑[2], 邱炳芳[2], 許秋婷[3]

[1] CKD education center, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital, Taiwan [3]Internal Medicine Research Center, Changhua Christian Hospital

[1]彰化基督教醫院慢性腎臟病衛教中心 [2]彰化基督教醫院腎臟內科

[3]彰化基督教醫院大數據中心

C004 Efficacy of reduced exposure to NSAIDs use in patient with chronic kidney disease
慢性腎臟病人 NSAIDs 用藥安全措施之成效
Li-Fang Lai[1], Chih-Ying Huang [1], Chun-Chieh Tsai[2], Ping-Feng Chiu[2], Chew-Teng Kor[3]
賴麗芳 [1], 黃智英 [1], 蔡俊傑 [2], 邱炳芳 [2], 許秋婷 [3]
[1] CKD education center, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital [3]Internal Medicine Research Center, Changhua Christian Hospital
[1] 彰化基督教醫院慢性腎臟病衛教中心 [2] 彰化基督教醫院腎臟內科
[3] 彰化基督教醫院大數據中心

C005 Reduce the incidence of CRRT machine alarms
降低 CRRT 警報異常發生率
Pei-Ching Kao, I-Chen Hung, Fan-Ci Ting, Shu-Fen Su, Ching-I Yu, Terry Ting-Yu Chiou, Wen-Chin Lee
高佩菁, 洪以貞, 丁凡棋, 蘇淑芬, 俞靜儀, 邱鼎育, 李文欽
Hemodialysis Unit, Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital
高雄長庚紀念醫院 內科部 腎臟科 血液透析室

C006 Serum DcR3 as a New Predictor of Renal Outcomes in Patients With Sepsis-Associated Acute Kidney Injury
利用血清 DcR3 預測敗血症相關急性腎損傷病人的腎功能預後
Kuo-Hua Lee, Ming-Tsun Tsai, Shuo-Ming Ou, Wei-Cheng Tseng, Yao-Ping Lin, Der-Cherng Tarng
李國華, 蔡明村, 歐朔銘, 曾偉誠, 林堯彬, 唐德成
Taipei Veterans General Hospital
臺北榮民總醫院

C007 Clinical Characteristics of Urinary Bladder Rupture: An Eleven-Year Retrospective Analysis from Far Eastern Memorial Hospital
膀胱破裂的臨床特徵：亞東紀念醫院的十一年回顧分析
Chia-Yun Cheng, Wan-Chuan Tsai
鄭佳芸, 蔡萬全
亞東紀念醫院內科部腎臟科

C008 Introducing smart warnings to improve the effectiveness of care for patients with acute kidney injury
導入智慧化警示提升急性腎損傷病人照護成效
Fang Lieng Yeh
葉芳伶
Tri-Service General Hospital Nephrology Department
三軍總醫院腎臟科

C009 Hepatorenal syndrome-acute kidney injury in patients with liver cirrhosis admitted to intensive care units
肝腎症候群之急性腎損傷對加護病房內的肝硬化患者的影響
Yi-Ran Tu[1*], Pei-Yi Fan[1,2], Cheng-Chia Lee[1], Ya-Chung Tian[1], Ji-Tseng Fang[1], Yung-Chang Chen[1], Chih-Hsiang Chang[1].
塗貽然 [1], 范珮宜 [1,2], 李承家 [1], 田亞中 [1], 方基存 [1], 陳永昌 [1], 張智翔 [1]
[1]Kidney Research Center, Department of Nephrology, Chang Gung Memorial Hospital, Taoyuan, Taiwan, [2]Department of Nephrology, New Taipei Municipal TuChen Hospital, New Taipei City, Taiwan
[1] 林口長庚醫院腎臟科, [2] 新北市立土城醫院腎臟科

C010 Outcomes associated with immune checkpoint inhibitors related adverse kidney events: a systemic review and meta-ajnalysis

免疫檢查點抑制劑引起之腎臟不良事件的預後：系統性文獻回顧與統合分析

Ching-Chun Su[1], Tzu-Hsuan Yeh[1], Chiu-Ying Hsiao[1], Min-Hsiang Chuang[1], Wei-Chih, Kan[1], Hsien-Yi Wang[1], Jui-Yi Chen[1]

蘇靜君[1], 葉子瑄[1], 蕭秋穎[1], 莊閔翔[1], 甘偉志[1], 王憲奕[1], 陳銳溢[1]

[1]Division of Nephrology, Department of Internal Medicine, Chi-Mei Medical Center, Tainan, Taiwan

[1]奇美醫院內科部腎臟科

C011 Impact of Pre-discharge Acute Kidney Disease Recovery Status on One-Year Post Discharge Recurrent Acute Kidney Disease Occurrence

探討出院前急性腎疾病之恢復狀態對於出院後一年內再次發生住院中急性腎疾病之影響

Chia-Chun Lee[1], Kuan-Hung Liu[1], Wei-Ren Lin[1], Jo-Yen Chao[1], Chien-Tzu Tseng[1], Wei-Hung Lin[1], Te-Hui Kuo[1], Yu-tzu Chang[1], An-Bang Wu[1], Chih-Cheng Hsieh[2], Ming-Cheng Wang[1], Junne-Ming Sung[1], Chin-Chung Tseng[1]*

李佳駿[1], 劉冠宏[1], 林威任[1], 趙若雁[1], 曾千慈[1], 林威宏[1], 郭德輝[1], 張育誌[1], 吳安邦[1], 謝志成[2], 王明誠[1],宋俊明[1], 曾進忠[1]*

Division of Nephrology[1] and Division of Critical Care medicine[2], National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University

成功大學醫學院附設醫院內科部腎臟科[1], 內科部重症加護科[2]

C012 Renal Events and Mortality in Lung Cancer Patients: A Cohort Study from Southern Taiwan with 4,081 Participants

肺癌患者的腎損傷及死亡率：來自臺灣南部 4,081 名參與者的世代研究

Feng-Ching Shen[1,2], Chung-Ting Cheng[1,2], Lu-Heng Lu[1,2], I-Ching Kuo[1,2,3], Sheng-Wen Niu[1,2,3], Hugo Y. -H. Lin[1,2,3], Szu-Chia Chen[1,2,4], Chi-Chih Hung[1,2], Jen-Yu Hung[2,5], Yi-Wen Chiu[1,2], Jer-Ming Chang[1,2]*, Shang-Jyh Hwang[1,2]

沈峯慶[1,2] 鄭仲廷[1,2] 盧律衡[1,2] 郭宜瑾[1,2,3] 鈕聖文[1,2,3] 林祐賢[1,2,3] 陳思嘉[1,2,4] 洪啟智[1,2] 洪仁宇[2,5] 邱怡文[1,2] 張哲銘[1,2]* 黃尚志[1,2]

[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University [2] Department of Medicine, College of Medicine, Kaohsiung Medical University [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

C013 The impact of acute kidney injury with or without recovery on long-term kidney outcome in patients undergoing living liver transplantation

急性腎損傷恢復與否對活體肝移植患者腎臟的長期影響

Yi-Jung Chen[1], Ping-Fang Chiu[1,2], Pei-Ru Lin[3], Chun-Chieh Tsai[1], Yao-Peng Hsieh[1,2]

陳奕融[1], 邱炳芳[1,2], 林姵如[3], 蔡俊傑[1], 謝堯棚[1,2]

[1] Division of Nephrology, Department of Internal Medicine, Changhua Christian Hospital

[2] Department of Post Baccalaureate Medicine, National Chung Hsing University

[3] Big Data Center, Changhua Christian Hospital

[1] 彰基腎臟科, [2] 中興大學學士後醫學系, [3] 彰基大數據中心

C014 Association of Targeted Therapy with Renal Outcomes and Mortality: A Cohort Study in Lung Cancer Patients from a Southern Taiwanese Medical Center
肺癌病人接受標靶治療與腎損傷及死亡的關聯性：來自台灣南部醫學中心的世代研究
Chung-Ting Cheng[1,2], Feng-Ching Shen[1,2], Lu-Heng Lu[1,2], I-Ching Kuo[1,2,3], Sheng-Wen Niu[1,2,3], Hugo Y. -H. Lin[1,2,3], Szu-Chia Chen[1,2,4], Chi-Chih Hung[1,2], Jen-Yu Hung[2,5], Yi-Wen Chiu[1,2], Jer-Ming Chang[1,2*], Shang-Jyh Hwang[1,2]
鄭仲廷[1,2], 沈峯慶[1,2], 盧律衡[1,2], 郭宜瑾[1,2,3], 鈕聖文[1,2,3], 林祐賢[1,2,3], 陳思嘉[1,2,4], 洪啟智[1,2], 洪仁宇[2,5], 邱怡文[1,2], 張哲銘[1,2*], 黃尚志[1,2]
[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [2] Department of Medicine, College of Medicine, Kaohsiung Medical University, [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

C015 Association of Immunotherapy with Renal Outcomes and Mortality: A Cohort Study in Lung Cancer Patients from a Southern Taiwanese Medical Center
肺癌病人接受免疫治療與腎損傷及死亡的關聯性：來自台灣南部醫學中心的世代研究
Lu-Heng Lu[1,2], Chung-Ting Cheng[1,2], Feng-Ching Shen[1,2], I-Ching Kuo[1,2,3], Sheng-Wen Niu[1,2,3], Hugo Y. -H. Lin[1,2,3], Szu-Chia Chen[1,2,4], Chi-Chih Hung[1,2], Jen-Yu Hung[2,5], Yi-Wen Chiu[1,2], Jer-Ming Chang[1,2*], Shang-Jyh Hwang[1,2]
盧律衡[1,2], 鄭仲廷[1,2], 沈峯慶[1,2], 郭宜瑾[1,2,3],鈕聖文[1,2,3], 林祐賢[1,2,3], 陳思嘉[1,2,4], 洪啟智[1,2], 洪仁宇[2,5], 邱怡文[1,2], 張哲銘[1,2*], 黃尚志[1,2]
[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [2] Department of Medicine, College of Medicine, Kaohsiung Medical University, [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

C016 Machine learning algorithm for early prediction of liberation from dialysis in critically ill adults with acute kidney injury
以機器學習早期預測重症急性腎損傷需透析治療患者之腎功能恢復
Tsai-Jung Wang[1,2], Chun-Te Huang[1], Cheng-Hsu Chen[1]
王彩融[1,2], 黃俊德[1], 陳呈旭[1]
[1]Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital, [2]Department of Critical Care Medicine, Taichung Veterans General Hospital
[1] 台中榮總腎臟內科, [2] 台中榮總重症醫學部

C017 The impact of higher protein provision on continuous kidney replacement therapy
Keonhwa Kim[1], Da Seul Huh[1], Young Youl Hyun[1], Kyu-Beck Lee[1], Hyang Kim[1], Jihyun Yang[1]
[1] Division of Nephrology, Department of Internal Medicine, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine

Glomerular Diseases

C018-C021 Chair(s)：黃道民/ Tao-Min Huang、張智翔/ Chih-Hsiang Chang

C018 Serum IgA/C3 Ratio Predict Progression of IgA Nephropathy: A Retrospective Study
血清 IgA/C3 比率預測 IgA 腎病變進展 : 回溯型研究
Shiao-Yu Chen[1], Shang-Feng Tsai[1,2,3], Ming-Ju Wu[1,3], Cheng-Hsu Chen[1,2,3,4], Tong-Min Yu[1,4], Ya-Wen Chuang[1,3], Hsien-Fu Chiu[1], Ya-Chin Huang[1]
陳筱郁[1],蔡尚峰[1,2,3],吳明儒[1,3],陳呈旭[1,2,3,4],游棟閔[1,4],莊雅雯[1,3],邱顯富[1],黃雅琴[1]
[1]Division of Nephrology, Taichung Veterans General Hospital, [2]Department of Life Science, Tunghai University, [3]Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, [4]School of Medicine, China Medical University, Taichung, Taiwan
台中榮總腎臟科[1], 東海大學生命科學[2], 中興大學學士後西醫[3], 中國醫藥大學醫學[4]

C019 The Impact of Mesangial Matrix Deposition on Renal Outcomes in Taiwanese IgA Nephropathy Patients
病理基質沉積對台灣 IgA 腎病患者的腎臟預後影響
Jia-Wei Hsu[1], Cheng-Hsu Chen[1,2,3,4]
許家瑋[1], 陳呈旭[1,2,3,4]
[1.]Division of Nephrology, Taichung Veterans General Hospital, [2.]Department of Life Science, Tunghai University, [3.]Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, [4.]School of Medicine, China Medical University, Taichung, Taiwan
[1]台中榮總腎臟科 [2]東海大學生命科學 [3]中興大學學士後醫學院 [4]中國醫藥大學醫學院

C020 Integrative Analysis of mRNA and miRNA Expression in patients with IgA nephropathy
IgA 腎病之 mRNA 與 MiRNA 定序分析
Hsin-Tien Hou[1], Yu-Juei Hsu[1], Shun-Neng Hsu[1], Shih-Hua Lin[1], Chih-Chien Sung[1]
侯心田[1], 許育瑞[1], 許順能[1], 林石化[1], 宋志建[1]
[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[1] 三軍總醫院內科部腎臟內科, 國防醫學院

C021 EXT1/EXT2 and NCAM-1 expression in Taiwan patients with lupus membranous nephropathy
本土第五型狼瘡性腎炎患者其 EXT1/EXT2 及 NCAM-1 抗原表現
Kun-Hua Tu[1,3], Tsai-Yi Wu[3], Cheng-Lung Ku[3], Ji-Tseng Fang[1], Chi-Wei Yang[1], Tai-Di Chen[2]
塗昆樺, 吳采蕙, 顧正崙, 方基存, 楊智偉, 陳泰迪
[1]Department of Nephrology, [2]Department of Pathology, Chang-Gung Memorial Hospital, [3]Graduate Institute of Clinical Medical Sciences, Chang Gung University, Taoyuan, Taiwan.
[1]林口長庚腎臟科系, [2]林口長庚病理科, [3]長庚大學臨床醫學研究所

Chronic Kidney Disease

C022-C024 Chair(s)：黃道民/ Tao-Min Huang、張智翔/ Chih-Hsiang Chang

C022 Association between Trimethylamine N-oxide and adverse kidney outcomes and all-cause mortality in type 2 diabetes mellitus
第二型糖尿病患者血清氧化三甲胺與腎臟預後及死亡率的關聯性
Ping-Shaou Yu[1,2,3], Ping-Hsun Wu[1,3], Ming-Yen Lin[1], Shang-Jyh Hwang[1,3*], Yi-Chun Tsai[1,3,4*]
余品劭[1], 吳秉勳[1,3], 林明彥[1], 黃尚志[1,3], 蔡宜純[1,3,4]
[1.] Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
[2.] Department of Internal Medicine, Kaohsiung Municipal Ci-jin Hospital, Kaohsiung, Taiwan
[3.] Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University
[4.] Department of Internal Medicine, Division of General Medicine, Kaohsiung Medical University, Kaohsiung Medical University Hospital, Kaohsiung 807, Taiwan.
[1]高雄醫學大學附設中和紀念醫院腎臟內科 [2]高雄市立旗津醫院內科部
[3]高雄醫學大學醫學研究所 [4]高雄醫學大學附設中和紀念醫院一般醫學內科

C023 Current Status of Diabetes and Early Stage Chronic Kidney Disease Care Integration and Implementation
糖尿病及初期慢性腎臟病照護整合方案概況分析
Shu-Li Wang[1], Tzu-Hui Chen[1], Lan-Fang Kung[1], Pei-Ni Hsiao[1], Shih-Ming Hsiao[1], Yi-Wen Chiu[2]
王淑麗, 陳慈徽, 龔蘭芳, 蕭佩妮, 蕭仕敏, 邱怡文
[1]Department of Nursing, [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1]高雄醫學大學附設中和紀念醫院護理部 [2]高雄醫學大學附設中和紀念醫院腎臟內科

C024 Novel Equations Incorporating the Sarcopenia Index Based on Serum Creatinine and Cystatin C Levels to Predict Appendicular Skeletal Muscle Mass in Patients with Nondialysis Chronic Kidney Disease

納入以血清 Creatinine 及 Cystatin C 為基礎的肌少症指標來建立非透析慢性腎臟病患四肢骨骼肌質量的預測公式

Bang-Gee Hsu[1,2], Chih-Hsien Wang[1,2], Yu-Hsien Lai[1,2], Chiu-Huang Kuo[1,3], Yu-Li Lin[1,2]
徐邦治[1,2], 王智賢[1,2], 賴宇軒[1,2], 郭秋煌[1,3], 林于立[1,2]
[1] Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan.
[2] School of Medicine, Tzu Chi University, Hualien, Taiwan.
[3] School of Post-baccalaureate Chinese Medicine, Tzu Chi University, Hualien, Taiwan.
[1] 佛教慈濟醫療財團法人花蓮慈濟醫院腎臟科 [2] 慈濟大學醫學系
[3] 慈濟大學學士後中醫學系

C025-C048 Chair(s)：孫樵隱/ Chiao-Yin Sun、曾偉誠/ Wei-Cheng Tseng

C025 Investigation on the current situation of establishing vascular access before dialysis in patients with end-stage renal disease－A Survey from a Medical Center in Southern Taiwan

末期腎臟病患透析前血管通路建立現況調查-以南部某醫學中心為例

Lan-Fang Kung[1], Tzu-Hui Chen[1], Shu-Li Wang[1], Shih-Ming Hsiao[1], Pei-Ni Hsiao[1], Yu-Ying Huang[1], Mei-Chuan Kuo[2]
龔蘭芳[1], 陳慈徽[1], 王淑麗[1], 蕭仕敏[1], 蕭佩妮[1], 黃玉瑩[1], 郭美娟[2]
[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University, Kaohsiung Medical University Hospital
[1] 高雄醫學大學附設醫院護理部, [2] 腎臟內科

C026 Pre-end-stage kidney disease multidisciplinary health education programs improve comprehension about information of living donor kidney transplants: a single medical center experience

運用多元化的末期腎臟疾病前期之健康教育計畫，提升對活體腎臟移植資訊的理解力：單一醫學中心經驗

Hsin-Yi Lai[1], Yung-Ni Lee[1], Hsin-I Huang[1], Tsung-Lin Wu[1], Tung-Yun Tai[1], Yu-Min Hsiung[1], Tai-shuan Lai[1]
[1] 賴心怡, [1] 李咏倪, [1] 黃心怡, [1] 吳宗琳, [1] 戴彤芸, [1] 熊育敏, [1] 賴台軒
[1]Department of Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taiwan
[1] 國立臺灣大學醫學院附設醫院內科部

C027 Effects of multidisciplinary care on the clinical outcomes of patients with chronic kidney disease

多專科照護對慢性腎臟病人臨床照護結果之影響

邱美玲[1], 洪國欽[2]
[1] 敏盛綜合醫院 血液透析室, [2] 敏盛綜合醫院 腎臟內科

C028 互動式創新教學運用於末期腎臟病治療選擇之衛教成效

高銀璞[1], 張鈺璽[1]
台北市立萬芳醫院 [1] 醫務部醫事個管組

C029 Analysis of the impact of COVID-19 on chronic kidney disease

分析新冠肺炎對慢性腎臟病的影響

Chi-Ling Hsu, Ching-Tan Cheng. Yueh-Ting Lee, Shang-Chin Liao, Chien-Te Lee
許琪聆, 鄭晶丹, 李岳庭, 廖上智, 李建德
Kaohsiung Municipal Feng Shan Hospital - Under the management of Chang Gung Medical Foundation
高雄市立鳳山醫院(委託長庚醫療財團法人經營)

C030 Interdisciplinary care program reduces the incidence of dialysis in CKD stage 5 patients

Ya-Lin Huang[1], Shih-Yuan Hung[1], Yi-Che Lee[1], Hsi-Hao Wang[1], Li-Chun Ho[1], Po-Jui Chi[2], Ching-Yang Chen[1], Yahn-Bor Chen[1], Ching-Fang Wu[3], Min-Yu Chang[1]
[1]Division of Nephrology, E-Da Hospital / I-Shou University
[2]Division of Nephrology, E-Da Dachang Hospital / I-Shou University
[3]Division of Nephrology, E-Da Cancer Hospital / I-Shou University

C031 Exploring the Current Status of Preparing Vascular Access in Hemodialysis Patients
探討血液透析病人預先建立血管通路之現況
Li-Ching Chiang[1], Chih-Ying Huang[1], Chiao-Chuan Huang[1] , Chun-Chieh Tsai[2], Ping-Feng Chiu[2], Chew-Teng Kor[3]
江麗卿[1], 黃智英[1], 黃巧鵑[1], 蔡俊傑[2], 邱炳芳[2], 許秋婷[3]
[1.]CKD education center, Changhua Christian Hospital, [2.]Division of Nephrology, Changhua Christian Hospital, [3.] Internal Medicine Research Center, Changhua Christian Hospital
[1]彰化基督教醫院慢性腎臟病衛教中心
[2]彰化基督教醫院腎臟內科 3 彰化基督教醫院大數據中心

C032 Case Sharing- Supporting St. Kitts and Nevis, diplomatic allies of Taiwan, in establishing Chronic Kidney Disease Care Project
協助邦交國『聖克里斯多福及尼維斯』建構慢性腎臟病照護計畫經驗分享
王友仁[1], 江玲芳[1], 林秀雯[1], 鄭士妍[2], 戴辛翎[1], 李榮芬[1], 曾偉誠[3], 林志慶[3]
[1]臺北榮民總醫院護理部 [2]輔仁大學醫學院護理系 [3]臺北榮民總醫院腎臟科

C033 A Woman with Chronic Kidney Disease Presenting Abdominal Pain
一位慢性腎臟病女性以腹痛做為表現
Yeh-Chen[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Huai-Hsuan Chang[1], Wei-Hung Lin[2]
陳燁[1], 邱郁雯[1], 林怡秀[1], 張懷萱[1], 林威宏[2]
Nursing Department1, Division of Nephrology2 National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

C034 Decrease serum decorin level associated with aortic stiffness in patients with non-dialysis advanced chronic kidney disease stage 4 to 5
低的血清核心蛋白聚醣濃度跟非透析第四期到第五期慢性腎臟病患者中樞動脈硬度有關
Ho-Hsiang Chang[1], Chi-Chong Tang[1], Hung-Hsiang Liou[3], Bang-Gee Hsu[1, 2]
張賀翔[1], 鄧子聰[1], 劉宏祥[3], 徐邦治[1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1]花蓮佛教慈濟醫院腎臟內科,[2]花蓮慈濟大學醫學系,[3]新北市新仁醫院

C035 New Development Hemodialysis Versus Peritoneal Dialysis Modality Selection and Care Differences
新開發的透析模式選擇工具與護理成效差異比較
YR He[1], YC Hsu[2], YS Wei[3], JE Tsai[4], LJ Wu[5], HL Tai[6*]
何侑蓉[1], 徐筠真[2], 魏毓萱[3], 蔡嘉恩[4], 吳婈嘉[5], 戴辛翎[6*]
[1,2,3,4,5,6] Department of Nursing, National Taipei University of Nursing and Health,
[6] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5,6]國立台北護理健康大學護理系, [6]臺北榮總護理部

C036 The Impact of Mix Mode of Learning in Dietetian Intership in The Nutrition and Chronic Kidney Disease Workship
以混合式教學指導實習生舉辦慢性腎臟病工作坊之學習成效
賴柏宏[1],侯玟伊[2],黃瑞芳[3]
[1.2]天主教中華聖母修女會醫療財團法人天主教聖馬爾定醫院營養室,[3]天主教中華聖母修女會醫療財團法人天主教聖馬爾定醫院教研部

C037 Result of Information System Optimization in Renal Biopsy SDM-Experience in a Medical Center in Southern Taiwan
優化資訊系統應用於腎臟切片檢查 SDM 推動成效-以南部某醫學中心為例
Yu-Chen Kuo, Sheng-Ju Chiang, Shiu-feng Liu, Mei-Hong Chen, Wang-Ju Yang, An-Bang Wu
郭育甄[1], 姜昇如[1], 劉秀鳳[1], 陳美弘[1], 楊琬如[1], 吳安邦[2]
[1] Department of Nursing, National Cheng Kung University Hospital, Tainan, Taiwan
[2] Division of Nephrology, National Cheng Kung University Hospital, Tainan, Taiwan
[1]國立成功大學醫學院附設醫院護理部, [2]國立成功大學醫學院附設醫院腎臟科

C038 Effectiveness of End-Stage Renal Disease Management in Regional Teaching Hospital
王麗萍[1], 楊靜薇[1], 陳姿樺[1], 黃慧娟[1], 黃筠婷[2], 王弘偉[2], 郭育淇[2]
奇美醫療財團法人佳里奇美醫院[1]護理部,[2]腎臟科

C039 Proton pump inhibitor use and association with the AKI of chronic kidney disease
Chien-huei Huang[1], Chih-Jung Tsai[2], Chien-Chou Su[3], Chi-Tai Yen[4], Ju-Ling Chen[12], Ching-Lan Cheng[12]
[1]Department of Pharmacy, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan.
[2]School of Pharmacy, Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan.
[3]Clinical Innovation and Research Center, College of Medicine, National Cheng Kung University Hospital,
[4]Department of Nephrology, Ministry of Health and Welfare, Tainan Hospital, Tainan, Taiwan

C040 Renal Outcomes of Combination Therapy with Sodium-glucose Cotransporter 2 Inhibitors and Renin-Angiotensin System Blockers in Patients with Type 2 Diabetes Mellitus
在第二型糖尿病患者中，鈉葡萄糖共同輸送器 2 抑制劑與腎素-血管收縮素系統阻滯劑的聯合治療對腎臟結果的影響
Ying-chun Lee[1], Ming-Hsien Tsai[1], Yu-Wei Fang[2]
李迎春[1], 蔡明憲[1], 方昱偉[2]
[1]Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan, [1,2]Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan
[1]新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科, [1,2]新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科

C041 The Efficacy of Using Music Therapy to Improve Anxiety in Renal Biopsy Patients
透過音樂治療改善腎臟切片病人焦慮之成效
Wang, H. H.[1], Sun, W. N.[2]
王惠新[1], 孫婉娜[2]
[1]NCKUH, [2]NCKUH
[1]國立成功大學醫學院附設醫院, [2]國立成功大學醫學院附設醫院

C042 Effects of the Foot Comfort Care on Sleep in Patients with End-stage Renal Disease
探討足部舒適護理於末期腎臟疾病病人睡眠之影響成效
Shu-Hua Pan[1,3], Chih-Chien Sung[2], Hsiang-Yun Lan[3]
潘淑華[1,3*], 宋志建[2], 藍湘勻[3]
[1]Department of Nursing, Tri-Service General Hospital Keelung Branch, [2]Division of Nephrology, Tri-Service General Hospital, [3]School of Nursing, National Defense Medical Center
[1]三軍總醫院基隆分院護理部, [2]三軍總醫院腎臟內科, [3]國防醫學院護理研究所

C043 A Project to Promote the Urea Reduction Ratio in Hemodialysis Patients
提升血液透析病人尿素氮清除率專案
Hsiang-Hui Chiu[134], Ling-Fu Huang[23], Tzu-Ting Lin[13], Han-Wen Yang[13], Chin-Feng Lu[13], Pu-Hung Hsiao[13]
邱湘惠[124], 黃鈴富[34], 林姿廷[24], 楊涵雯[24], 呂金鳳[24], 陳季筠[24], 蕭普鴻[24]
[1.]Chang Gung University of Science and Technology, [2.]Department of Nursing, [3.]Department of Nephrology, [4.]Tainan Municipal Hospital
[1]長庚科技大學(嘉義分部)[2]護理部[3]腎臟科 [4]台南市立醫院

C044 Factors Associated with Faster residual Renal Function decline in pre-ESRD patiens
探討影響末期腎臟病前期之病人殘餘腎功能較快速惡化的因子
Yi-Ling Chang[1], Yun-Ting Huang[2], Hui-Hsuan Huang[1], Hsien-Yi Wang[2], Wei-Chih Kan[2] Chih-Chiang Chien[2], Chia-Chun Wu[2], Ming-Yen Jiang[2], Jui-Yi Chen[2], I-Ning Yang[2], Jyh-Chang Huang[2]
張意鈴[1],黃筠婷[2],黃惠暄[1],王憲奕[2],甘偉志[2],簡志強[2],吳佳純[2],江銘彥[2],陳銳溢[2],楊翼寧[2], 黃志強[2]
Division of Nursing, Chi Mei Medical Center, Tainan, Taiwan[1]
Division of Nephrology, Chi Mei Medical Center, Tainan, Taiwan[2]
奇美醫療財團法人奇美醫院護理部[1] 腎臟科[2]

C045 A Pharmacokinetic Study of Polymyxin B in Healthy Subjects and Subjects with Renal Insufficiency
健康受試者和腎功能不全受試者的多黏菌素 B 藥物動力學研究
Hsin Ming-Hsien Tsai, Yu-Wei Fang
蔡明憲, 方昱偉
Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan,
新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科

C046 Plasma selenium and zinc could reverse kidney damage from nephrotoxic metals in chronic kidney disease
血中硒和鋅能逆轉慢性腎臟病人因腎毒性金屬所導致之腎損傷
Cheng-Jui Lin[1,2,3], Tzu-Ying Chen[1], Hong-Mou Shih[1], Pei-Chen Wu[1], Chi-Feng Pan[1], and Chih-Jen Wu[1,2]
林承叡[1,2,3], 陳姿穎[1], 施宏謀[1], 吳培甄[1], 潘吉豐[1], 吳志仁[1,2]
[1]Division of Nephrology, Department of Internal Medicine, MacKay Memorial Hospital, Taipei, Taiwan.
[2]Department of Medicine, Mackay Medical College, New Taipei, Taiwan.
[3]Mackay Junior College of Medicine, Nursing and Management, Taipei, Taiwan
馬偕紀念醫院 腎臟內科[1], 馬偕護理專科學校[2], 馬偕醫學院 醫學系[3]

C047 Optimal assessment of osteoporosis using dual-energy X-ray absorptiometry in patients with kidney disease
運用雙能量 X 光骨質密度吸收測量儀對腎病患者進行骨質疏鬆症的最佳評估
Chung Ting Cheng[1,2,3], Po-Chih Shen[1,4,5], Ping-Hsun Wu[1,2,3,5]
Kaohsiung Medical University Chung-Ho Memorial Hospital [1]Department of Internal Medicine [2]Division of nephrology [3]Department of orthopaedics [4]Kaohsiung Medical University School of Medicine[5]

C048 Enhancing the implementation rate of health education for chronic kidney disease through intelligent care systems
透過智能照護系統提升慢性腎臟病衛教執行率
王曉菁[1], 張鈺鏸[1], 高銀璞[1]
萬芳醫院醫務部醫事組[1]

C049-C069 Chair(s)：林承叡/ Cheng-Jui Lin、李玟儀/ Wen-Yi Li

C049 Advancing a Public Welfare Initiative Integrating Chronic Kidney Disease Education, Home Dialysis, and Telemedicine for Comprehensive Care of Rural Kidney Patients
推動一個結合慢性腎病衛教、居家透析及遠距醫療的公益計畫以完整照護偏鄉腎友
Chien-Hsiu Liu, Ya-Pei Yu, Ching-I Yu, Chian-Hua Chiou, Ben-Chung Cheng, Terry Ting-Yu Chiou, Wen-Chin Lee
劉建秀、游雅珮、俞靜儀、邱千華、鄭本忠、邱鼎育、李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院 腎臟科

C050 Sudoscan Evaluation in Chronic Kidney Disease Patients

慢性腎臟病患者的催汗試驗評估

Liang-Te Chiu[1], Yu-Li Lin[2,3], Chih-Hsien Wang[2,3], Chii-Min Hwu[4], Hung-Hsiang Liou[5*], and Bang-Gee Hsu[2,3*]

裘亮德[1], 林于立[2,3], 王智賢[2,3], 胡啟民[4], 劉宏祥[5*], 徐邦治[2,3*]

[1]Division of Nephrology, Department of Internal Medicine, Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Chiayi, Taiwan

[2]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan

[3]School of Medicine, Tzu Chi University, Hualien, Taiwan

[4]Section of Endocrinology and Metabolism, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

[5]Division of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan

[1]佛教慈濟醫療財團法人大林慈濟醫院暨腎臟內科, [2]佛教慈濟醫療財團法人花蓮慈濟醫院暨腎臟內科, [3]慈濟大學醫學系, [4]臺北榮民總醫院內分泌暨新陳代謝科, [5]新莊新仁醫院腎臟內科

C051 The protective effect of sacubitril/valsartan on ischemic stroke in early chronic kidney disease and normal renal function patient

血管張力素受體-腦啡肽酶抑制劑在初期慢性腎臟病患者及正常腎功能病人中的中風保護效果

陳逸安[1,4], 歐朔銘[1,2,3#], 林志慶[1,2], 唐德成[1,2]

Yee-An Chen[1,4], Shuo-Ming Ou[1,2,3#], Chih-Ching Lin[1,2], Der-Cherng Tarng[1,2]

[1.]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

[2.]School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan

[3.]Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan

[4.]School of Medicine, MacKay Medical College, Taipei, Taiwan

# These authors were co-corresponding authors.

[1]臺北榮民總醫院腎臟科, [2]陽明交通大學, [3]陽明交大臨床醫學研究所, [4]馬偕醫學院

C052 Exploring the differences in health literacy among chronic kidney disease patients with different decision-making role preferences

探討慢性腎臟病病人不同決策角色偏好之健康識能差異

Pei-Ni Hsiao[1], Shih-Ming Hsiao[1], Mei-Chuan Kuo[2], Shang-Jyh Hwang[2], Yi-Wen Chiu[2], Chia-Lun Lee[1]

蕭佩妮[1], 蕭仕敏[1], 郭美娟[3], 黃尚志[3], 邱怡文[3], 李佳倫[1]

[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1]高雄醫學大學附設中和紀念醫院護理部 [2]高雄醫學大學附設中和紀念醫院腎臟內科

C053 Evaluating the effectiveness of pre-ESRD care and education program for patients with advanced CKD

提升末期腎臟病前期個案照護與衛教計畫成效探討

Ling Juang, Fang Lieng Yeh, Ya Ling Chen

姜菱, 葉芳伶, 陳雅玲

Tri-Service General Hospital Nephrology

三軍總醫院腎臟科

C054 The Correlation between Polypharmacy and Anxiety in Advanced Chronic Kidney Disease.

慢性腎衰竭病人進入透析前多重用藥及其焦慮程度之相關性

Yuh-Ru Liu[1], Li-Ju Chang[1], Tzu-Chen Lin[2], Cheng-Lun Chiang[1], Chih-Yen Hsiao[1], Chin-Ya Su[1]

劉育如[1], 張莉茹[1], 林慈珍[2], 江政倫[1], 蕭志彥[1], 蘇勤雅[1]

[1] Department of Nephrology, [2] Nurse Practitioner, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan

戴德森醫療財團法人嘉義基督教醫院 腎臟科[1], 內科專師組[2]

C055 Exploring illness perception in patients with advanced chronic kidney disease
探討晚期慢性腎臟病人之疾病感知
Shih-Ming Hsiao[1], Pei-Ni Hsiao [1], Mei-Chuan Kuo[2], Tzu-Hui Chen[1], Shu-Li Wang[1],Lan-Fang Kung[1], Yu-Ying Huang[1], Shang-Jyh Hwang [2], Chia-Lun Lee [1*]
蕭仕敏 [1], 蕭佩妮 [1], 郭美娟 [2], 陳慈徽 [1], 王淑麗 [1], 龔蘭芳 [1], 黃玉瑩 [1], 黃尚志 [2], 李佳倫 [1*]
[1]Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University; [2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科

C056 INSIDE CKD: Projecting the Burden of Chronic Kidney Disease in Taiwan between 2022 and 2027
I-Wen Wu[1], Mei-Yi Wu[1], Salvatore Barone[2], Claudia Cabrera[3], Juan Jose Garcia Sanchez[4], Lise Retat[5], Markiyan Mitchyn[5], Mai-Szu Wu[1]
[1] Division of Nephrology, Department of Internal Medicine, Shuang Ho Hospital, Taipei Medical University, Taiwan. [2] Global Medical Affairs, AstraZeneca, Gaithersburg, MD, USA. [3] Global Medical Affairs, AstraZeneca, Gothenburg, Sweden. [4] Health Economic and Payer Evidence, AstraZeneca, Cambridge, UK. [5] HealthLumen Limited, London, UK

C057 Association of non-alcoholic fatty liver disease and liver fibrosis with kidney disease risk
Ming-Yan Jiang [1], Yun-Ting Huang [1], I-Ning Yang [1], Jui-Yi Chen [1], Chih-Chiang Chien [1], Wei-Chih Kan [1], Jyh-Chang Hwang [1], Hsien-Yi Wang [1]
[1] Renal Division, Department of Internal Medicine, Chi Mei Medical Center

C058 Implementing Share Decision Making Program to Reduce Emergent Dialysis with Temporary Catheter：Based on a Medical Center in Northern Taiwan
運用醫病共享決策降低末期腎臟病患暫時性透析導管使用率：以北部某醫學中心為例
Hsin-I Huang[1], Yung-Ni Lee[1], Hsin-Yi Lai[1], Tsung-Lin Wu[1], Yu-Min Hsiung[1], Tung-Yun Tai[1], Tai-Shuan Lai[1]
黃心怡 [1], 李咏倪 [1], 賴心怡 [1], 吳宗琳 [1], 熊育敏 [1], 戴彤芸 [1], 賴台軒 [1]
[1]Department of Internal Medicine, National Taiwan University Hospital, Taiwan
[1] 國立臺灣大學醫學院附設醫院內科部

C059 Promote the full launch of the "Kidney Protection Strategy"
推動『護腎攻略』 全面啟動
Mei-ER Hsu[1], Yi-Hsuan Tsai[2], Pei-Yu Huang[3], Tzu-Fei Chen[4], Pi-Jung Chen[5], Sheng-Wen Niu[6]
徐美娥 [1], 蔡怡萱 [2], 黃沛妤 [3], 陳姿妃 [4], 陳碧蓉 [5], 鈕聖文 [6]
[1,2,3,4,5]Nursing Department, [6] Department of Nephrology, Kaohsiung Municipal Ta-Tung Hospital
高雄市立大同醫院(委託財團法人高雄醫學大學經營)[1,2,3,4,5] 護理部, [6] 腎臟內科

C060 Removing uremic toxin by oral absorbent with pH-controlled releasing capsule may help improving renal function
Tien-Tien Cheng[1*], Han-Hsing Tsou[1*], Hsiang-Tsui Wang[2†], Wen-Sheng Liu [1, 3†]
[1]Institute of Food Safety and Health Risk Assessment, National Yang Ming Chiao Tung University
[2]Institute of Pharmacology, College of Medicine, National Yang Ming Chiao Tung University
[3]Nephrology, Zhongxing Branch, Taipei City Hospital
Note: [*]Tien-Tien Cheng and Han-Hsing Tsou have equal contributions to this article.
†Authors to whom correspondence should be addressed

C061 Analysis of Shared Decision-Making in the Choice of Treatment Modalities for End-Stage Renal Disease Patients
醫病共享決策對於末期腎病變病人選擇治療模式之分析
柯素惠 [1], 高惠雯 [1], 林淑愛 [1], 陳佩盈 [1], 陳麗娟 [1], 郭美祺 [1], 蕭惠萍 [1], 張伊菁 [1], 戴辛翎 [1], 田久芸 [1], 李榮芬 [1], 施瓊玉 [1], 吳美珠 [1], 黎思源 [2], 林志慶 [2]
[1.] 護理部 臺北榮民總醫院 [2.] 腎臟科 內科部 臺北榮民總醫院

C062 Lacto-ovo vegetarian diet mitigated the risk of chronic kidney disease in overweight individuals
奶蛋素可減少過重個案罹患慢性腎病之風險
Yi-Chou Hou[1], Jia-Sin Liu[2], Kuo-Cheng Lu[2], Ko-Lin Kuo[2,3]
侯羿州[1]、劉佳鑫[2]、盧國城[2]、郭克林[2,3]
[1]Department of Internal Medicine, Cardinal Tien Hospital, New Taipei City, Taiwan.
[2]Division of Nephrology, Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, New Taipei city, Taiwan
[3]School of Post-Baccalaureate Chinese Medicine, Tzu Chi University, Hualien, Taiwan.
[1.]天主教新店耕莘醫院腎臟科 [2.]台北慈濟醫院腎臟科 [3.]慈濟大學後中醫系

C063 Real-World Insights: Metformin Link to Lower End-stage Renal Disease Risk in ADPKD Cases
IC Kuo[1,2], MY Lin[3], YS Tsau[4], JJ Lee[1,3], YW Chiu[1,3]
郭宜瑾[1,2], 林明彥[3], 曹宇翔[4], 李佳蓉[1,3], 邱怡文[1,3]
[1] Kaohsiung Medical University, [2] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [3] Division of Nephrology, Kaohsiung Medical University Hospital, [4] Department of Medical Research, Kaohsiung Medical University Hospital
[1]高雄醫學大學, [2]高雄市立大同醫院內科, [3] 高雄醫學大學附設中和紀念醫院腎臟內科, [4]高雄醫學大學附設中和紀念醫院醫學臨床醫學研究部

C064 Predicting hyperkalemia in patients with advanced chronic kidney disease using the XGBoost model
XGBoost model 對慢性腎臟病患者之高血鉀預測率
Han-Hui Liu[1], Hsin-Hsiung Chang[2,3], Jung-Hsien Chiang[2], Chun-Chieh Tsai[1], Ping-Fang Chiu[1,4]
劉瀚徽[1], 張信雄[2,3], 蔣榮先[2], 蔡俊傑[1], 邱炳芳[1,4]
[1] Division of Nephrology, Department of Internal Medicine, Changhua Christian Hospital
[2] Department of Computer Science and Information Engineering, National Cheng Kung University
[3] Division of Nephrology, Department of Internal Medicine, Antai Medical Care Corporation Antai Tian-Sheng Memorial Hospital
[4] Department of Post Baccalaureate, College of Medicine, National Chung Hsing University
[1]彰基腎臟科, [2]成功大學資訊工程系, [3]安泰醫院腎臟科, [4]中興大學學士後醫學系

C065 Early intervention of kidney health education improves the health literacyin general pupulations
早期腎臟保健衛教介入改善一般民眾的健康識能
Shu-Er Hsueh, Ya-Pei Yu, Hsin-Yi Lin, Yu-Chuan Hsiao, Dian-Shou Chuang, Lung-Chih Li, Wen-Chin Lee
薛淑娥、游雅珮、林欣怡、蕭妤娟、莊滇收、李隆志、李文欽
CKD Education Room, Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital
高雄長庚紀念醫院內科部腎臟科慢性腎病衛教室

C066 Efficacy and safety of initiating SGLT2 inhibitor treatment in CKD stage 4-5 patients in a propensity score-matched cohort
起始 SGLT2 抑制劑治療於腎臟病第 4-5 期的效益與安全性,一個傾向分數配對世代研究
Chi-Chih Hung[1], Ping-Hsun Wu[2], Mei-Chuan Kuo[3], Yi-Chun Tsai[4], Jer-Ming Chang[5], Yi-Wen Chiu[6], Shang-Jyh Hwang[7] for the DAPA advKD Investigators
洪啟智[1], 吳秉勳[1], 郭美娟[1], 蔡宜純[1], 張哲銘[1], 邱怡文[1], 黃尚志[1] 代表所有研究參與者
[1] Devision of Nephrology, Kaohsiung Medical University
[1] 腎臟內科 高雄醫學大學

C067 Remote Care for Autosomal Dominant Polycystic Kidney Disease (ADPKD) with Tolvaptan
遺傳體顯性多囊腎(ADPKD)使用 Tolvaptan 之遠距照護
Yi-Pei Chen, Pei-Ni Hsiao[1,2], Daw-Yang Hwang[1,3]
陳宜霈[1]、蕭佩妮[1,2]、黃道揚[1,3.]
[1]Department of Nephrology, Kaohsiung Medical University Hospital,[2] Department of Nursing, Kaohsiung Medical University Hospital, [3] National Health Research Institutes
[1]高雄醫學大學附設中和紀念醫院腎臟內科[2]高雄醫學大學附設中和紀念醫院護理部[3]國家衛生研究院

C068 The related risk factors of diabetic nephropathy in patients with type 2 diabetes mellitus
探討第二型糖尿病病人罹患糖尿病腎病變的風險模式
LP HSU[1], PL Tseng[2]
徐禮平[1], 曾芃廉[2]
[1] Division of Nephrology Pingtung Christian Hospital, [2] Nursing Department Ping tung Christian Hospital
[1] 屏東基督教醫院腎臟科, [2] 屏東基督教醫院護理部

C069 High burden of ventricular premature complexes is an independent risk factor of the development of kidney failure in chronic kidney disease patients.
高心室早期收縮負荷是慢性腎臟病病人進展到腎衰竭的風險因子
Chien-Shien Lee [1#], Chih-Hen Yu [2#], Chao-Yu Chen [3], Ting-Chun Huang [3], Mu-Shiang Huang [3], An-Bang Wu [2], Chin-Chung Tseng [2], Junne-Ming Sung [2]
# Lee CS and Yu CH contributed equally to this study
李見賢[1], 余志恆[2], 陳昭佑[3], 黃鼎鈞[3], 黃睦翔[3], 吳安邦[2], 曾進忠[2], 宋俊明[2]
[1] Department of Internal Medicine, Medicine College, National Cheng-Kung University Hospital (NCKUH), [2] Renal Division, Department of Internal Medicine, Medicine College, NCKUH
[3] Cardiovascular Division, Department of Internal Medicine, Medicine College, NCKUH
[1] 成功大學醫學院附設醫院內科部 [2] 成功大學醫學院附設醫院內科部腎臟科
[3] 成功大學醫學院附設醫院內科部心臟血管科

Electrolyte, Acid-Base, and Hypertension

C070-C072 Chair(s)：林承叡/ Cheng-Jui Lin、李玟儀/ Wen-Yi Li

C070 Association between severity of covid-19 infection and ratios of hyponatremia
Covid 病人嚴重度與低血鈉發生率之關係研究
黃紹誠[1], 王玠仁[2], 鍾心珮[2], 林承叡[1,3,4]
馬偕紀念醫院 腎臟內科[1], 馬偕紀念醫院 胸腔內科[2], 馬偕護理專科學校[3], 馬偕醫學院 醫學系[4]

Anemia, CKD-MBD, Nutrition, and Metabolism

C071 Association between Vitamin D Levels and COVID-19 Vaccine Induced Immunogenicity and Breakthrough Infection among Dialysis Patients
探討透析病人維他命 D 濃度與新冠疫苗之免疫原性及突破性感染之相關性
Wan-Chuan Tsai, Mei-Fen Pai, Kuei-Ting Tung, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng
蔡萬全, 白玫芬, 董奎廷, 吳泓彥, 邱彥霖, 楊如燁, 徐愷翔, 徐世平, 彭渝森
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C072 Relationship between Vitamin D Levels and Immune Response of COVID-19 Vaccine and Breakthrough Infection among Health-Care Workers
探討醫護人員維他命 D 水平與新冠疫苗之免疫反應及突破性感染之相關性
Wan-Chuan Tsai, Ju-Yeh Yang, Yen-Ling Chiu, Hon-Yen Wu, Mei-Fen Pai, Kuei-Ting Tung, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng
蔡萬全, 楊如燁, 邱彥霖, 吳泓彥, 白玫芬, 董奎廷, 徐愷翔, 徐世平, 彭渝森
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C073-C087 Chair(s)：吳建興/ Chien-Hsing Wu、郭德輝/ Te-Hui Kuo

C073 Short-Term Effects of Therapeutic Diet on Bone Turnover Markers in Hemodialysis Patients: An Exploratory Analysis of a Randomized Crossover Trial
治療膳食對血液透析病人骨轉換指標的短期影響：隨機交叉試驗的探索性分析
Wan-Chuan Tsai, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Shih-Ping Hsu, Yu-Sen Peng
蔡萬全, 吳泓彥, 邱彥霖, 楊如燁, 徐愷翔, 白玫芬, 董奎廷, 徐世平, 彭渝森
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C074 The Sharing of Nutrition Management Imported Into Taiwan Society Of Nephrology Information Platform In A Teaching Hospital In Southern Taiwan
南部某教學醫院應用「台灣腎臟醫學會腎臟病整合照護平台」管理末期腎臟病前期(Pre-ESRD)病人營養衛教之成效分享
Chen Hsinghui[1], Chen Yu-Hsiu[1], Chen Hui Chen[2]
陳幸慧[1], 陳俞秀[1], 陳惠貞[2]
[1]Department of Food and Dietetics, [2]Department of Nephrology, St. Martin De Porres Hospital
[1]財團法人天主教聖馬爾定醫院營養室, [2]腎臟科

C075 Dietary Nursing Guidance and Its Role in Electrolyte Balance and Quality of Life for Hemodialysis Patients
飲食護理指導對於血液透析病人電解質平衡和生活品質的影響
YD LI[1], PL Chen[2], CW Lin[3], MY Tseng[4], TI Lin[5], HL Tai[6]*
李羿德[1], 陳姵玲[2], 林郡微[3], 曾名瑜[4], 林惇儀[5], 戴辛翎[6*]
[1,2,3,4,5,6] Department of Nursing, National Taipei University of Nursing and Health,
[6] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5,6]國立台北護理健康大學護理系, [6]臺北榮總護理部

C076 Comparison of reliability and validity of the nutritional screening assessments in elderly patients with end-stage renal disease
比較營養評估量表於老人末期腎臟病患之信效度
顧姍庭
台大醫院附設北護分院

C077 Project to improve iron deficiency anemia in peritoneal dialysis patients
改善腹膜透析病人缺鐵性貧血之專案
盧尤娟[1], 林彥君[1], 何妙純[1], 謝宜蓁[2]
[1]台大醫院新竹台大分院腹膜透析室
[2]台大醫院新竹台大分院血液透析中心

C078 Improvement Project for Lowering Parathyroid Hormone Levels in Peritoneal Dialysis Patients
降低腹膜透析病人副甲狀腺素值之改善專案
何妙純[1], 林彥君[1], 盧尤娟[1], 謝宜蓁[2]
[1]台大醫院新竹台大分院 腹膜透析室
[2]台大醫院新竹台大分院 血液透析中心

C079 Uremic tumoral calcinosis on peritoneal dialysis patients
腹膜透析病人產生的腫瘤樣鈣質沉著症
曹郁文[1], 黃琪峰[1], 吳志仁[1,2,3], 林承叡[1,2,3]
馬偕紀念醫院 腎臟內科[1], 馬偕護理專科學校[2], 馬偕醫學院 醫學系[3]

C080 Nutrition care for hyperphosphatemia in a hemodialysis patient
血液透析病人高磷血症之營養照護
Yuen-Yuen Lin[1], Chwei-Shiun Yang[2], Kuei-Ying Huang[1]
林元媛[1], 楊垂勳[2], 黃桂英[1]
[1]Diet and Nutrition Section,[2]Department of Nephrology, Cathay General Hospital
國泰綜合醫院[1]營養組[2]腎臟科

C081 The association between Lower LDL-C level and Cardiovascular and Renal Outcome for moderate and advanced CKD Patients under Statin: A Multi-institution Cohort Study
Chieh-Li Yen[1,2], Yung-Chang Chen[1,2], Chih-Hsiang Chang[1,2]
[1]Kidney Research Center, Department of Nephrology, Chang Gung Memorial Hospital, Linkou branch, Taoyuan, Taiwan
[2]College of medicine, Chang Gung University, Taoyuan, Taiwan

C082 The effect of low protein and higher energy nutritional supplement on nutritional status and GI function in patients with chronic kidney disease
低蛋白高熱量的營養補充品對慢性腎臟病病人的營養狀況與腸道功能的影響
吳紅蓮[1]、郭德輝[2]、王明誠[2]
[1] 國立成功大學醫學院附設醫院營養部 [2] 腎臟科

C083 Effects of Melatonin on bones in Hemodialysis Patients
褪黑激素對透析患者骨代謝的影響
Kuo-Chin Hung, Chih-Jen Weng, Tian-Hua Chuang, Chao-Lin Huang
洪國欽, 翁志仁, 莊天華, 黃朝麟
Department of nephrology, Min-Sheng General Hospital
桃園敏盛醫院 腎臟科

C084 To manage secondary hyperparathyroidism by clinical audit with share decision making and application
以臨床稽核手法結合醫病共享決策與智慧應用程式管控續發性副甲狀腺亢進
Ya-Wen Lin, Shu-Chin, Yeh, Yi-Chou Hou
林雅雯[1]、葉淑琴[1]、侯羿州[2]
[1] Department of Nephrology, Cardinal Tien Hospital, New Taipei City, Taiwan
[1] 天主教新店耕莘醫院安康院區血液透析中心 [2] 天主教新店耕莘醫院 腎臟科

C085 Femoral artery calcification and hip fracture risk in hemodialysis patients
血液透析患者股動脈鈣化及髖部骨折風險
Shun-Neng Hsu[1], Chun-Liang Hsu[2], Jhao-Jhuang Ding[3], Yu-Juei Hsu[1,*]
[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[2] Orthopaedic Department, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[3] Department of Pediatrics, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[1] 三軍總醫院 內科部 腎臟內科, [2] 三軍總醫院 骨科部, [3] 三軍總醫院 小兒科部

C086 Physician acceptance on clinical decision support systems for anemia management in ESKD patients: A qualitative research
探討腎臟科醫師對透析患者貧血治療臨床輔助系統接受度的質性研究
Ju-Yeh Yang[1,2], Raymond N. Kuo[2]
楊如燁[1,2], 郭年真[2]
[1] Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan
[2] Institute of Health Policy and Management, College of Public Health, National Taiwan University, Taipei, Taiwan
[1] 亞東紀念醫院, [2] 台灣大學公共衛生學院健康政策與管理研究所

C087 Relationship between bone mineral density, serum sclerostin and physical activity in hemodialysis patients
血液透析病人骨質密度、血中抑硬素及身體活動量的關係
Te-Hui Kuo [1,2], An-Bang Wu [1], Wei-Hung Lin [1], Jo-Yen Chao [1], Ching-Chung Tseng [1], Hung-Hsiang Liou [3], Ming-Cheng Wang [1,4]
郭德輝[1,2], 吳安邦[1], 林威宏[1], 趙若雁[1], 曾進忠[1], 劉宏祥[3], 王明誠[1,4]
成大醫院腎臟科[1] 成大公共衛生研究所[2] 新仁醫院腎臟科[3] 成大臨床藥學與藥物科技研究所[4]

Hemodialysis

C088-C096 Chair(s)：吳建興/ Chien-Hsing Wu、郭德輝/ Te-Hui Kuo

C088 Severe abnormal hemogram in patients with end-stage renal disease on hemodialysis: A cross-sectional study in Taiwan

台灣末期腎臟病血液透析患者之異常血液相分析

Wei Wang[1], Pin-Han Wu, Chien-Yuan Chen[2], Shih-I Chen[3], Chiung-Ying Huang[3], Yi-Chih Lin[4], Chih-Kang Chiang[1,5], Yung-Ming Chen[1,3], Shuei-Liong Lin[1,6], Yu-Hsiang Chou[1]

王瑋[1], 吳品翰, 陳建源[2], 陳世宜[3], 黃瓊瑩[3], 林義智[4], 姜至剛[1,5], 陳永銘[1,3], 林水龍[1,6], 周鈺翔[1]

[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [2] Division of Hematology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [3] National Taiwan University Hospital Bei-Hu Branch, [4] National Taiwan University Hospital Bei-Hu Branch Jin-Shan Branch, [5]Hemodialysis Division, Department of Integrated Diagnostics and Therapeutics, National Taiwan University Hospital, Taipei, Taiwan, [6]Graduate Institute of Physiology, College of Medicine, National Taiwan University, Taipei, Taiwan

[1]臺大醫院內科部腎臟科, [2] 臺大醫院內科部血液科, [3]臺大醫院北護分院, [4]臺大醫院金山分院, [5]臺大醫院綜合診療部血液淨化科, [6]臺大醫學院生理所

C089 Using an electronic stethoscope artificial intelligence deep learning model to predict arteriovenous shunt dysfunction

使用電子聽診器人工智慧深度學習模型來預測動靜脈瘻管功能障礙

Hsiu-Chin Mai[1], Jui-Hsin Chen[1], Chiu-Yueh Chen[1], Szu-Chia Chen[2,3]

麥秀琴[1], 陳瑞忻[1], 陳秋月[1], 陳思嘉[2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部[1] 高雄醫學大學附設醫院腎臟內科[2] 高雄市立小港醫院內科[3]

C090 Association of arteriovenous access outcomes with circulating biomarker in hemodialysis patients

血液透析患者動靜脈瘻管預後與循環生物標誌物的相關性

Jui-Hsin Chen[1], Hsiu-Chin Mai[1], Chiu-Yueh Chen[1], Szu-Chia Chen[2,3]

陳瑞忻[1], 麥秀琴[1], 陳秋月[1], 陳思嘉[2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部[1] 高雄醫學大學附設醫院腎臟內科[2] 高雄市立小港醫院內科[3]

C091 Is the nutritional status assessed by bioimpedance spectroscopy correlated with the history of coronary artery disease in hemodialysis patients?

以生物阻抗譜評估的營養狀況是否與血液透析患者的冠狀動脈疾病史有關？

Hung-Ping Chen, Paik-Seong Lim

陳宏賓[1], 林柏松[1]

Division of Renal Medicine, Tungs' Taichung Metroharbor Hospital

[1]童綜合醫院腎臟科

C092 Use root cause analysis techniques to improve abnormal events such as dialysis information system crashes and failure to upload instrument data

運用根本原因分析手法改善透析資訊系統當機及無法上傳儀器資料異常事件

Li-Ching Chen[1], Su-Tsai Huang[2], Chih-Chieh Shih[3], Jun-Yao Liao[3]

陳麗菁[1], 黃素猜[2], 施志杰[3], 廖俊堯[3]

[1] Hemodialysis Room, Changhua Christian Hospital [2] Nursing Department, Changhua Christian Hospital [3] Department of Biomedical Engineering, Changhua Christian Hospital

[1]彰化基督教醫院血液透析室 [2]彰化基督教醫院護理部 [3]彰化基督教醫院醫工部

C093 Uric acid is a significantly predictive factor for progression of atherosclerosis in hemodialysis patients
血液透析病患血中尿酸為進行性動脈粥狀硬化的一個重要預測因子
Kai-Ni Lee[1], Chien-An Chen[1], Jia-Rong Lin[1], Shang-Jie Liu[2]
李凱妮[1], 陳建安[1], 林佳蓉[1], 劉尚婕[2]
[1]Department of Nephrology, Tainan Sinlau Hospital, Tainan, Taiwan; [2] Institute of Nursing, College of Nursing, Kaohsiung Medical University, Kaohsiung, Taiwan
[1]台南新樓醫院腎臟科，台南，台灣; [2]高雄醫學大學護理學院護理系，高雄，台灣

C094 The effect of exercise before hemodialysis on cardiopulmonary response
透析前運動對於心肺功能的影響
Ching-Chung Hsiao[1], Wei-Chiao Sun[1], Pei-Yi Fan[1], Ji-Tseng Fang[2], Shu-Chun Huang[3]
蕭景中[1], 孫偉喬[1], 范珮宜[1], 方基存[2], 黃書群[3]
[1.] Department of Nephrology, New Taipei Municipal Tucheng Hospital. [2.] Department of Nephrology, Chang Gung Memorial Hospital, Linkou. [3.] Department of Physical Medicine and Rehabilitation, New Taipei Municipal Tucheng Hospital.
[1.] 新北市立土城醫院腎臟科 [2.]林口長庚紀念醫院腎臟科 [3.]新北市立土城醫院復健科

C095 Analysis and discussion of factors related to resource consumption caused by delayed hemodialysis in southern kidney disease patients
南部腎臟病患者延遲血液透析造成資源耗用相關因素分析與探討
Ku-Chung Wang[1], Te-Chuan Chen[2], Meng-HsuehWu[1], Ching-TanCheng[1], Yueh-Ting Lee[1], Shang-Chin Liao[1], Chlen-Te Lee[1]
王谷鐘[1], 陳德全[2], 吳孟學[1], 鄭晶丹[1], 李岳庭[1], 廖上智[1], 李建德[1]
Kaohsiung Municipal Feng Shan Hospital-Under the management of Chang Gung Medical Foundation、Division of Nephrology[1]
Division of Nephrology, Department of Medicine, Kaohsiung Chang Gung Memorial[2]
高雄市立鳳山醫院-委託長庚醫療財團法人經營[1]高雄長庚紀念醫院腎臟科[2]

C096 Access Outcomes of Periodic Outpatient Assessments in Patients with Hemodialysis
規則門診評估對血液透析病患瘻管之效應
Tzu-Chen Lin[1,4], Cheng-Chieh Yen[2], Lu-Jung Yen[3], Chiang-Pei Huang[3], Tsung-Liang Ma[2], Chih-Yen Hsiao[2]
林慈珍[1,4], 顏正杰[2], 顏綠蓉[3], 黃瓊珮[3], 馬宗良[2], 蕭志彥[2]
Ditmanson Medical Foundation Chia-Yi Christian Hospital [1]Nurse Practitioner [2]Division of Nephrology, Department of Internal Medicine [3]Department of Nursing [4]Department of Nursing, Chung-Jen Junior College of Nursing, Health Sciences and Management
戴德森醫療財團法人嘉義基督教醫院 [1]專科護理師組 [2]內科部腎臟內科 [3]護理部 [4]崇仁醫護管理專科學校護理科

C097-C120 Chair(s)：鄭仲益/ Chung-Yi Cheng、吳培甄/ Pei-Chen Wu

C097 Investigating the Interplay of Depression, Anxiety, and Quality of Life in Patients with Hemodialysis: A Cross-Sectional Study
Jiu-Yun Tian[1], Tiang-Chen Chang[2], Tai-Ching Fu[3], Hsin-Yi Wu[4], Hsin-Ling Tai[5], Meei-Ju Wu[6], Jung-Fen Lee[7]
Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan

C098 Clinical Application of Handheld Ultrasound in Hemodialysis Patients
手持式超音波於血液透析病人的臨床應用
Chia-Yen Lee, Chung-Ming Fu, Chiao-Jung Chen, Hui-Ju Kuo, Ching-I Yu, Wen-Chin Lee
李佳諺, 傅崇銘, 陳嬌蓉, 郭慧如, 俞靜儀, 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院 腎臟科

C099 Utilizing cross-team diversity strategies to enhance the safety and quality of dialysis water
運用跨團隊多元策略改善透析用水的安全及品質
Yu-Chien Liu[1], We-iting Wang[1],Ting-Ting Tasi[1], Pei-Shan Tasi[1], Tzu-Chi Shih[1], Te-Hui Kuo[2], Chin-Chung Tseng[2]
劉玉倩[1], 王偉婷[1], 蔡婷婷[1], 蔡佩珊[1], 石子琦[1], 陳珍緯[1], 郭德輝[2], 曾進忠[2]
Department of Nursing[1], Division of Nephrology[2], National Cheng-Kung University Hospital, College of Medicine.
護理部[1],腎臟科[2],國立成功大學醫學院附設醫院

C100 Integrating vascular access surveillance with clinical monitoring for stenosis prediction
整合血管通路定期追蹤合併臨床監控來預測血管通路狹窄
Chung-Kuan Wu [1,2], Chia-Hsun Lin [2,3]
吳重寬[1,2], 林佳勳[2,3]
[1]新光吳火獅紀念醫院腎臟內科 [2]輔仁大學醫學院 [3]新光吳火獅紀念醫院心血管外科

C101 A collaborative model between dialysis clinics and a hospital center improves the quality of vascular access care and intervention for hemodialysis patients
透析診所與醫院間的合作模式改善血液透析患者的血管通路照護與介入治療品質
Chung-Kuan Wu [1,2,3], Yu-Wei Fang [1,3], Chia-Hsun Lin [3,4]
吳重寬[1,2,3], 方昱偉[1,3], 林佳勳[3,4]
[1]新光吳火獅紀念醫院腎臟內科 [2]新光吳火獅紀念醫院透析血管通路管理中心 [3]輔仁大學醫學院 [4]新光吳火獅紀念醫院心血管外科

C102 Online OCM may be a reliable approach for measurement of adequacy of intermittent hemodialysis in acute kidney injury
Yi-Hsi Lee, Ruei-Syuan Bai, Shih-Han Kao, Paik-Seong Lim
李怡錫, 白睿軒, 高詩涵, 林柏松
童綜合醫院

C103 Assessing CAD Complexity and Mortality Risk in ESKD Patients Undergoing PCI
陳倩[1], 林志慶[2], 黎思源[3]
台北榮總腎臟科

C104 Association of Cardiac Biomarkers of Heart Failure and Iron status in Hemodialysis Patients
血液透析患者心臟衰竭及鐵營養狀況與心肌生化標記的關係
Ming Ying Wu, Chan Hsu Chen, Tsai-Kun Wu, Paik Seong Lim
Division of Renal Medicine, Tungs' Taichung Metroharbour Hospital, Taichung, Taiwan

C105 Impact of national hepatitis C virus (HCV) elimination policies and actions on HCV micro-elimination in hemodialysis population
Ming-Yan Jiang[1,2], Yi-Chan Lee[3], Tsung-Hsueh Lu[2]
[1] Renal Division, Department of Internal Medicine, Chi Mei Medical Center
[2] Department of Public Health, College of Medicine, National Cheng Kung University
[3] Institute of Health Policy and Management, College of Public Health, National Taiwan University

C106 Prevalence of Peripheral Artery Disease and its Risk Factors in Patients Undergoing Hemodialysis
血液透析病人週邊動脈疾病盛行率及危險因子分析
Wan-Chuan Tsai, Yen-Ling Chiu, Hon-Yen Wu, Ju-Yeh Yang, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Yu-Sen Peng, Shih-Ping Hsu
蔡萬全, 邱彥霖, 吳泓彥, 楊如燁, 徐愷翔, 白玫芬, 董奎廷, 彭渝森, 徐世平
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C107 Precision smart medical system integrates digital hemodialysis system management and application: Experience from a Medical Center
精準智慧醫療系統整合數位化血液透析系統管理與運用:某醫學中心經驗分享
Chia-Ling Tu[1], Rou-Yu Sung[1], Hsin-Ling Tai[2], Chiung-Yu Shih[3], Jung-Fen Lee[4]
涂嘉玲[1], 宋柔郁[1], 戴辛翎[2], 施瓊玉[3], 李榮芬[4]
[1]Taipei Veterans General Hospital Nurse, [2]Head Nurse, [3] Assistant Head Nurse, [4]NursingSupervisor
臺北榮民總醫院

C108 Implementing Screening Questionnaires and a Fish Bone Diagram-Based Program to Enhance the Ability of Hemodialysis Dry Body Weight Education in Hemodialysis Nurses
Jenn Yeu Wang[1, 2, 3, 4,5]; Yu Ting Tsai[1,2]; Chun Ju Chien[1,2]; Shiau jing Lin[1,2]
王震宇[1, 2, 3, 4, 5], 蔡鈺婷[1,2], 簡君如[1, 2], 林曉菁[1, 2]
[1.]Taipei City Hospital, Zhongxiao campus, [2.]University of Taipei, [3.]National Yang Ming Chiao Tung University, [4.]Taipei Medical University, [5.]Fu Jen University
[1]台北市立醫院忠孝院區 [2]台北大學 [3]國立陽明交通大學 [4]台北醫學大學 [5]輔仁大學

C109 Valvular Heart Disease in Patients with End-Stage Renal Disease: Prevalence, Clinical Manifestations, and Prognosis
末期腎臟病患者之瓣膜性心臟疾病盛行率、臨床特徵及相關預後探討
Wan-Ching Lee[1] Ying-Hwa Chen[2,3] Chih-Ching Lin[1,3]
李宛靜[1], 陳嬰華[2,3], 林志慶[1,3]
[1] Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan; [2] Division of Cardiology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan; [3] School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan
[1]台北榮民總醫院內科部腎臟科及[2]心臟內科, [3]國立陽明交通大學醫學系

C110 The effects of management on improving intradialytic hypotension among patients with renal failure: A Systemic Review
改善腎衰竭患者血液透析中低血壓之處置成效探討-系統性文獻回顧
Hsiao-Ping Chang[1], Hua-Shan Wu[2], Huan-Sheng Chen[3]
Tseng Han Chi Hospital[1], Asia University[2], An Hsin Clinic[3]
張小平[1], 吳樺姍[2], 洪思宏[3]
曾漢棋綜合醫院[1], 亞洲大學[2], 曾漢棋綜合醫院[3]

C111 Implementing a Multidimensional Integrated Care Model for Kidney Disease to Achieve Sustainable Development Goals
執行多面向整合性的腎臟病照護模式以落實永續發展目標
Ching-I Yu, Shu-Kuan Kuo, Ya-Pei Yu, Chien-Hsiu Liu, Chiao-Jung Chen, Ting-Yu Chiou, Wen-Chin Lee
俞靜儀, 郭淑冠, 游雅珮, 劉建秀, 陳嬌蓉, 邱鼎育, 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院內科部 腎臟科

C112 Factors Associated with Repeated Percutaneous Balloon Angioplasty in Hemodialysis Patients with Dysfunction of Arteriovenous Fistula
血液透析病人瘻管失能需重複經皮氣球血管擴張術相關因素探討
Chi-Ping Yeh, Ching-I Yu, Kuo Shu-Kuan, Chiao-Jung Chen, Chung-Ming Fu, Wen-Chin Lee
葉季萍, 俞靜儀, 郭淑冠, 陳嬌蓉, 傅崇銘, 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院內科部 腎臟科

C113 Health literacy, self-efficacy, and health outcomes of patients undergoing hemodialysis: Mediating role of self- management
血液透析病人健康識能、自我效能對健康結果之影響：自我管理的中介效果
Shu-Hua HSU[1], Yu-Li LIN[2], Ying TSAO[3]
徐淑華[1], 林于立[2], 曹英[3]
Division of Nephrology, Hualien Tzu Chi Hospital[12]
Department of Nursing, Tzu Chi University[3]
佛教慈濟醫療財團法人花蓮慈濟醫院腎臟內科[12] 慈濟大學護理學系[3]

C114 Improving the management of medical supplies by using Lean methods
運用精實手法改善醫衛材管理
Tan-Yun Hsu[1], Ya-Fang Wu[2], Na-Chi Su[3]
許玥云[1],王榆楟[2], 蘇娜琦[3]
Buddhist Dalin Tzu Chi Hospital
佛教大林慈濟醫院

C115 Using Information Technology to Improve the Error Rate of Outpatient Examination Procedures in Hemodialysis Room
運用資訊科技改善血液透析室門診採檢流程錯誤率
Huai-Hsuan Chang[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Yeh-Chen[1], Chia-Wen Wu[1], Ie-Ching Hu[1], Chun-Yi Hung[1], Yu-Tzu Chang[2]
張懷萱[1], 邱郁雯[1], 林怡秀[1], 陳燁[1], 吳佳雯[1], 侯玉琴[1], 洪君怡[1], 張育誌[2]
Nursing Department[1], Division of Nephrology[2] National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

C116 Low serum selenoprotein P level is associated with aortic stiffness measuring by carotid-femoral pulse wave velocity in maintenance hemodialysis patients
低的血清硒蛋白質P濃度跟血液透析患者以中心脈波傳導速率測量中樞動脈硬度有關
Yu-Chi Chang[1], Chiu-Huang Kuo[1,2], Hung-Hsiang Liou[3], Bang-Gee Hsu[1,2]
張宇祺[1], 郭秋煌[1,2], 劉宏祥[3], 徐邦治[1,2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1] 花蓮佛教慈濟醫院腎臟內科,[2] 花蓮慈濟大學醫學系,[3] 新北市新仁醫院

C117 Increase Critical Laboratory Value Reporting Efficacy in Hemodialysis Patients by Electronic Informatization
資訊化運用提升門診血液透析病人危急值即時通報效能
郭淑冠[1], 陳玉娟[1], 俞靜儀[1], 陳彥蓉[2], 李文欽[1], 李建德[1]
高雄長庚紀念醫院 內科部腎臟科[1] 檢驗醫學部[2]

C118 Physiological Effects of Exercising in Hemodialysis Patients: Systematic Review
以系統性文獻回顧探討運動對血液透析病人生理影響
HC Tseng[1], CY Tu[2], YH Chen[3], HL Tai[4*]
曾纕棋[1], 涂佳玉[2], 陳以馨[3], 戴辛翎[4*]
[1,2,3,4] Department of Nursing, National Taipei University of Nursing and Health,
[4] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4] 國立台北護理健康大學護理系, [4] 臺北榮總護理部

C119 Utilizing Healthcare Quality Strategies to Establish a Hepatitis C-Free Dialysis Center
善用醫品策略，打造零 C 肝的透析室
Ya-Ting Chen[1], Hui-Fang Huang[1], Hui-Xia Hu[1], Jun-Ren Lai[1], Bo-Rong Wu[1], Yuan-Hong Guo[2], Wen-Chin Lee[1]
陳雅婷[1], 黃慧芳[1], 胡惠霞[1], 賴俊仁[1], 吳柏融[1], 郭垣宏[2], 李文欽[1]
[1]Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital, [2]Division of Gastroenterology and Hepatology Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
[1] 高雄長庚醫院腎臟科,[2] 高雄長庚醫院胃腸肝膽科

C120 Psychological Effects of Listening to Music During Dialysis on Hemodialysis Patients
透析期間聽音樂對於血液透析病人的心理影響
TL Tsai[1], YS Huang[2], WL Huang[3], YT Chang[4], KH Zheng[5], HL Tai[6*]
蔡采玲[1], 黃羿瑄[2],黃 雯琳[3], 張晏慈[4], 鄭可暄[5], 戴辛翎[6*]
[1,2,3,4,5,6]Department of Nursing, National Taipei University of Nursing and Health,
[6] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5,6]國立台北護理健康大學護理系, [6]臺北榮總護理部

C121-C144 Chair(s)：蕭志忠/ Chih-Chung Shiao、蔡明村/ Ming-Tsun Tsai

C121 Provide Strategies Related to the Correct Testing Process in Outpatient Hemodialysis Room to Reduce the Incidence of Abnormal Testing
提供門診血液透析室正確檢驗流程之相關策略改善檢驗異常發生率
Yu-Wen Chiu[1], Yeh-Chen[1], Yi-Hsiu Lin[1], Huai-Hsuan Chang[1], Chia-Wen Wu[1], Ie-Ching Hu[1], Chun-Yi Hung[1], Yu-Tzu Chang[2]
邱郁雯[1], 陳燁[1], 林怡秀[1], 張懷萱[1], 吳佳雯[1], 侯玉琴[1], 洪君怡[1], 張育誌[2]
Nursing Department1, Division of Nephrology, [2] National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

C122 Systematic Review: Effects of Sertraline on Preventing Hypotension in Hemodialysis Patients
系統性回顧：Sertraline 藥物對預防血液透析患者低血壓的成效
QY Zhang[1], YH Huang[2], KS Chen[3], EY Chen[4],HL Tai[5*]
張芊怡[1], 黃于瑄[2], 陳可珊[3], 陳恩盈[4], 戴辛翎[5*]
[1,2,3,4,5]Department of Nursing, National Taipei University of Nursing and Health,
[5]Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5]國立台北護理健康大學護理系, [5]臺北榮總護理部

C123 Enhancing the Accuracy of Blood Collection in the Hemodialysis Unit
提升血液透析室採集檢體之正確性
Miao-Ling, Hsieh[1], Shu-Fen, Wu[2]
謝妙玲[1], 吳淑芬[2]
Hemodialysis Room of Xiaogang Hospital
小港醫院血液透析室

C124 Enhancing Resilience in Dialysis Patients: Can Mindfulness Meditation Serve as a Therapeutic Adjunct?
增強透析病人的韌力：正念冥想可以作為輔助治療嗎？
YJ Cheng[1], XC Chen[2], AY Lin[3], JX Chiu[4], HL Tai[5*]
鄭雅柔[1], 陳湘淳[2], 林安怡[3], 邱竟瑄[4], 戴辛翎[5]
[1,2,3,4,5] Department of Nursing, National Taipei University of Nursing and Health,
[5] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5]國立台北護理健康大學護理系, [5]臺北榮總護理部

C125 Improving quality of life in dialysis patients with chronic hepatitis C infection
改善門診血液透析治療C型肝炎病患的生活品質
Pei-Jung Wu[1], Ching-Yi Yu[1], Lung-Chih Li[1], Wen-Chin Lee[1]
吳佩蓉, 俞靜儀, 李隆志, 李文欽
[1]Division of Nephrology, department of medicine, Kaohsiung Chang Gung Memorial Hospital
[1]高雄長庚醫院內科部腎臟科

C126 Reducing Tunneled-cuff Dialysis Catheter Infection Rates in Hemodialysis Patients through Multifaceted Strategies
運用多元策略降低血液透析病患長期性導管感染率
丁凡棋, 張明芳, 黃桂卿, 吳寶華, 郭淑冠, 俞靜儀, 賴育城, 李文欽
高雄長庚紀念醫院 內科部腎臟科

C127 Efficacy of Low-Temperature Dialysis in Preventing Intradialytic Hypotension among Acute and Chronic Renal Failure Patients
低溫透析於急慢性腎衰竭病人，預防血液透析中低血壓之成效
Zhi-Yi Zhu[1], Tsai-Yu Liao[2], Mei-Ling Li[3] , Yu-Chia Cheng4 , Hsin-Ling Tai [5*]
朱芷儀 [1], 廖采榆 [2], 李媄羚 [3], 鄭又嘉 [4], 戴辛翎 [5*]
[1,2,3,4,5] Department of Nursing, National Taipei University of Nursing and Health,
[5] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5] 國立台北護理健康大學護理系, [5] 臺北榮總護理部

C128 Reduce the incidence of abnormal specimens in the hemodialysis room
降低血液透析室檢體異常發生率
Ie-Ching Hu[1], Yu-Wen Chiu [1], Huai-Hsuan Chang [1], Yeh-Chen [1], Yi-Hsiu Lin [1],
Wu chia wen[1], Hung Chun-Yi [1], Chen-Wei Chen [1], Te-Hui Kuo[2]
侯玉琴 [1],邱郁雯 [1],張懷萱 [1],陳燁 [1],林怡秀 [1],吳佳雯 [1],洪君怡 [1],陳珍緯 [1],郭德輝 [2]
[1]Department of Nursing, [2]Nephrology Center , National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan
國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

C129 Reducing the incidence of hemodialysis tubeing slippage rate
降低血液透析管路滑脫率之改善專案
Ru-Jiun Tsai[1], Yi-Wen Wang[1], Chia-Hsin Liu[1]
蔡如鈞 [1],王怡文 [1],劉嘉新 [1]
Tri-Service General Hospital Nephrology[1]
三軍總醫院腎臟內科 [1]

C130 TRM model for integrated care of hemodialysis patients with COVID-19
團隊資源管理(TRM)模式於血液透析病人 COVID-19 整合性照護
Sheng-Fang Hsiao[1], Yu-Ying Huang[1], Hui-Ling Lai[1], Jui-Shan Tsai[1], Sung-Yi Chun[1], Hung-Ju Lai[1], Mei-Chuan Kuo[2]
蕭聖芳 [1], 黃玉瑩 [1], 賴惠玲 [1], 蔡瑞珊 [1], 宋藝君 [1], 賴虹如 [1], 郭美娟 [2]
[1]Department of Nursing, [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科

C131 Reduce the incidence of hyperphosphatemia in hemodialysis patients
降低血液透析病人高血磷發生率
Mei-Yi Wei[1], Chiung-Hua Ho[1], Kai-Ling Yang[2], I-Wen Ting[2]
魏美怡 [1], 何瓊華 [1], 楊凱玲 [2], 丁羿文 [2]
[1]Chung-Ying Clinic, [2]Department of Nephrology, China Medical University Hospital
[1] 中英診所 [2] 中國醫藥大學附設醫院腎臟系

C132 Standardization of Hemodialysis Acess Creation by Intuprofessional Collaboratine Practice with Shared Decision Making
利用跨團隊照護結合醫病共享決策為輔介入透析管路建置標準化
黃慧玲 [1] 司雅玲 [2] 陳秋惠 [3]
臺大醫院新竹分院 血液透析室

C133 Using system diagram to improve quality of water for hemodialysis
運用系統圖分析提升血液透析用水品質
Pei-Shan Tsai[1], Ting-Ting Tsai[1], Chen-Wei Chen[1], Ie-Ching Hu[1], Feng-Tai Zhang[2], Te Hui Ku[3]
蔡佩珊 [1], 蔡婷婷 [1], 陳珍瑋 [1], 侯玉琴 [1], 張豐泰 [2], 郭德輝 [3]
[1] Nursing Department of National Cheng Kung University Hospital, Tainan, Taiwan
[2] Engineering Affairs Office of National Cheng Kung University Hospital, Tainan, Taiwan
[3]Division of Nepherology, Deparment of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan
國立成功大學醫學院附設醫院護理部 [1], 工務室 [2], 內科部腎臟科 [3]

C134 The incidence of thyroid cancer among patients receiving hemodialysis with secondary hyperparathyroidism post parathyroidectomy in Taipei Cathy General Hospital
台北國泰醫院洗腎病患副甲狀腺功能亢進症經副甲狀腺切除術合併甲狀腺癌之發生率
Chun-Lin Fu, Andrew Chou, Ming-Tso Yan, Shiang-Hua Feng, Chwei-shiun Yang
傅俊霖, 周子巽, 顏銘佐, 馮祥華, 楊垂勳
Taipei Cathay General Hospital
台北國泰醫院

C135 The effectiveness of using far-infrared radiation and in-bed cycling exercise to improve the symptoms of restless leg syndrome in hemodialysis patients
運用遠紅外線照射及床上腳踏車運動改善血液透析患者不寧腿症候群症狀之成效
Pin-Hsiu Chen, Chia-Yi(Joy) Chiao, Huey-Liang Kuo, Gu Jia-Chi Huang, Ying-Fang Zhang, Kai-Ling Yang
陳品秀[1*], 喬佳宜[2], 郭慧亮[3], 黃家琪[4], 張穎方[5], 楊凱玲[6]
[1] 中國醫藥大學附設醫院腎臟科血液透析室護理師 [2] 中山醫學大學護理學系副教授
[3] 中國醫藥大學附設醫院腎臟系

C136 Improve the handwashing compliance rate in hemodialysis rooms nursing staff
提升血液透析室護理人員洗手遵從率
Hsiang-Mei Chen[1], Ching-Wei Wang[1], Yueh-Feng Tsai[1], Ting-Yi Wang[1], Li-Chiung Yang[1], Li-Hsueh Huang[1]
陳香每[1*], 王景薇[1], 蔡岳峰[1],王婷翊[1],楊麗瓊[1],黃麗雪[1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1] 台南新樓醫院 血液透析中心

C137 Reduction of Arteriovenous Shunt Obstruction Rates in Hemodialysis Patients
降低血液透析病人動靜脈瘻管阻塞率
Tsai-Yi Chen[1], Mei-Hui Chiang[1], Li-Chin Chang[1], Yueh-Hwa Lin[1], Kai-Ling Yang[2], Shin-Yi Lin[2]
陳采儀[1], 蔣美慧[1], 張瓅今[1], 林月花[1], 楊凱玲[2], 林詩怡[2]
[1] Hemodialysis Unit of Huihe Hospital
[2]Department of Nephrology, China Medical University Hospital
[1] 惠和醫院血液透析室 [2] 中國醫藥大學附設醫院腎臟系

C138 Developing entrustable professional activities（EPAs） for training new nursing staff in hemodialysis units
發展可信賴專業活動（EPAs）運用於血液透析室的新進護理人員培訓
Ching-Yueh Hsu, Hsiang-Yu Hsiao, Yu-Ying Huang
許瀞月[1]，蕭湘玉[1]，黃玉瑩[1]
Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1.]高雄醫學大學附設中和紀念醫院護理部

C139 Study on the clinical differences between hemodialysis early cannulation graft and traditional graft
血液透析即穿式人工血管與傳統人工血管臨床差異性研究
Yu-Fen Ting, Shang-Chih Liao, Hsu-Ting Yen, Ching-Tan Cheng, Yueh-Ting Lee
丁郁芬, 廖上智[1], 顏旭霆, 鄭晶丹, 李岳庭
Kaohsiung Municipal Feng Shan Hospital-Under the Management of Chang Gung Medical Foundation（Hemodialysis room、Cardiovasular Surgery）
高雄市立鳳山醫院（委託長庚醫療財團法人經營）血液透析室,心臟血管外科

C140 Applying evidence based methods to explore the effectiveness of hemodialysis taping styles in preventing puncture needle dislodgement
以實證手法探討血液透析穿刺針固定方式對預防穿刺針滑脫之成效
Yu-Hsiu Wang, Tzu-Yen Hsu, Hsiu-Chu Chang, Jui-Hsin Chen
王玉秀, 許紫燕, 張琇祝, 陳瑞忻
Department of Nursing, Kaohsiung Municipal Siaogang Hospital
高雄市立小港醫院（委託高雄醫學大學經營）護理部

C141 Underestimated peripheral arterial disease in hemodialysis patients: a single center cases analysis
血液透析患者易被忽略的周邊動脈阻塞疾病:單一中心病例分析
Yu-Wen Huang[1], Chih-Chien Sung[1], Chien-Chou Chen[1,2]
黃玉玟[1], 宋志建[1], 陳建州[1,2]
[1]Division of Nephrology, Tri-Service General Hospital
[2]Division of Nephrology, Tri-Service General Hospital Songshan branch
[1]三軍總醫院腎臟內科 [2]三軍總醫院松山分院腎臟內科

C142 Risk of hyperkalemia and its associated prognosis when Transition from Peritoneal Dialysis to Hemodialysis: A Single-Center Retrospective Study
從腹膜透析轉換到血液透析時高鉀血症的風險及其相關預後：單一中心回顧性研究
Ang Lu[1], Chien-Chou Chen[1,2], Shun-Neng Hsu[1]
盧昂[1], 陳建州[1,2], 許舜能[1]
[1]Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[2]Department of Internal Medicine, Tri-Service General Hospital Songshan Branch, National Defense Medical Center, Taipei, Taiwan
[1]國防醫學院三軍總醫院內科部腎臟科, [2]國防醫學院三軍總醫院松山分院內科部

C143 The Learning Effectiveness of Innovative 3D-Printed Teaching Aids on Emergency Responses Ability Use among Hemodialysis Patients
運用 3D 列印創新教具於血液透析病人緊急應變逃生能力訓練之學習成效
Chia-Wen Wu[1], Chia-Yi Lin[1], Yu-Chun Tsai[1], Pei-Shan Tsai[1], Chen-Wei Chen[1], Te-Hui Kuo[2]
吳佳雯[1], 林佳誼[1], 蔡俞君[1], 蔡佩珊[1], 陳珍緯[1], 郭德輝[2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital, Tainan, Taiwan
[1]國立成功大學醫學院附設醫院護理部, [2]腎臟科

C144 Care Bundles to prevent tube catheter dislodgement in hemodialysis patients
強化組合式照護預防血液透析病人管路滑脫
Mei-Yen Chung[1], Ie-Ching Hu[1], Chen-Wei Chen[1], Te-Hui Kuo[2]
鍾美燕[1], 侯玉琴[1], 陳珍緯[1], 郭德輝[2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院[1]護理部、[2]腎臟科，台灣

C145-C168 Chair(s)：郭美娟/ Mei-Chuan Kuo、郭克林/ Ko-Lin Kuo

C145 The effect of melatonin on the sleep status in hemodialysis patients
血液透析病人使用褪黑激素對睡眠狀況的影響
邱美玲[1], 洪國欽[2]
[1]敏盛綜合醫院 血液透析室，[2]敏盛綜合醫院 腎臟內科

C146 Improve vascular access occlusion rate via interventional treatment of dialysis hypotension in elderly hemodialysis patients
高齡血液透析患者經由血液透析低血壓的介入處置改善血管通路阻塞率
Wan Ting Chiu, Hui-Chung Tsai, Leong Foong Fah, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen
邱宛婷, 蔡蕙鍾, 梁鴻華, 俞靜儀, 李文欽, 陳靖博
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan, R.O.C.
高雄長庚紀念醫院 內科部 腎臟科

C147 Using team resources to optimize the awareness rate of dialysis hypotension care in elderly hemodialysis patients
運用團隊資源優化高齡長者血液透析低血壓照護認知率
Yu-Fen Yang, Hui-Chung Tsai, Chiao-Jung Chen, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen
楊育棻, 蔡蕙鍾, 陳嬌蓉, 俞靜儀, 李文欽, 陳靖博
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang, Gung Memorial Hospital, Taiwan, R.O.C.
高雄長庚紀念醫院 內科部 腎臟科

C148 The Relationships Between Nutrition, Fatigue and Quality of Life in Patients Under Chronic Hemodialysis
血液透析病人營養、疲憊、生活品質之相關性探討
Chin-Ling Chiang [1.2], Wen-Chuan Lin [2], Chia-Ter Chao [3]
姜金伶 [1.2], 林文絹 [2], 趙家德 [3]
[1] National Taiwan University Hospital Bei-Hu Branch, Department of Nursing, Hemodialysis Center [2] National Taipei University of Nursing and Health Sciences, Department of Nursing [3] National Taiwan University Hospital, Nephrology
[1] 國立台灣大學醫學院附設醫院北護分院護理部血液透析中心 [2] 國立台北護理健康大學護理研究所 [3] 國立台灣大學醫學院附設醫院腎臟內科

C149 Using diversified strategies to reduce the incidence of dialysis hypotension among the elderly hemodialysis patients
以多元化策略降低高齡長者血液透析低血壓發生率
Baw-Ru Lu, Hui-Chung Tsai, Chien-Hua Chiu, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen
盧寶如, 蔡蕙鍾, 邱千華, 俞靜儀, 李文欽, 陳靖博
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan, R.O.C.
高雄長庚紀念醫院 內科部 腎臟科

C150 Ten years of experience about therapeutic plasmapheresis in National Taiwan University Hospital (NTUH)
Yu-Jie Lin[1], Tai-Shuan Lai[1], Szu-Yu Pa[2], Yu-Hsiang Chou[3], Tao-Min Huang[4]
Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

C151 Reduce the Overall Vascular Access Infection Rate in Hemodialysis Patient
降低血液透析病人血管通路總感染密度
Nai-Chi Kuo[1], Hsin-Yu Liao[1], Yu-Chuan Hsiao,[1]Ching-Yi Chen[1], Ya-Ping Chang[1]
郭乃綺 [1], 廖欣瑜 [1], 蕭玉專 [1], 陳靜怡 [1], 張雅萍 [1]
[1]Douliou Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation Department of Nursing
[1]佛教斗六慈濟醫院護理單位血液透析

C152 Arrythmia As A Risk Factor of Non-tunneled Central Venous Catheter Failure
Kao-An Leu[1], Hsueh-Ping Peng[2], Chung-Kuan Wu[3,4,5]
呂高安 [1], 彭雪萍 [2], 吳重寬 [3,4,5]
[1]國泰綜合醫院腎臟內科 [2]新光吳火獅紀念醫院護理部 [3]新光吳火獅紀念醫院腎臟內科 [4]新光醫院透析血管通路管理中心 [5]輔仁大學醫學院

C153 Application of Population Medicine in High Risk Hemodialysis Patients Associated with Improved Outcomes
Tung-Lin Tsai [1], Chih-Chin Kao[1], Fang-Te Chao [1]
[1] Division of Nephrology, Department of Internal Medicine, Taipei Medical University Hospital, Taipei, Taiwan

C154 Measuring Quality of Life in Hemodialysis Patients Impacting
血液透析腎友生活品質測量之探討
Chen-Wei Chen [1], Ie-Ching Hu[1], Te-Hui Kuo[2]
陳珍緯 [1], 侯玉琴 [1], 唐佩芳 [1], 郭德輝 [2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

C155 The association of denosumab use and the risks of cardiovascular events in hemodialysis patients
保骼麗使用和血液透析患者的心血管事件
Lung-Chih Li[1], Tsuen-Wei Hsu[1], Chiang-Chi Huang[1], Chia-An Chou[1] and Chien-Ning Hsu[2]
李隆志 [1], 許淳惟 [1], 黃鏘錡 [1], 周嘉安 [1], 許茜甯 [2]
[1.] Division of Nephrology, Department of Internal Medicine; [2.] Department of Pharmacy, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan
[1.] 高雄長庚紀念醫院 內科部 腎臟科 [2.] 高雄長庚紀念醫院 藥劑部

C156 Shared decision-making in hemodialysis patients with Hyperphosphatemia – An example of Southern medical center

SDM 介入血液透析病人高血磷之執行現況-南台灣某醫學中心為例

Yi-Chun Sung[1], Tung-Sui Yeh[1], Shih-Ming Hsiao[1], Chiu-Hui Tsai[1], Yu-Ying Huang[1], Yi-Wen Chiu[2]

宋藝君[1], 葉冬穗[1], 蕭仕敏[1], 蔡秋蕙[1], 黃玉瑩[1], 邱怡文[2]

Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University; [2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

[1] 高雄醫學大學附設醫院護理部 [2] 高雄醫學大學附設醫院腎臟內科

C157 Percutaneous coronary intervention in dialysis patient may decrease intradialytic hypotension

經皮冠狀動脈介入手術可降低透析中低血壓的發生率

Tzu-Shan Huang[1], Jian-An, Wang [2], Zheng-Zhe Wu[3], Yu Huang Chiu[1], Wei-Ren Lin[1], Po-wei Chen[1], Junne-Ming Sung[1], Ming-Cheng Wang[1], Chin-Chung Tseng[1], Kuan-Hung Liu[1]

黃子珊[1], 王健安[2], 吳政哲[3], 邱裕桓[1], 林威任[1], 陳柏偉[1], 宋俊明[1], 王明誠[1], 曾進忠[1], 劉冠宏[1]

[1] Department of Internal Medicine, National Cheng Kung University Hospital, [2] Institute of Data Science, National Cheng Kung University, [3] Division of nephrology, Kuo General Hospital

[1] 成大醫院內科部 [2] 成功大學數據科學研究所 [3] 郭綜合腎臟科

C158 Care of Hemodialysis Patients Taking Low-dose ^{131}I _The Regional Hospital Experience

服用低劑量碘-131 血液透析病人照護-地區醫院經驗

Feng-Mei WU, A-Jhen LI

吳鳳美, 李阿真

Hanming Christian Hospital hemodialysis center

漢銘基督教醫院 血液透析中心

C159 Weekly Timing Matters: Impact of Dialysis Day on Intradialytic Hypotension with Mediation analysis

透析中低血壓與透析日的關聯性和中介因子分析

Ying-Hsuan Lin[1], Wei-Ren Lin[1], Chia-Chun Lee[1], Yu-Huan Chiu[1], Zheng-Zhe Wu[2], Yu-Hsuan Yang[1], Hui-Lin Guo[1], Junne-Ming Sung[1], Ming-Cheng Wang[1], Chin-Chung Tseng[1], Kuan-Hung Liu[1]

林盈萱[1], 林威任[1], 李佳駿[1], 邱裕桓[1], 吳政哲[2], 楊育璿[1], 郭慧琳[1], 宋俊明[1], 王明誠[1], 曾進忠[1], 劉冠宏[1]

[1]Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University. [2]Division of Nephrology, Department of Internal Medicine, Kuo General Hospital

[1] 國立成功大學醫學院附設醫院內科部 [2] 郭綜合醫院腎臟內科

C160 Information system integrates dialysis shunt ultrasound image data management

資訊化系統整合透析瘻管超音波影像資料管理

郭慧如, 陳嬌蓉, 李佳諺, 俞靜儀, 梁鴻華, 傅崇銘, 李文欽

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital

高雄長庚醫院 腎臟科

C161 Experience in using continuous pre-pump arterial pressure monitoring in hemodialysis

導入血液透析中幫浦前動脈壓持續監測使用經驗

Tsui-Ling Lin[1], Yi- Ling Hsieh[1], Fong-Shung Huang[3], Hui-Ting Liu[1], Ching-Wen Lee[2], Chun-Fu Lai[2]

林翠玲[1], 謝易玲[1], 黃鳳雄[3], 劉蕙婷[1], 李慶玟[1], 賴俊夫[2]

[1] RN, Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2] Renal Division, Department of Internal Medicine, National Taiwan University Hospital Taipei, Taiwan

[3] Department of Integrated Diagnostics & Therapeutics

[1] 台大醫院護理部 [2] 台大醫院內科部腎臟科 [3] 台大醫院綜合診療部

C162 Uric acid predicts all-cause mortality in patients with hemodialysis differs between high and low Charlson's index
尿酸對血液透析患者全因死亡率的預測在高查爾森指數和低查爾森指數之間存在差異
Sheng-Wen Niu[1`2`3], Hugo Y. -H. Lin[1`2`3], I-Ching Kuo[1`2`3], Yi-Wen Chiu[2`3], Shang-Jyh Hwang[2`3], Jer-Ming Chang[2`3], and Chi-Chih Hung[2`3]**
鈕聖文[1`2`3],林祐賢[1`2`3],郭宜瑾[1`2`3],邱怡文[2`3],黃尚志[2`3],洪啟智[2`3]*,張哲銘[2`3]*
[1] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital [2] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University [3] Department of Medicine, College of Medicine, Kaohsiung Medical University
[1] 高雄市立大同醫院內科部 [2]高雄醫學大學附設中和紀念醫院內科部腎臟內科 [3]高雄醫學大學醫學系

C163 The effect of increasing influenza vaccination rate in hemodialysis patients
提升血液透析病人流感疫苗施打率之成效
Chen-Ying Hou[1], Yeh-Chen[1], Huai-Hsuan Chang[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Chen-Wei Chen, Te-Hui Kuo[2]
侯震纓[1], 陳燁[1], 張懷萱[1], 邱郁雯[1], 林怡秀[1], 陳珍緯[1], 郭德輝[2]
[1]Department of Nursing , [2]Nephrology Center , National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan
國立成功大學醫學院附設醫院[1]護理部、[2]腎臟科，台灣

C164 A study on the Relationship Between Self-Health Management and Blood Phosphate Level in Hemodialysis Patients
血液透析病人健康自我管理與血磷數值的相關性研究
盧惠敏, 程 音, 楊素眞
亞東記念醫院護理部

C165 Association of the vascular access flow with echocardiographic parameters in hemodialysis patients with heart failure and reduced ejection fraction
血液透析病患合併低收縮分率心衰竭之血管通路血流與心臟超音波參數之相關性
Ya-Han Fu[1,2], Chih-Ching Lin[1,2]
傅雅涵[1,2], 林志慶[1,2]
[1]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital; [2] School of Medicine, National Yang-Ming Chiao-Tung University
[1]台北榮民總醫院內科部腎臟科, [2]國立陽明交通大學

C166 Ultrasound Aids in Reducing Unnecessary Angiography for Arteriovenous Fistula Patients
以超音波輔助動靜脈瘻管評估以減少不必要的血管攝影
Ting-Ya Wang[1], Ting Chen[1], Chih-Yu Yang[1,2]
王亭雅[1], 陳婷[1], 楊智宇[1,2,*]
[1] 臺北榮民總醫院腎臟科 [2] 國立陽明交通大學醫學院

C167 Exploring the Effectiveness of Exercise Training on Vascular Access in Hemodialysis Patients
血液透析病人運動訓練對血管通路成效探討
程 音, 盧惠敏, 楊素眞
亞東記念醫院護理部

C168 The Application and Effectiveness of Decision Support Tools in Shared Decision-Making for Severe Secondary Hyperparathyroidism in Hemodialysis Patients.
決策輔助工具在血液透析重度副甲狀腺亢進病人醫病共享決策之應用成效
黃瓊珮[1], 顏綠蓉[1], 莊佳音[1], 楊千儀[1], 馬宗良[2]
Chiang-Pei Huang[1], Lu-Jung Yen[1], Chia-Yin Chuang[1], Chien-Yi Yang[1], Tsung-Liang Ma[2]
戴德森醫療財團法人嘉義基督教醫院 血液透析室[1], 腎臟科[2]
[1] Hemodialysis center,[2] Department of Nephrology, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan

C169-C174　Chair(s)：鄭本忠/ Ben-Chung Cheng、陳怡婷/ Yi-Ting Chen

C169 The Impact of Hyperphosphatemia on 2-Year Survival in Elderly Hemodialysis Patients
高血磷對老年血液透析患者 2 年存活率的影響
Tz-Heng Chen [1,2], Yuan-Chia Chu[3], Hsin-Ling Tai[4], Der-Cherng Tarng[5]
程子珩 [1,2], 朱原嘉 [3], 戴辛翎 [4], 唐德成 [5]
[1]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, [2]Institute of Emergency and Critical Care Medicine, National Yang Ming Chiao Tung University, [3]Information Management Office, Taipei Veterans General Hospital, [4]Department of Nursing, Taipei Veterans General Hospital, [5] Department of Medicine, Taipei Veterans General Hospital
[1] 臺北榮民總醫院內科部腎臟科, [2] 國立陽明交通大學急重症醫學研究所, [3] 臺北榮民總醫院資訊室, [4] 臺北榮民總醫院護理部, [5] 臺北榮民總醫院內科部

C170 Using intelligent systems to improve the number of errors in dehydration volume setting for hemodialysis patients
運用智能系統改善血液透析病人脫水量設定錯誤發生次數
Yuan-Fang Chen[1], Yu-Mei Yang[1], Yuh-Feng Wu[1], Li-Ching Chen [1], Jun-Jie Cai [2]
陳筠芳 [1], 楊玉美 [1], 吳玉鳳 [1], 陳麗菁 [1], 蔡俊傑 [2]
[1] Hemodialysis Room, Changhua Christian Hospital
[2] Division of Nephrology, Changhua Christian Hospital
[1] 彰化基督教醫院血液透析室 [2] 彰化基督教醫院腎臟內科

C171 Heterotopic Ossification－A Rare Complication in Hemodialysis Patients：A Case Report
血液透析合併罕見異位性骨化症：案例報告
何欣怡 [1], 連美琪 [1], 黃玉瑩 [1], 邱怡文 [2], 郭美娟 [2]
Ho-Shin-Yi[1], Mei-Chi Lian[1], Yu-Ying Huang[1], Yi-Wen Chiu[2], Mei-Chuan Kuo[2]
[1] Department of Nursing, and [2] Department of Nephrology, Kaohsiung Medical University Hospital
[1] 高雄醫學大學附設醫院護理部 [2] 高雄醫學大學附設醫院腎臟內科

C172 Electronic Whiteboard Construction Improves Inpatient Hemodialysis Care Workflow
電子白板建置改善住院血液透析照護工作流程
Yu-Mei Yang [1], Yu-feng Wu [1], Li-Ching Chen [1], Jun-Jie Cai [2]
楊玉美 [1], 吳玉鳳 [1], 陳麗菁 [1], 蔡俊傑 [2]
[1] Hemodialysis Room, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital
[1] 彰化基督教醫院血液透析室 [2] 彰化基督教醫院腎臟內科

C173 Use health literacy strategies to produce health education leaflets to enhance awareness of daily dialysis care
使用健康識能策略製作衛教單張以提升透析日常照護認知
Ya-Hui Wu[1] , Chen-Wei Chen[1], Ie-Ching Hu[1], Chen-Ying Hou[1] ,Wei-Ning Yeh[1], Te-Hui Kuo[2]
吳雅惠 [1], 陳珍緯 [1], 侯玉琴 [1], 侯震纓 [1], 葉惟甯 [1], 郭德輝 [2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan
國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

C174 To explore whether patients who eat during dialysis have a higher chance of developing hypotension?
探討透析中進食的病人，發生低血壓的機率是否比較高?
Shiau-Min Lin[1], Yu-Ying Huang [1], Mei-Chuan Kuo[2]
林小閔 [1], 黃玉瑩 [1], 郭美娟 [2]
[1]Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
高雄醫學大學附設中和紀念醫院護理部 [1] 腎臟內科 [2]

Peritoneal Dialysis and Telehealth

C175-C192　Chair(s)：鄭本忠/ Ben-Chung Cheng、陳怡婷/ Yi-Ting Chen

C175 The Correlation Among Health Literacy, Self-Management Behaviors and Adequacy of Dialysis in Peritoneal Dialysis Patients
腹膜透析病人健康識能、自我管理行為與適量透析指標之相關性探討
劉嘉琳[1], 蔡任弼[2], 徐邦治[3], 洪思群[4]
[1]大林慈濟醫院護理部 [2]大林慈濟醫院腎臟科 [3]花蓮慈濟醫院腎臟科
[4]台北慈濟醫院腎臟科

C176 Using nursing assessment to improve the effectiveness of dialysis treatment
運用護理評估提升透析治療效益
Pin-Han Hsia[1], Hsiu-Wen Changchein[1], Ching-I Cheng[1], Woan-Jean Lin[1], Shu-Neng Chueh[1], Hui-Ting Liu [1], Yi-Ting Chen[2,3], Shao-Yu Yang[3], Chih-Kang Chiang[2,3]
夏賓含[1], 張簡綉雯[1], 鄭靜宜[1], 林琬真[1], 闕淑能[1], 劉蕙婷[1], 陳怡婷[2,3], 楊紹佑[3], 姜至剛[2,3]
[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan
[2]Department of Integrated Diagnostics & Therapeutics, Taiwan University Hospital, Taipei, Taiwan
[3]Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan
[1]台大醫院護理部 [2]台大醫院綜合診療部 [3]台大醫院內科部腎臟科

C177 Improving peritoneal dialysis patients' non-emergency self-care abilities at home
提升腹膜透析病人非緊急事件居家自我照顧能力
Woan-Jean Lin[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Ching-Wen Lee[1], Yi-Ting Chen[2.3], Chih-Kang Chiang[2.3]
林琬真[1], 鄭靜宜[1], 闕淑能[1], 劉蕙婷[1], 李慶玟[1], 陳怡婷[2,3], 姜至剛[2,3]
[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan
[2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan
[3]Division of Nephrology Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan
[1]護理部 台大醫院 [2]血液淨化科, 綜合診療部 台大醫院 [3]腎臟科內科部 台大醫院

C178 Exploring the correlation between initial peritoneal function test and the prognosis of peritoneal dialysis patients
探討初次腹膜功能測試對腹膜透析病患預後之相關性
Woan-Jean Lin[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Ching-Wen Lee[1], Yi-Ting Chen[2.3], Vin-Cent Wu[3], Chih-Kang Chiang[2.3]
林琬真[1], 鄭靜宜[1], 闕淑能[1], 劉蕙婷[1], 李慶玟[1], 陳怡婷[2,3], 吳允升[3], 姜至剛[2,3]
[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan
[2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan
[3]Division of Nephrology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan
[1]護理部 台大醫院 [2]血液淨化科, 綜合診療部 台大醫院 [3]腎臟科內科部 台大醫院

C179 Utilizing remote patient management to improve the care of peritoneal dialysis patients
應用遠端病患管理系統提升腹膜透析病人照護
Juei-Hsin Hsu[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Yi-Ting Chen[2,3], Chih-Kang Chiang[2,3]
徐睿忻[1], 鄭靜宜[1], 闕淑能[1], 劉蕙婷[1], 陳怡婷[2,3], 姜至剛[2,3]
[1] Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan
[2] Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan
[3] Division of Nephrology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan
[1]台大醫院護理部 [2]台大醫院綜合診療部血液淨化科 [3]台大醫院內科部腎臟科

C180 Experience in caring for patients with peritoneal diaphragm leakage in a medical center in Southern District
南區某醫學中心腹膜透析橫膈膜滲漏病人之照護經驗
Chiu-Hui Tsai[1], Hsin-Wen Hsu[1], Shu-Li Wang[1], Chih-Chuan Yan[1], Chin-Huei Hsu[1], Wei-Chen Chen[1], Yu-Ying Huang[1]
蔡秋蕙[1], 許馨文[1], 王淑麗[1], 顏志娟[1], 許錦惠[1], 陳韋蓁[1], 黃玉瑩[1]
[1]Department of Nursing Kaohsiung Medical University Hospital, Kaohsiung Medical University
高雄醫學大學附設中和紀念醫院護理部

C181 Improve the incidence of peritonitis in peritoneal dialysis
改善腹膜透析病人腹膜炎發生率
蔣美蘭, 陳琬君
屏東基督教醫院腹膜透析室

C182 False Positive Galactomannan Antigenemia is Associated with Icodextrin Dialysate in Patients Undergoing Peritoneal Dialysis: a Single-Center Experience Case Series
半乳甘露聚醣抗原檢測偽陽性與腹膜透析病患使用愛多尼爾透析液有關
Tyng-shiuan Gau[1], Wei Wang[1], Pao-Yu Chen[2], Yu-Shan Huang[2], Yi-Ting Chen[1,5], Chih-Kang Chiang, Shuei-Liong Lin[1,6], Yu-Hsiang Chou[1]
高廷瑄[1], 王瑋[1], 陳抱宇[2], 黃于珊[2], 陳怡婷[1,3], 姜至剛[1,3], 林水龍[1,4], 周鈺翔[1]
[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [2] Infection Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [3]Hemodialysis Division, Department of Integrated Diagnostics and Therapeutics, National Taiwan University Hospital, Taipei, Taiwan, [4]Graduate Institute of Physiology, College of Medicine, National Taiwan University, Taipei, Taiwan
[1] 臺大醫院內科部腎臟科, [2] 臺大醫院內科部感染科, [3] 臺大醫院綜合診療部血液淨化科, [4] 臺大醫學院生理所

C183 Comparative Clinical Outcomes of Peritoneal Dialysis and Hemodialysis in Elderly Patients with End-Stage Kidney Disease: A Nationwide Cohort Study
末期腎病老年患者進行腹膜透析與血液透析比較結果: 台灣人口之世代研究
Yu-Kai Peng[1], Chieh-Li Yen[1], Yung-Chang Chen[1], Ji-Tseng Fang[1], Huang-Yu Yang[1]
彭昱凱[1], 顏介立[1], 陳永昌[1], 方基存[1], 楊皇煜[1]
[1] Nephrology Department, Linkou Chang Gung Memorial Hospital
[1] 林口長庚醫院腎臟科

C184 Positive correlation of serum indoxyl sulfate level with peripheral artery stiffness by cardio-ankle vascular index in peritoneal dialysis patients
血清硫酸吲哚酚濃度跟腹膜透析患者以心踝血管指數測量週邊動脈硬度有關
Yu-Chi Chang[1], Chih-Hsien Wang[1, 2], Hung-Hsiang Liou[3], Bang-Gee Hsu[1, 2]
張宇祺[1], 王智賢[1, 2], 劉宏祥[3], 徐邦治[1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1] 花蓮佛教慈濟醫院腎臟內科, [2] 花蓮慈濟大學醫學系, [3] 新北市新仁醫院

C185 Optimizing Peritoneal Dialysis Re-Implantation with the Hybrid Method: A Retrospective Analysis of Enhanced Outcomes
Hybrid Method 在腹膜透析重新植管可行性之探討
Li-Chuan Chen[1], Meei-Chyi Guo[2], Hui-Ping Hsiao[3], Yi-Ching Chang[4], Pei-Ying Chen[5], Shu-Ai Lin[6], Hui-Wen Kao[7], Suh-Huey Ke[8], Jiu-Yun Tian[9], Chiung-Yu Shih[10], Meei-Ju Wu[11], Hsin-Ling Tai[12]
Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan

C186 Reducing the Incidence of Peritonitis in Peritoneal Dialysis Patients
降低腹膜透析病人腹膜炎發生率
鄭玉滿[1], 江如芬[2], 盧惠敏[2]
亞東紀念醫院腹膜透析室[1], 亞東紀念醫院血液透析室[2]

C187 The correlation between Icodextrin and peritoneal patient fluid overload - Retrospective of the peritoneal dialysis room experience of a Central Medical Center
Icodextrin 與腹膜透析病患液體過多之相關性-某中區醫學中心腹膜透析室經驗回溯
Yi-Hua Chang[1], Hsiu-Yen Lin[1], Chun-Yan Hsu[1], Huei-Fong Tai[1], Li-Ching Chen[1], Chia-Lin Wu[2]
張宜驊[1], 林秀姻[1], 許春燕[1], 蔡慧鳳[1], 陳麗菁[1], 吳家麟[2]
[1] Peritoneal dialysis Room, Changhua Christian Hospital
[2] Division of Nephrology, Changhua Christian Hospital
彰化基督教醫院 腹膜透析室[1] 腎臟科[2]

C188 Using Smart Medicine To Improve Peritoneal Dialysis Quality Care
運用智慧科技提升腹膜透析照護品質
Hsin-Lin Peng[1], Li -Chuan Kuo[1], Ying-Wen Chi[1]
彭杏林[1], 郭琍娟[1], 紀穎雯[1]
Tri-Service General Hospital Nephrology
三軍總醫院腎臟科

C189 Reducing delayed automated PD utilization in hospitalized peritoneal dialysis patients
降低腹膜透析住院病人 APD 延遲使用異常件數
王麗娥[1], 盧惠敏[2], 程 音[3]
亞東紀念醫院腹膜透析[1], 亞東紀念醫院血液透析室[2], 亞東紀念醫院護理部[3]

C190 Nursing Experience of Using Shared Decision Making to Care an End-Stage Renal Disease Elderly Patient Facing the Choice of Dialysis Modality
運用共享決策於高齡末期腎病病人面對透析抉擇的護理經驗
劉寶玲[1], 戴辛翎[2]
高雄醫學大學附設中和紀念醫院 護理部[1]
台北榮民總醫院 護理部[2]

C191 Using multimedia teaching and video platforms to promote the peritoneal dialysis patients for self-health management in nursing experience
運用即時通訊軟體視訊平台提升初次面臨腹膜透析患者自我照顧之護理經驗
Shu-Chin.Yang, Ching-TanCheng, Yueh-Ting Lee, Shang-Chih Liao,-Chien-Te Lee
楊淑津, 鄭晶丹, 李岳庭, 廖上智, 李建德
Kaohsiung Municipal Feng Shan Hospital - Under the management of Chang Gung Medical Foundation
高雄市立鳳山醫院(委託長庚醫療財團法人經營)

C192 Continuous tracking the correctness of hand washing among peritoneal dialysis patients
持續追蹤腹膜透析病人洗手正確性
Li-Chiung Yang[1], Mei-Chih Hu[1], Lan-Yen Chen[1], Ya-Hui Lai[2], Ching-Wei Wang[1], Yueh-Feng Tsai[1],
Ting-Yi Wang[1], Li-Hsueh Huang[1]
楊麗瓊[1], 胡美枝[1], 陳蘭燕[1], 賴雅惠[2], 王景薇[1], 蔡岳峰[1], 王婷翊[1], 黃麗雪[1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[2] Infection Conttral Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1] 台南新樓醫院 血液透析中心 [2] 台南新樓醫院 感染管制中心

C193-C204 Chair(s)：徐世平/ Shih-Ping Hsu、吳家麟/ Chia-Lin Wu

C193 Analysis on peritonitis in peritoneal dialysis patients
腹膜透析病人再發生腹膜炎相關分析
Yu-Ting LIN[1], Hui-Zhen RUAN[2]
林玉婷[1], 阮慧珍[2]
[1] National Taiwan University Hospital Bei-Hu Branch, Department of Nursing, Hemodialysis Center [2] National Taiwan University Hospital, Department of Nursing, Peritoneal dialysis Center
[1] 國立台灣大學醫學院附設醫院北護分院護理部血液透析中心 [2] 國立台北護理健康大學護理研究所 [3] 國立台灣大學醫學院附設醫院腎臟內科

C194 Sharing experience in assisting the elderly to complete peritoneal dialysis fluid exchange training
協助長者完成腹膜透析換液訓練之經驗分享
Mei-Chih Hu[1*], Lan-Yen Chen[1], Li-Chiung Yang[1], Li-Hsueh Huang[1]
胡美枝[1*], 陳蘭燕[1], 楊麗瓊[1], 黃麗雪[1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1]台南新樓醫院 血液透析中心

C195 Peritoneal dialysis nurses-coached shared-decision making facilitates the implementation of dialysis catheter implantation
腹膜透析治療師主動參與的醫病共享決策促進了透析導管植入的實施
Chien-Hsiu Liu, Chin-Ju Cheng, Mei-Ying Wu, Fu-Lin Chang, Chao-Chuan Lee, Tsuen-Wei Hsu, Ben-Chung Cheng, Wen-Chin Lee
劉建秀,鄭錦如,吳美瑩,張富玲,李昭娟, 許淳惟,鄭本忠,李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital
高雄長庚醫院 腎臟科

C196 Results of using the BSRS-5 for initially screening psychiatric symptoms and implementing timely interventions in patients undergoing peritoneal dialysis
以簡式健康量表初篩腹膜透析病人精神症狀與及時介入之結果
Pei-Jung Wu[1], Yung-chu Yang [1], Hsueh-Chi Chou[1], Mei-Hsien Wu[1], Hui-Ying Lin[1], Hsin-Chun Tsai[1], Chen-Wei Chen[1], Chin-Chung Tseng [2], Jo-Yen Chao[2]
吳佩蓉[1], 楊詠筑[1], 周雪琦[1], 吳美賢[1], 林惠瑛[1], 蔡幸錞[1], 陳珍緯[1], 曾進忠[2], 趙若雁[2]
[1] Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan
[2] Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan
[1.]國立成功大學醫學院附設醫院護理部 [2.]國立成功大學醫學院附設醫院腎臟科

C197 Health education on hyperphosphatemia in peritoneal dialysis patients
腹膜透析患者高血磷衛教
Lan-yen Chen[1]*, Mei-chih Hu[1], Yueh-Feng Tsai[1], Ting-Yi Wang[1], Ching-Wei Wang[1], Li-Hsueh Huang[1], Li-chiung Yang[1]
陳蘭燕[1]*,胡美枝[1],蔡岳峰[1],王婷翊[1],王景薇[1],黃麗雪[1],楊麗瓊[1]
[1]Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1]台南新樓醫院血液透析中心

C198 Enhancing the choice of peritoneal dialysis by pre-ESRD education program
探討腹膜透析與提升照護品質計畫之成效
Ya Ling Chen, Fang Lieng Yeh, Ling Juang, Hsin Lin Peng, Li Chuan Kuo, Ying Wen Chi
陳雅玲, 葉芳伶, 姜菱, 彭杏林, 郭琍娟, 紀穎雯
Tri-Service General Hospital Nephrology
三軍總醫院腎臟科

C199 Peritoneal dialysis-related tunnel infection caused by *Dermabacter hominis*
由 Dermabacter hominis 引起之腹膜透析相關隧道感染
Hui-Ying Lin[1], Wen-Chun Chen[1], Hsueh-Chi Chou[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Hsin-Chun Tsai[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Jo-Yen Chao[2], Chin-Chung Tseng[2], Ming-Cheng Wang[2]
林惠瑛[1], 陳雯君[1], 周雪琦[1], 吳佩蓉[1], 吳美賢[1], 楊詠筑[1], 蔡幸錞[1], 徐秀蓮[1], 陳珍緯[1], 趙若雁[2], 曾進忠[2], 王明誠[2]
[1]Department of Nursing; [2]Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan
國立成功大學醫學院附設醫院 [1]護理部、[2]內科部腎臟科

C200 Investigation for the bacterial virulence factors associated with clinical severity of staphylococcal peritonitis in peritoneal dialysis patients
與腹膜透析患者葡萄球菌性腹膜炎臨床嚴重程度有關的細菌毒力因素之研究
Chia-Chun Lee[1], Jo-Yen Chao[1], Te-Hui Kuo[1], Wei-Ren Lin[1], Kuan-Hung Liu[1], An-Bang Wu[1], Yu-tzu Chang[1], Ming-Cheng Wang[1], Junne-Ming Sung[1], Jenn-Wei Chen[2], Chin-Chung Tseng[1]
李佳駿[1], 趙若雁[1], 郭德輝[1], 林威任[1], 劉冠宏[1], 吳安邦[1], 張育誌[1], 王明誠[1], 宋俊明[1], 陳振暐[2], 曾進忠[1]
Division of Nephrology[1], National Cheng Kung University Hospital and Department of Microbiology and Immunology[2], College of Medicine, National Cheng Kung University
國立成功大學醫學院附設醫院腎臟科[1]及微生物學科暨微生物及免疫學研究所[2]

C201 Overview of Sharesource Flag Alerts and Event in PD-related infection patients
腹膜透析相關感染合併症病人 Sharesource 警訊與事件概況
Hsueh-Chi Chou[1], Hsin-Chun Tsai[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Chin-Chung Tseng[2], Jo-Yen Chao[2]
周雪琦[1], 蔡幸錞[1], 吳佩蓉[1], 吳美賢[1], 楊詠筑[1], 徐秀蓮[1], 陳珍緯[1], 曾進忠[2], 趙若雁[2]
[1]Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan [2]Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan, Taiwan
[1]國立成功大學醫學院附設醫院護理部 [2]國立成功大學醫學院附設醫院內科部腎臟科

C202 Proteomic analysis from peritoneal dialysis effluent-derived extracellular vesicles in patients with ultrafiltration failure
腹膜透析患者發生脫水不良之腹膜液外泌體蛋白質體分析研究
Chi-Wei Shih[1], Shih-Hua Lin[1], Yu-Juei Hsu[1], Shun-Neng Hsu[1], Chih-Chien Sung[1]
石濟維[1], 林石化[1], 許育瑞[1], 許舜能[1], 宋志建[1]
[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[1] 國防醫學院三軍總醫院腎臟內科

C203 Early failure in patient with peritoneal dialysis: a single center experience
腹膜透析病人早期流失的原因探討:以南部某區域醫院為例
Chiang-Pei Huang[1], Wan-Chen Chang[1], Hsiag-Chun Chen[1], Yuh-Ru Liu[2], Pei-Chun Chiang[2]
黃瓊珮[1], 章婉真[1], 陳香君[1], 劉育如[2], 江培群[2]
[1] Hemodialysis center,[2]Department of Nephrology, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan
戴德森醫療財團法人嘉義基督教醫院 血液淨化中心[1], 腎臟內科[2]

C204 Clinical and Laboratory Features in Uremic Patients on Continuous Ambulatory Peritoneal Dialysis Before and After Parathyroidectomy
腹膜透析患者接受副甲狀腺切除手術之術前與術後的臨床和實驗數據特徵
Shun-Neng Hsu, Pauling Chu, Shih-Hua Lin
[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
三軍總醫院 內科部 腎臟內科

Kidney Transplantation and Regeneration

C205-C207 Chair(s)：徐世平/ Shih-Ping Hsu、吳家麟/ Chia-Lin Wu

C205 Serum trimethylamine N-oxide level is independently associated with peripheral artery disease in kidney transplantation patients
血清氧化三甲胺濃度跟腎臟移植患者週邊動脈阻塞性疾病有關
Ho-Hsiang Chang[1], Han-Bin Boey[1], Yen-Cheng Chen[2,3], Bang-Gee Hsu[1,2]
張賀翔[1],倪漢斌[1],陳言丞[2,3],徐邦治[1,2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3] Department of Surgery, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan
[1]花蓮佛教慈濟醫院腎臟內科,[2]花蓮慈濟大學醫學系,[3]花蓮佛教慈濟醫院外科

C206 Short- and Long-Term Outcomes of Kidney Transplant Recipients with COVID-19 Infection
腎移植病人得到新型冠狀病毒肺炎的短期和長期表現
Chit Yong Ling[1], Tung-Wei Hung[1,2], Jung-Da Lian[1], Horng-Rong Chang[1,2], Pao-Yu Tsai[1], Sheng-Wen Wu [1,2]
[1] Division of Nephrology, Department of Internal Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan.
[2] School of Medicine, Chung Shan Medical University, Taichung, Taiwan

C207 Timing of steroid withdrawal and outcomes in kidney transplant recipients
停用類固醇時效和腎臟移植受腎者的預後分析
Lee-Moay Lim[1,2,3,], Wei-Shan Chang[4], Ho-Yin Huang[5,6], Ming-Yen Lin[2,4],Hung-Tien Kuo[2,3*]
林麗玫 [1,2,3], 張瑋珊 [4], 黃合吟 [5,6], 林明彥 [2,4], 郭弘典 [2,3*]
[1]Graduate Institute of Clinical Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan. [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan. [3]School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan. [4]Division of Medical Statistics and Bioinformatics, Department of Medical Research, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [5]Department of Pharmacy, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan. [6]School of Pharmacy, College of Pharmacy, Kaohsiung Medical University, Kaohsiung, Taiwan.
[1] 高雄醫學大學醫學院醫學系臨床醫學研究所 [2] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [3] 高雄醫學大學醫學院醫學系 [4] 高雄醫學大學附設中和紀念醫院臨床醫學研究部醫學統計分析及生物資訊研究室 [5] 高雄醫學大學附設中和紀念醫院藥學部 [6] 高雄醫學大學藥學院藥學系

Pediatric, Geriatric, Hospice, and Other Nephrology

C208-C210 Chair(s)：徐世平/ Shih-Ping Hsu、吳家麟/ Chia-Lin Wu

C208 Risk of Sarcopenia, Frailty and Functional Performance in Older Adults with Pre-Dialysis Chronic Kidney Disease
未透析老年 CKD 病患之肌少症風險,衰弱和身體功能表現
Tzu-Hui Chen[1], Shih-fen Hsiao[3,] Shu-Li Wang[1], Lan-Fang Kung[1], Pei-Ni Hsiao[1], Yi-Chun Tsai[2]
陳慈徽 [1], 蕭世芬 [3], 王淑麗 [1], 龔蘭芳 [1], 蕭佩妮 [1], 蕭仕敏 [1], 蔡宜純 [2]
[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University Hospital, [3]Kaohsiung Medical University
[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科 [3] 高雄醫學大學

C209 Choosing Wisely - NO ACT IS ACT
明智選擇(Choosing Wisely): 你可以『不』洗腎- NO ACT IS ACT
Chiu-Ying Hsiao, I-Ning Yang
蕭秋穎, 楊翼寧
Division of Nephrology, Department of Internal Medicine, Chi Mei Medical Center,
奇美醫學中心內科部腎臟科

C210 Risk assessment of urinary tract stones in patients with spinal cord injury: a retrospective cohort study in Taiwan
脊髓損傷病人發生泌尿道結石的風險評估：台灣回溯型世代研究
Mei-Hua Cheng[1], Kuo-Ting, Chang[3], Meng-Hsuan, Hsieh[2], Chen-Yi Wang[1], Shu-O Chiang[5], Wei-Jie Wang[2,3,4]
鄭美華 [1], 張國廷 [3], 謝孟璇 [2], 王貞懿 [1], 江淑娥 [5], 王偉傑 [2,3,4]
[1] 衛生福利部桃園醫院復健醫學部職能治療科, [2] 衛生福利部桃園醫院腎臟科
[3] 衛生福利部桃園醫院轉譯醫學中心, [4] 中原大學生物醫學工程學系,
[5] 以斯帖統計顧問股份有限公司

Infection Control and Vaccination in Kidney Diseases

C211-C216 Chair(s)：徐世平/ Shih-Ping Hsu、吳家麟/ Chia-Lin Wu

C211 Association of acute kidney injury and mortality in patients with gram positive cocci bacteremia
急性腎損傷與致死率在革蘭氏陽性球菌血症病患之相關性研究
Yuwen Hsueh[1], Hong-Mou Shih[1,2], Cheng-Jui Lin[1,2], Chih-Jen Wu[1,2]
薛祐文[1],施宏謀[1,2],林承叡[1,2],吳志仁[1,2]
[1]Division of Nephrology, Department of Internal Medicine, Mackay Memorial Hospital, Taipei, Taiwan
[2]Department of Medicine, Mackay Medical College, New Taipei, Taiwan.
[1]馬偕紀念醫院腎臟內科, [2]馬偕醫學院醫學系

C212 Invasive listeriosis in chronic dialysis patients: a case series
末期腎疾病患者的侵襲性李斯特菌症: 病例系列
Yi-Chun Liu[1], Shuh-Kuan Liau[1], Chao-Yu Chen[1], Yueh-An Lu[1], Yu-Jr Lin[2], Kuan-Hsing Chen[1], Chen-Chieh Hung[1], Yung-Chang Chen[1], Ya-Chung Tian[1], Hsiang-Hao Hsu[1]
劉怡君[1], 廖述寬[1], 陳昭妤[1], 呂悅安[1], 林育志[2], 陳冠興[1], 洪振傑[1], 陳永昌[1], 田亞中[1], 許翔皓[1]
[1]Department of Nephrology, Kidney Research Center, Chang Gung Memorial Hospital, Linkou Branch, College of Medicine, Chang Gung University, Taoyuan, Taiwan
[2] Research Service Center for Health Information from Chang Gung University, Taoyuan, Taiwan
[1]林口長庚紀念醫院,腎臟研究中心,腎臟科; 長庚大學醫學院
[2]長庚大學健康資料研究服務中心

C213 Humoral Response Following a Fifth Dose of COVID-19 Vaccine and Breakthrough Infection in Patients on Peritoneal Dialysis
腹膜透析病人接種第五劑新冠疫苗及突破性感染後的免疫體液反應分析
Wan-Chuan Tsai, Kuei-Ting Tung, Kai-Hsiang Shu, Mei-Fen Pai, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Shih-Ping Hsu, Yu-Sen Peng
蔡萬全, 董奎廷, 徐愷翔, 白玫芬, 吳泓彥, 邱彥霖, 楊如燁, 徐世平, 彭渝森
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C214 Immune Humoral Response Following Receipt of a Fifth Dose of COVID-19 Vaccines and Breakthrough Infection among Patients Undergoing Hemodialysis
探討血液透析病人接種第五劑新冠疫苗及突破性感染後的免疫體液反應
Wan-Chuan Tsai, Mei-Fen Pai, Kuei-Ting Tung, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng
蔡萬全, 白玫芬, 董奎廷, 吳泓彥, 邱彥霖, 楊如燁, 徐愷翔, 徐世平, 彭渝森
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C215 The Efficacy of Multiple Strategies to Decrease Catheter-Associated Urinary Tract Infections in Nephrology ward.
運用組合式策略降低腎臟科病房留置導尿管感染發生率
Tang, T. J.[1], Sun, W. N.[2]
湯采儒[1], 孫婉娜[2]
[1]NCKUH, [2]NCKUH
[1]國立成功大學醫學院附設醫院護理師, [2]國立成功大學醫學院附設醫院

C216 The Efficacy of Multiple Strategies to Decrease Infection Rates of Renal Biopsy Patients.
運用組合式策略降低腎臟切片病人感染率
Lin, C. W.[1], Sun, W. N.[2]
林清雯[1], 孫婉娜[2]
[1]NCKUH, [2]NCKUH
[1]國立成功大學醫學院附設醫院護理師, [2]國立成功大學醫學院附設醫院護理師

C217-C222 Chair(s)：顏宗海/ Tzung-Hai Yen、陳錫賢/ Hsi-Hsien Chen

C217 Comparison of Short-term Adverse Events Following Monovalent and Bivalent mRNA SARS-CoV-2 Vaccines among Dialysis Patients
透析病人接種一價及二價 mRNA 新冠疫苗後短期不良事件的比較分析
Wan-Chuan Tsai, Yen-Ling Chiu, Hon-Yen Wu, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Shih-Ping Hsu, Yu-Sen Peng, Ju-Yeh Yang
蔡萬全, 邱彥霖, 吳泓彥, 徐愷翔, 白玫芬, 董奎廷, 徐世平, 彭渝森, 楊如燁
Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital
亞東紀念醫院腎臟內科

C218 Preparaedness and Contingency Planning in response to COVID-19 epidemic in peritoneal dialysis unit at a certain district teaching hospital in northern area of Taiwan
北部某區域教學醫院腹膜透析室因應 COVID-19 之整備
林彥君[1], 盧尤娟[1], 何妙純[1], 謝宜蓁[2]
[1]台大醫院新竹台大分院 腹膜透析室 [2]台大醫院新竹台大分院 血液透析中心

C219 The impact of self-protective measures on nephrology ward nursing personnel in the post-pandemic era
自我防疫措施對腎臟內科病房護理人員於後疫情時代確診之影響
[1]Ya-Wen Sung, [2]Yi-Fang Hsin, [3]Xiao-Ching Chen, [4]Jia-Chin Du, [5]Chung-Yu Wei
[1]宋雅雯, [2]辛怡芳, [3]陳筱晴, [4]杜嘉秦, [5]魏崇宇
Department of Nursing, Kaohsiung Medical University Hospital (KMUH), Kaohsiung Medical University
高雄醫學大學附設醫院護理部

C220 The bacterial characteristics and antibiotics resistance of Klebsiella pneumoniae isolated from diabetic patients from a medical center in Southern Taiwan
克雷伯氏肺炎桿菌感染之細菌特性、致病因子及抗生素抗藥性與糖尿病之相關分析 - 臺灣南部某醫學中心之世代研究
Jo-Yen Chao[1], Cheng-Yen Kao[2], Tzu-Shan Huang[1], Wei-Ren Lin[1], Chin-Chung Tseng[1], Ming-Cheng Wang[1,3], Wei-Hung Lin[1]
趙若雁[1], 高正彥[2], 黃子珊[1], 林威任[1], 曾進忠[1], 王明誠[1,3], 林威宏[1]
[1.] Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan
[2.] Institute of Microbiology and Immunology, School of Life Sciences, National Yang Ming Chiao Tung University, Taipei
[3.]Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan
[1.] 國立成功大學醫學院附設醫院內科部腎臟科, [2.] 國立陽明交通大學生命科學院微生物及免疫學研究所, [3.] 國立成功大學醫學院臨床藥學與藥物科技研究所

C221 Humoral and cellular immune responses against circulating SARS-CoV-2 variants following bivalent boosters in hemodialysis patients
血液透析患者施打雙價新型冠狀病毒疫苗引發之變異株體液及細胞免疫反應
Tsai-Chieh Ling[1], Po-Lin Chen[1], Wen-Chien Ko[1], Jen-Ren Wang[2], Wei-Ren Lin[1], Chieh-Hsin Huang[1], Chien-Yao Sun[1], Yu-Tzu Chang[1]
凌采絜, 陳柏齡, 柯文謙, 王貞仁, 林威任, 黃絜歆, 孫健耀, 張育誌
Department of Internal Medicine, National Cheng Kung University hospital[1], and Department of Medical Laboratory Science and Biotechnology[2], College of Medicine, National Cheng Kung University, Tainan, Taiwan
國立成功大學醫學院附設醫院內科部[1], 國立成功大學醫學院醫技系[2]

C222 The effects of Nursing Intervention to Promote the Completeness of in COVID-19 Patient Care in the Hemodialysis Room.
Tsuei-Wun Chang, Yi-Shian Chen, Yu-Ting Lin
RN, National Taiwan University Hospital Bei-Hu Branch

Toxin-related and Environmental Kidney Diseases

C223-C226　Chair(s)：顏宗海/ Tzung-Hai Yen、陳錫賢/ Hsi-Hsien Chen

C223 Association between Ambient Air Pollutants and Kidney Stone Disease in a Large Taiwanese Population Study

一項大型台灣人口研究中環境空氣污染物與腎結石疾病之間的關聯

Chiu-Yueh Chen [1], Jui-Hsin Chen[1], Hsiu-Chin Mai [1], Szu-Chia Chen[2,3]

陳秋月 [1], 陳瑞忻 [1], 麥秀琴 [1], 陳思嘉 [2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部 [1] 高雄醫學大學附設醫院腎臟內科 [2] 高雄市立小港醫院內科 [3]

C224 Association of Benzene Exposure on Gut Microbiota Abundance and Composition in Chronic Disease Patients

苯暴露與慢性病患者腸道微生物群豐度及組成的相關性

Szu-Chia Chen[1,2], Pei-Yu, Wu[1,2], Jiun-Chi Huang[1,2], Hao-Ping Wang[1,2], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳思嘉 [1,2], 吳珮瑜 [1,2], 黃俊祺 [1,2], 王皓平 [1,2], 邱怡文 [1], 張哲銘 [1]

[1]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [2]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄醫學大學附設醫院腎臟內科 [1] 高雄市立小港醫院內科 [2]

C225 Sex Differences in the Impact of Heat Stress on the Renal Function

探討性別差異對熱傷害影響腎功能

Yi-Kong Chen[1], Wei-Yu Su[1], You-Chi Chen[1], Ming-Yen Lin[1], Ping-Hsun Wu[1], Szu-Chia Chen[1], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳逸剛 [1], 蘇威宇 [1], 陳宥騏 [1], 林明彥 [1], 吳秉勳 [1], 陳思嘉 [1], 邱怡文 [1], 張哲銘 [1]

[1] Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan;

[1] 高雄醫學大學附設中和紀念醫院 腎臟內科

C226 Assessing the Relationship between Renal Function and Air Pollutants Using Geospatial-Artificial Intelligence (Geo-AI) Techniques

使用 Geo-AI 技術評估腎功能與空氣污染物之間的關係

You-Chi Chen[1], Wei-Yu Su[1], Yi-Kong Chen[1], Ming-Yen Lin[1], Ping-Hsun Wu[1], Szu-Chia Chen[1], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳宥騏 [1], 蘇威宇 [1], 陳逸剛 [1], 林明彥 [1], 吳秉勳 [1], 陳思嘉 [1], 邱怡文 [1], 張哲銘 [1]

[1] Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan;

[1] 高雄醫學大學附設中和紀念醫院 腎臟內科

Trending Topic 2023: Augmented Intelligence, Digital Health, and Data Science

C227-C241　Chair(s)：顏宗海/ Tzung-Hai Yen、陳錫賢/ Hsi-Hsien Chen

C227 Analysis of the impact of AI smart medical policy on chronic kidney disease patients in a hospital in southern China

南部某地區醫院慢性腎臟病病患 AI 智慧醫療政策影響研究之分析

Ku-Chung Wang[1], Te-Chuan Chen[2], Meng-HsuehWu[1],Ching-TanCheng[1], Yueh-Ting Lee[1],Shang-Chin Liao[1] Chlen-Te Lee[1]

王谷鐘 [1], 陳德全 [2], 吳孟學 [1], 鄭晶丹 [1], 李岳庭 [1], 廖上智 [1], 李建德 [2]

Kaohsiung Municipal Feng Shan Hospital-Under the management of Chang Gung Medical Foundation、Division of Nephrology[1]

Division of Nephrology, Department of Medicine ,Kaohsiung Chang Gung Memorial[2]

高雄市立鳳山醫院-委託長庚醫療財團法人經營 [1] 高雄長庚紀念醫院腎臟科 [2]

C228 Enhancing Information Accuracy and Clinical Decision Precision in the Management of Chronic Kidney Disease Cases through Information System Integration
運用資訊系統整合提升慢性腎臟病個案管理的資訊正確性和臨床決策精準度
Y Lee[1], YP Chen[1], WC Lo[1], YC Pan[1], WH Lee[1]
李昀[1], 陳怡萍[1], 羅婉綺[1], 潘怡君[1], 李文惠[1]
[1]Lotung Po-Ai Hospital
[1]羅東博愛醫院

C229 Involving nursing preventive treatments with machine learning alarming systems to decrease the rates of intradialytic hypotension
結合 AI 風險預測系統及護理介入措施有效降低透析中低血壓發生率
黃惠暄, 莊秋萍, 劉忠峰, 沈郁婷, 陳佳蓉, 楊翼寧
奇美醫院血液透析室, 奇美智慧醫療中心, AI 工程師, 資訊室, 腎臟科

C230 Analysis of COVID -19 vaccination rate and infection rate among peritoneal inpatients in a southern medical center
南部某醫學中心腹膜透析病人，Covid-19 疫苗接種率與感染率分析
卓秋萍[1], 蔡淑朵[1], 黃惠暄[1], 王憲奕[2]
奇美醫療財團法人奇美醫院 [1]護理部 [2]內科部

C231 Machine learning to predict complications after percutaneous native kidney needle biopsy
Hung-Chieh Wu[1,2], Yu-Chen Chiu[1], Wei-Jie Wang[1,3]
[1] Division of Nephrology, Department of Internal Medicine, Taoyuan General hospital, Taoyuan, Ministry of Health and Welfare, Taiwan
[2] Department of Biotechnology, Ming Chuan University, Taipei, Taiwan
[3] Department of Biomedical Engineering, Chung Yuan Christian University, Taoyuan, Taiwan

C232 Discussion on the learning effectiveness of multiple health education materials in blood pressure monitoring for patients with chronic kidney disease.
慢性腎臟病人對多元化衛教工具於血壓監測學習成效探討
Chih Ying Huang , Pei Lin Lin, ChinYi Huang, Hsou Li Chu, Shu Chen Chang , Shu Yu Chen
黃智英[1], 林沛伶[1], 黃靜宜[2], 朱秀麗[1], 張淑真[3], 陳書毓[4]
[1]Chronic Kidney Disease Education Center, Changhua Christian Hospital,
[2]Teaching and Research Department, Changhua Christian Hospital ,[3]Erlin Christian Hospital, [4] Department of Nursing, Changhua Christian Hospital.
[1]彰化基督教醫院慢性腎臟病衛教中心 [2]彰化基督教醫院教學研究部
[3]彰化基督教醫療財團法人二林基督教醫院 [4]彰化基督教醫院護理部

C233 Applying Digital Information to Construct of an Electronic Whiteboard System for Hemodialysis-Experience in a Medical Center in Southern
應用數位資訊建構血液透析電子白板系統-南部某醫學中心經驗分享
Chen-Wei Chen[1], Hui-Hua Wang[1], Ie-Ching Hu[1], Yi-Hsiang Tsai[3], Cheng-Jen Wang[3], Chin-Chung Tseng[2], Te-Hui Kuo[2]
陳珍緯[1], 王惠華[1], 侯玉琴[1], 蔡宜湘[3], 王政仁[3], 曾進忠[2], 郭德輝[2]
國立成功大學醫學院附設醫院[1]護理部, [2]腎臟科, [3]新漢股份有限公司，台灣

C234 Utilizing AI to promote the work efficiency of newly employees
運用人工智能促進新進護理師之工作效益
Pin-Han Hsia[1], Hsiu-Wen Changchein[1], Hui-Ting Liu [1], Yi-Ting Chen[2,3]
夏賓含[1], 張簡綉雯[1], 劉蕙婷[1], 陳怡婷[2,3]
[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan
[2]Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan
[3]Renal devision, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan
[1]台大醫院護理部, [2]台大醫院綜合診療部血液淨化科, [3]台大醫院腎臟科

C235 Intelligent Personalization Management for Peritoneal Dialysis Patient Care
腹膜透析病人照護的智能化個人管理
Shih-Yi Yang[1], Shou-Chieh Wang[1], Chia-Liang Wang[1], Chia-Chu Chang[1], Yu-Fen Huang[1], Jian-Ye Chen[1], Xiang-Yu Wang[1]
楊師怡[1], 王守玠[1],王家良[1], 張家築[1], 黃毓芬[1], 陳建曄[2], 王祥宇[2]
Division of Nephrology, Kuang Tien General Hospital[1], Information room, Kuang Tien General Hospital[2]
沙鹿光田醫院腎臟科[1], 沙鹿光田醫院資訊室[2]

C236 Constructing monitoring of hemodialysis room evaluation indicators through information application
藉由資訊化應用建構血液透析室評鑑指標之監測
黎媛玲[1]
[1]三軍總醫院 腎臟內科 血液透析室

C237 A survey on the prevalence of burnout among peritoneal dialysis patients and caregivers in performing peritoneal dialysis
評估腹膜透析患者和其照顧者操作腹膜透析所產生的疲怠及壓力
Yung-An Chen[1], Yi-Ting Chen[1,2], Yu-Hsiang Chou[1], Shuei-Liong Lin[1]
陳永安[1], 陳怡婷[1,2], 周鈺翔[1], 林水龍[1]
[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital. [2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital.
[1]台大醫院內科部腎臟科 [2]台大醫院綜合診療部血液淨化科

C238 The role of *Finegoldia magna*, an anaerobic Gram-positive coccus, in a peritoneal dialysis patient with exit site infection
革蘭氏陽性厭氧球菌 *Finegoldia magna* 在一腹膜透析病人導管出口感染的角色
Hsin-Chun Tsai[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Hsueh-Chi Chou[1], Hui-Ying Lin[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Chin-Chung Tseng[2], Ming-Cheng Wang[2], Jo-Yen Chao[2]
蔡幸錞[1], 徐秀蓮[1], 陳珍緯[1], 周雪琦[1], 林惠瑛[1], 吳佩蓉[1],吳美賢[1], 楊詠筑[1], 曾進忠[2], 王明誠[2], 趙若雁[2]
[1]Department of Nursing; [2]Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan
國立成功大學醫學院附設醫院 [1]護理部, [2]內科部腎臟科

C239 Using guided meditation in the care process of a patient receiving hemodialysis
運用引導冥想在一位接受血液透析病人之護理過程
Hsiao-lan cheng
鄭曉嵐
Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
三軍總醫院腎臟內科血液透析室

C240 Reduce the incidence of hypotension during hemodialysis
降低血液透析過程低血壓發生率
Shu-Juan You, Ying-Fang Zhang, Kai-Ling Yang, Ren-Feng Liu, Ci-yong Du
Yi-Li Lin, Huey-Liang Kuo
游淑娟[1], 張穎方[1], 楊凱玲[2], 劉人鳳[1], 杜慈詠[1], 林憶琍[1], 郭慧亮[2]
[1]Hemodialysis Unit, Department of Nephrology, China Medical University Hospital
[2]Department of Nephrology, China Medical University Hospital
[1]中國醫藥大學附設醫院腎臟系血液透析室 [2]中國醫藥大學附設醫院腎臟系

C241 Shared Decision Making for dialysis modality selection in the outpatients with late chronic kidney disease: outcome analysis
醫病共享決策對門診末期腎臟病友透析模式之選擇：成果分析
An-Bang Wu[1], Chin-Chung Tseng[1], Yu-Chen Kuo[1,2], and Junne-Ming Sung[1]
吳安邦[1], 曾進忠[1], 郭育甄[1,2], 宋俊明[1]
[1] Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan [2] Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan
[1]成功大學附設醫院內科部腎臟科 [2]成功大學附設醫院護理部

C001

Perioperative alternation of Kinetic Estimated Glomerular Filtration Rate (KeGFR) affecting postoperative complications within 30 days following craniotomy for primary malignant brain tumors

Yao-Chung Yang[1] and Jin-Shuen Chen[2]
Division of Neurosurgery, Department of Surgery, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[1]
Department of Administration, Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan[2]

Introduction: The occurrence of postoperative complications within 30 days (PC1M) of a craniotomy for the removal of a primary malignant brain tumor has been associated with a poor prognosis. However, it is still unclear to early predict the occurrence of PC1M. This study aimed to identify the potential perioperative predictors of PC1M from its preoperative, intraoperative, and 24-h postoperative parameters.
Methods: Patients who had undergone craniotomy for primary malignant brain tumor (World Health Organization grades III and IV) from January 2011 to December 2020 were enrolled from a databank of Kaohsiung Veterans General Hospital, Taiwan. The patients were classified into PC1M and nonPC1M groups. PC1M was defined according to the classification by Landriel et al. as any deviation from an uneventful 30-day postoperative course. In both groups, data regarding the baseline characteristics and perioperative parameters of the patients, including a new marker-kinetic estimated glomerular filtration rate, were collected. Logistic regression was used to analyze the predictability of the perioperative parameters.
Results: The PC1M group included 41 of 95 patients. An American Society of Anesthesiologists score of > 2 (aOR, 3.17; 95% confidence interval [CI], 1.19–8.45; p = 0.021), longer anesthesia duration (aOR, 1.16; 95% CI, 0.69–0.88; p < 0.001), 24-h postoperative change in hematocrit by > − 4.8% (aOR, 3.45; 95% CI, 1.22–9.73; p = 0.0019), and 24-h postoperative change in kinetic estimated glomerular filtration rate of < 0 mL/min (aOR, 3.99; 95% CI, 1.52–10.53; p = 0.005) were identified as independent risk factors for PC1M via stepwise logistic regression analysis. When stratified according to the age of ≥ 65 years (OR, 11.55; 95% CI, 1.30–102.79; p = 0.028), the reduction of kinetic estimated glomerular filtration rate was more robustly associated with a higher risk of PC1M.
Conclusions: Four parameters were demonstrated to significantly influence the risk of PC1M in patients undergoing primary malignant brain tumor removal. Measuring and verifying these markers, especially kinetic estimated glomerular filtration rate, would help early recognition of PC1M risk in clinical care.

C002

Characteristics of Acute Kidney Injury among Patients Receiving Aerosolized Colimycin Therapy

Hung-Ju Fan[1], Shu-Chuan Tai[2], Wen-Sheng Liu[3,4,5], Yi-Hsin Chou[3,4]

[1]Department of Nursing, Taipei City Hospital Zhongxing Branch

[2]Infection Control Center, Taipei City Hospital Zhongxing Branch

[3]Division of Nephrology, Taipei City Hospital Zhongxing Branch

[4]School of Medicine, National Yang Ming Chiao Tung University

[5]College of Science and Engineering, Fu Jen Catholic University.

Background:

Colimycin is effective in the treatment of pneumonia caused by carbapenem resistant Gram-negative bacilli. However, nephrotoxicity is a frequent issue. Aerosolized Colimycin reduces systemic exposure and diminish nephrotoxicity in some studies. We aim to investigate the potential risk factors of acute kidney injury (AKI) among patients receiving aerosolized Colimycin therapy.

Methods:

This retrospective cohort study analyzed patients who received aerosolized Colimycin therapy under the surveillance of infection control center in a single regional hospital between September 2022 and August 2023. AKI was defined in accordance with the criteria from the 2012 Kidney Disease: Improving Global Outcomes (KDIGO) guideline. We evaluated potential variables of AKI by multivariate logistic regression analysis. We also conducted Log-rank test to estimate the risk of AKI between different groups.

Results:

A total of 110 patients entered the analysis: 21 patients had AKI events (19%) and 89 patients were free from AKI events (81%). In AKI group, 8 patients (38%) developed KDIGO stage I AKI, and 13 patients (61.9%) developed KDIGO stage II or III AKI including those who required initiation of renal replacement therapy. History of chronic kidney disease (odds ratio=18.99, p=0.009, 95% CI: 2.12-170.19) and the contemporary use of Vancomycin (odds ratio=30.83, p=0.008, 95% CI: 2.43-391.05) were two independent risk factors that could predict AKI. The risk of AKI was significantly higher among these patient groups by Log-rank test.

Conclusions:

In patients who receive aerosolized Colimycin, history of chronic kidney disease and contemporary use of Vancomycin result in higher risk and more rapid occurrence of AKI.

Key words:

Aerosolized Colimycin, acute kidney injury.

C003

The current status of recieving AKD case management for inpatients after recovering from dialysis-requiring AKI

AKI 的透析住院病人康復後接受 AKD 個案管理的現狀

Hsou-Li Chu[1], Chih-Ying Huang[1], Pei-Lin Lin [1], Chun-Chieh Tsai[2] , Ping-Feng Chiu[2], Chew-Teng Kor[3]

朱秀麗 [1], 黃智英 [1], 林沛伶 [1], 蔡俊傑 [2], 邱炳芳 [2], 許秋婷 [3]

[1] CKD education center, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital, Taiwan [3]Internal Medicine Research Center, Changhua Christian Hospital

[1] 彰化基督教醫院慢性腎臟病衛教中心 [2] 彰化基督教醫院腎臟內科

[3] 彰化基督教醫院大數據中心

Background：

急性腎損傷(Acute Kidney Injury；AKI)後成為急性腎臟疾病(Acute Kidney Disease AKD)進展成慢性腎臟病(Chronic Kidney Disease；CKD)和末期腎病(End Stage Renal Disease；ESRD)的風險很高，因此 AKI 透析病人出院後，接受腎臟科團隊照護，降低 AKI 對腎臟的傷害及改善預後，本研究探討 AKI 住院透析，出院時不需透析病人，出院後有及無接受 AKD 個案管理及門診照護追蹤現況分析。

Methods：

本研究採回溯性方式，以中部某醫學中心 2022 年 1 月至 2023 年 06 月因 AKI 住院透析，出院時已脫離透析治療病人共 135 位，探討性別、共病、出院 eGFR 及住院天數等資料。另分析出院有與無接受 AKD 個案管理(43.7% vs 56.3%)的肌酸酐變化，了解照護成效。

Results：

資料顯示 AKI 接受血液透析出院當下已脫離透析治療病人 135 位(男性佔 65.2%)，住院天數: 中位數 20.0 四分位距(9.0-47.0)，出院科別以腎臟科(34.1%)及胸腔科(21.5%)為主，出院 eGFR<45ml/min/1.73m^2 佔 99 人(73.3%)，出院後腎臟科追蹤 69 位(51.1%)。資料分有無 AKD 收案個管(43.7% vs 56.3%)，共病以高血壓(76.3% vs 63.2%，p=0.102)最多、其次糖尿病(59.3% vs 52.6%，p=0.437)無顯著差異，以痛風(39.0% vs 19.7%，p=0.014) 達顯著差異，探討二組住院天數: 15.0(8.0-35.0) vs 24.0(11.0-52.0)，p=0.025，出院最後一次 eGFR:17.97(10.27-37.12) vs 32.12(18.61-90.11)，p<0.001，出院 eGFR<45ml/min/1.73m^2(88.1% vs 61.8%)，出院 3 個月後 eGFR:27.03(14.30-42.76) vs 36.25(18.51-78.36)，有 AKD 個案管理 eGFR 上升中位數:2.09(-1.36-9.27)，無個案管理中位數 0.00(-0.94-0.00)，p=0.009 達顯著差異。

Conclusions：

統計顯示 AKI 病人住院透析後有一半未接受 AKD 個案管理，而有接受個案管理組 eGFR 明顯較住院時改善。提升 AKI 病人接受 AKD 個案管理，藉由醫師、護理師、藥師及營養師團隊共同照護，改善病人預後及避免進展為 CKD 或 ESRD 為醫療當務之急。

Key words：

急性腎損傷、末期腎病、個案管理

C004

Efficacy of reduced exposure to NSAIDs use in patient with chronic kidney disease

慢性腎臟病人 NSAIDs 用藥安全措施之成效

Li-Fang Lai[1], Chih-Ying Huang [1],Chun-Chieh Tsai[2] ,Ping-Feng Chiu[2], Chew-Teng Kor[3]
賴麗芳 [1], 黃智英 [1], 蔡俊傑 [2], 邱炳芳 [2], 許秋婷 [3]
[1] CKD education center, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital [3]Internal Medicine Research Center, Changhua Christian Hospital
[1] 彰化基督教醫院慢性腎臟病衛教中心 [2] 彰化基督教醫院腎臟內科
[3] 彰化基督教醫院大數據中心

Background：
台灣慢性腎臟病臨床診療指引指出，長期使用 NSAIDs 比未使用者多 3 倍發生急性腎損傷風險，建議謹慎使用、減少劑量並縮短使用時間，腎臟科跨醫療團隊建置優化門診醫囑提示系統，CKD 第 4-5 期 eGFR<30 mL/min/1.73m²，NSAIDs 用藥安全評估提示訊息，進而減少慢性腎臟病併發症與延緩腎功能惡化，本文探討與 NSAIDs 用藥安全措施在介入前後之成效。
Methods：
本研究回溯性方式，以中部某醫學中心在 2022 年 9 月建置優化門診醫囑 eGFR<30 mL/min/1.73m² NSAIDs 用藥安全評估介入門診系統提示(急診無系統提示)，分析 2022 年 1 月至 2023 年 6 月優化門診前後科別開立 NSAIDs 人次，針對優化門診後使用 NSAIDs 70 人次天數與 Creatinine 變化及病人的疾病別與 NSAIDs 藥物使用天數對 Creatinine 之影響。
Results：
分析 2022 年 1 月 1 日至 2023 年 6 月 30 日介入優化門診前後 NSAIDs 用藥各為 240 vs70 人次，開藥科別骨科 77 (32.08%) vs 11 (15.7%)人次、急診 29(12.08%) vs 17(24.3%)人次、泌尿外科 18(7.5%) vs 1 (5.3%)人次、免疫風濕 15(6.25%) vs 9 (12.9%)人次、內分泌科 12(5%)vs3 (4.3%)人次，NSAIDs 用藥安全介入後有顯著的減少，以骨科 NSAIDs 用藥人次減少 85%。介入後開立 NSAIDs 70 人次中共 64 人，將用藥天數分三組:用藥<7 天、>7 天~30 天及>30 天的病人其 Creatinine 變化，用藥前 1~6 個月 Creatinine 2.32 vs 1.33vs 1.56(組一)、用藥後 1 個月 Creatinine 3.39 vs 2.9 vs 2.56(組二)及用藥後 3 個月 Creatinine 2.91vs 1.97vs1.76 (組三)，統計顯示用藥前 1~6 個月 Creatinine vs 用藥後 1 個月 Creatinine 上升 P=0.020 及用藥前 1~6 個月 Creatinine vs 用藥後 3 個月 Creatinine 上升 P=0.040，皆達顯著性差異。病人疾病類別以腫瘤、骨骼肌肉、感染、結石、免疫風濕與 NSAIDs 藥物使用天數達顯著性差異 P<0.001，其中以骨骼肌肉平均開立 NSAIDs 用藥天數較多。
Conclusions：
結果顯示門診醫囑 NSAIDs 用藥安全提示，各科別門診開藥人次有明顯下降，且 NSAIDs 藥物使用天數與 1 個月後 Creatinine 有明顯上升，故 CKD 第 4-5 期 eGFR<30 mL/min/1.73m²提示系統介入有助於病人的 NSAIDs 用藥安全，進而避免因使用腎毒性藥物引起急性腎損傷。
Key words：
慢性腎臟病、NSAIDs、用藥安全

C005

Reduce the incidence of CRRT machine alarms

降低 CRRT 警報異常發生率

Pei-Ching Kao, I-Chen Hung, Fan-Ci Ting, Shu-Fen Su, Ching-I Yu, Terry Ting-Yu Chiou, Wen-Chin Lee

高佩菁, 洪以貞, 丁凡棋, 蘇淑芬, 俞靜儀, 邱鼎育, 李文欽

Hemodialysis Unit, Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital

高雄長庚紀念醫院 內科部 腎臟科 血液透析室

Background：

連續性腎臟替代療法（continuous renal replacement therapy, CRRT）治療主要是靠連續性透析進行廢物交換與水份排除作為暫時替代腎臟的療法，故在臨床上透析治療師扮演著極為重要角色，透析過程中若出現異常警報，人員不熟悉無法及時處理，治療無法進行，需中斷透析時間，造成透析不足而使尿毒症狀增加，延遲病人治療時間及造成病人血液流失，甚至添增重症醫護人員的工作量和透析治療師挫敗感，為提升 CRRT 治療品質，本專案探討透析治療師於照護上異常危機處理能力，以降低警報異常發生率及達成持續性醫療品質之目標。

Methods：

1.成立跨領域 CRRT 團隊，團隊成員包括腎臟科醫師、心臟血管外科醫師、體循師等跨團隊共同照護 2.安排在職教育，由 CRRT 專責醫師及組長安排課程、邀請專家每年舉辦一次透析人員 CRRT 相關課程及線上學習，增強處置能力(機器警報、機器異常) 3.由 CRRT 專業指導透析治療師針對團隊透析治療師採取一對一機器管路裝置技術操作教學及模擬異常警報，進而臨床上從旁協助，直到治療師操作熟練及能快速處理機器警報 4.確實評估病人端導管功能正常，由體循師對透析師採臨床教學，包括核對醫囑及 CRRT 如何接 ECMO 機器、異常處理等，確認暫時性及長期性導管固定位置及功能順暢，制定照護標準規範，進而使用遠距 AI 智能資訊化警示系統 24 小時，觀察數據變化評估過濾器凝血率、抗凝劑使用率並每日更換過濾器，以降低警報異常啟動次數來維持有效透析治療時數。

Results：

運用 IPE 模式培訓 CRRT 臨床照護人員及擬真技術訓練 OSCE（客觀結構式臨床技能測驗，Objective Structured Clinical Examination）進行評價學習成果，透析治療師連續性腎臟替代療法認知調查表正確率由 42.9%提升至 100%；透析治療師對機器警報排除率由 66.7%提升至 100%；統計 2023 年 3 月至 5 月，警報異常發生率(24 小時內由 10%下降至 2.5%)。

Conclusions：

建置完善的 CRRT 團隊及標準化作業流程，專業人員訓練，透過人工智能(Artificial Intelligence，AI)技術輔助 CRRT 治療過程中的品質監控及障礙排除，增加整體工作效能，藉由提升透析治療師重症照護之品質、跨團隊合作，降低機器警報發生機率，以提升病人醫療品質，增進透析治療師於 CRRT 專業性。

Key words：關鍵字：連續性腎臟替代療法、機器警報、透析治療師

C006

Serum DcR3 as a New Predictor of Renal Outcomes in Patients With Sepsis-Associated Acute Kidney Injury

利用血清 DcR3 預測敗血症相關急性腎損傷病人的腎功能預後

Kuo-Hua Lee, Ming-Tsun Tsai, Shuo-Ming Ou, Wei-Cheng Tseng, Yao-Ping Lin, Der-Cherng Tarng
李國華, 蔡明村, 歐朔銘, 曾偉誠, 林堯彬, 唐德成
Taipei Veterans General Hospital
臺北榮民總醫院

Background：
Decoy receptor 3 (DcR3), also known as tumor necrosis factor receptor superfamily member 6B (TNFRSF6B), is implicated in the severity of several conditions, including sepsis, ARDS, and hemorrhagic fever with renal syndrome. While serum DcR3 levels in septic patients positively correlate with CRP, IL-6, and procalcitonin, its elevated levels have been linked to unfavorable outcomes in ARDS patients. However, its role in sepsis-associated acute kidney injury (SA-AKI) remains largely unexplored. This study sought to elucidate the influence of DcR3 on the outcomes of SA-AKI patients.
Methods：
We conducted a single-center prospective cohort study, enrolling patients with SA-AKI necessitating renal replacement therapy (RRT) in intensive care units between 2022 and 2023. During hospitalization, demographic and laboratory details were documented, and blood samples were taken before RRT onset to assess DcR3 via ELISA assay. Concurrently, we engaged the THP-1 cell line, exposing it to 100ng/ml LPS stimulation for 24 hours, to analyze mRNA levels of TNFRSF6B and related inflammatory cytokines. SiRNA was utilized to ascertain the impact of DcR3 blockade following LPS stimulation.
Results：
The study integrated 114 SA-AKI patients, yielding an overall survival rate of 54%. No significant association emerged between serum DcR3 levels and mortality in SA-AKI patients. Nonetheless, among survivors, elevated DcR3 levels were linked to an increased likelihood of long-term dialysis dependency. Moreover, LPS stimulation elevated mRNA levels of TNFRSF6B and inflammatory cytokines (IL-1, IL-6, TNF-a) in THP-1 cells, but these effects were counteracted by SiRNA, hinting at DcR3's role as an upstream modulator in sepsis-induced cytokine synthesis and its association with intensified kidney failure severity.
Conclusions：
Higher serum DcR3 levels in SA-AKI patients might predispose them to an increased risk of long-term dialysis dependency. Given its primary role in cytokine storms, targeting DcR3 presents a promising immunomodulatory avenue for managing SA-AKI.
Key words：
sepsis-associated acute kidney injury, Decoy receptor 3, intensive care

C007

Clinical Characteristics of Urinary Bladder Rupture: An Eleven-Year Retrospective Analysis from Far Eastern Memorial Hospital

膀胱破裂的臨床特徵：亞東紀念醫院的十一年回顧分析

Chia-Yun Cheng, Wan-Chuan Tsai

鄭佳芸，蔡萬全

亞東紀念醫院內科部腎臟科

Background:

Urinary bladder rupture is a relatively rare clinical condition. Misdiagnosis sometimes occurred and could lead to inappropriate clinical management such as initiating hemodialysis therapy. The aim of this study was to analyze characteristics and treatment response of patients with urinary bladder rupture in Far Eastern Memorial Hospital.

Methods:

A retrospective review was performed using electronic medical database from Far Eastern Memorial Hospital during 2012-2022 to identify patients with urinary bladder perforation or rupture. We searched inpatient medical database using ICD-10 code “N3289” and included patient aged older than 20 year-old. We also searched for the keywords “urinary bladder rupture” or “urinary bladder perforation” in admission note or discharge note. A total of 14 patients with the diagnosis of urinary bladder rupture was included in this study.

Results:

The mean age of the study population was 70.6±12.9 years old. Male accounted for 53%. The mean length of hospital stay was 28.2±28.7 days. Most common symptoms were abdominal pain or tenderness(57.1%), dysuria(42.9%), and gross hematuria(35.7%). The majority (85.7%) of patients had significant hematuria with a mean urine RBC count of 3557/HPF. The mean serum creatinine was 2.6±2.3 mg/dL, with a maximum value of 12.38 mg/dL. One -third (35%)presented with renal failure initially. Of these, the vast majority of the diagnosis was made by a computed tomography, except one with cystoscope . Half (50%) of the patients received surgical intervention with cystorrhaphy. In a patient, hemodialysis was initiated for renal failure and was soon discontinued after urinary bladder perforation was detected and repaired. Only one patient died of severe septic shock and respiratory failure.

Conclusions:

Urinary bladder rupture often results in misdiagnosis and delayed treatment which lead to prolonged hospital stay. In patients who presented with abdominal pain suggestive of peritonitis and urinary symptoms, suspicious of urinary bladder rupture should be made. The clinical response to treatment with Foley tube drainage and cystorrhaphy was favorable.

Keywords: abdominal pain, acute kidney injury, hematuria, misdiagnosis, urinary bladder perforation, urinary bladder rupture

C008

Introducing smart warnings to improve the effectiveness of care for patients with acute kidney injury

導入智慧化警示提升急性腎損傷病人照護成效

Fang Lieng Yeh
葉芳伶
Tri-Service General Hospital Nephrology Department
三軍總醫院腎臟科

Background：

急性腎損傷(acute kidney injury, AKI)常見於住院病人，除造成高死亡率外，當病人順利出院後容易進展至慢性腎臟病，甚至需長期接受透析治療。為預防 AKI 重複發生，研究顯示，提供完整照護計畫，將有助於延緩腎功能衰退，臨床上亦發現曾罹患急性腎損傷病人，腎功能恢復後，卻無妥善接受腎臟照護計畫。

衛生福利部中央健保署於 2021 年 10 月 22 日公告末期腎臟病前期照護計畫，將急性腎損傷納入門診慢性腎臟病照護計畫中，因計畫條件複雜，含括密集檢測血清肌酸酐數據外，需計算 AKI ratio，藉以判斷腎臟損傷嚴重度分期，且病人須未曾加入末期腎臟病前期計畫。因此，衛教師在篩選個案及判斷上不易，亦加重臨床作業負擔，檢視本院於 111 年啟動計畫後，卻無顯著成長與實質效益。

Methods：

因此，透過資訊室工程師協助，建置智慧化警示 web，銜接門診系統中就醫清單，智慧化警示 web 系統主動判斷及顯示，符合就醫日前 30 日是否住院出院，具 ICD-10、AKI 發生日期、AKI ratio、出院後血清肌酸酐數據及腎絲球過濾率與 AKD ratio 等病人清單。

Results：

結果顯示 112 年 1 至 9 月共 50 位病人加入急性腎損傷照護計畫，藉由智慧化警示 web，排除因無出院後血清肌酸酐數據、ICD-10 等阻礙因素，加速衛教師照護臨床作業與流程。其中 19 位結案病人中，有 16 位轉入末期腎臟病前期照護，2 位進入長期血液透析，1 位拒絕接受照護。分析轉入科別以心臟科、泌尿科與腎臟科居多，平均年齡 72 歲，以高齡者居多且具多重慢性疾病。

Conclusions：

建置智慧化警示 web 過程繁瑣，但藉由系統功能，卻能顯著改善臨床腎臟照護衛教師人工查詢及判斷時間。目前此智慧化警示 web 系統僅限於門診醫療，若能將此功能加入住院醫療系統，將有助於提升臨床醫事人員在照護病人過程警覺度，利於降低腎衰竭風險與提升腎臟照護預後之助益，亦可作為出院後延續照護之指標。

Key words：

智慧化警示、急性腎損傷、腎臟照護衛教師

C009

Hepatorenal syndrome-acute kidney injury in patients with liver cirrhosis admitted to intensive care units

肝腎症候群之急性腎損傷對加護病房內的肝硬化患者的影響

Yi-Ran Tu[1*], Pei-Yi Fan[1,2], Cheng-Chia Lee[1], Ya-Chung Tian[1], Ji-Tseng Fang[1], Yung-Chang Chen[1], Chih-Hsiang Chang[1].

塗貽然[1], 范珮宜[1,2], 李承家[1], 田亞中[1], 方基存[1], 陳永昌[1], 張智翔[1]

[1]Kidney Research Center, Department of Nephrology, Chang Gung Memorial Hospital, Taoyuan, Taiwan, [2]Department of Nephrology, New Taipei Municipal TuChen Hospital, New Taipei City, Taiwan

[1]林口長庚醫院腎臟科, [2]新北市立土城醫院腎臟科

Background:

Acute kidney injury (AKI) is a common complication among patients with cirrhosis. Based on the revised definition of AKI and hepatorenal syndrome (HRS), this study analyzed the association between classifications of HRS and clinical outcomes in patients with cirrhosis.

Method:

This retrospective cohort study identified patients with cirrhosis and ascites who were admitted to intensive care units (ICU) in seven Taiwan hospitals between January 1, 2007, and May 31, 2019. Patients were divided into the group with HRS-AKI and the group without HRS-AKI. In-hospital and long-term outcomes were assessed.

Results:

A total of 3,119 patients were enrolled, and 1,721 (55.2%) of them were in the group with HRS-AKI. Spontaneous bacterial peritonitis and hepatic encephalopathy were significantly more prevalent in the group with HRS-AKI group ($P < 0.001$) than in the group without HRS-AKI. The HRS-AKI group had significantly higher rates of vasopressors requirement (70.5% vs. 49.9%; odds ratio [OR]: 1.48; 95% CI: 1.23–1.78), in-hospital mortality (64.1% vs. 30.4%; OR 1.48, 95% CI 1.20–1.81) and ICU mortality (41.3% vs. 15.7%; OR: 1.44; 95% CI: 1.15–1.80) than the group without HRS-AKI. The 5-year mortality rate and the incidence of liver transplantation did not differ significantly between groups.

Conclusions:

Cirrhotic patients with HRS-AKI related renal especially those with constant renal injury such as HRS-acute kidney disease (HRS-AKD) and HRS-CKD prior to ICU admission had poorer clinical outcomes than those without HRS-AKI. Because spontaneous bacterial peritonitis and hepatic encephalopathy may trigger HRS, implementing aggressive infection control measures and monitoring for the precipitating factors of hepatic encephalopathy are crucial to prevent the development of HRS-AKI in patients with cirrhosis.

Key words: Hepatorenal syndrome-acute kidney injury, Liver cirrhosis, Intensive care units

C010

Outcomes associated with immune checkpoint inhibitors related adverse kidney events: a systemic review and meta-ajnalysis

免疫檢查點抑制劑引起之腎臟不良事件的預後：系統性文獻回顧與統合分析

Ching-Chun Su[1], Tzu-Hsuan Yeh[1], Chiu-Ying Hsiao[1], Min-Hsiang Chuang[1], Wei-Chih, Kan[1], Hsien-Yi Wang[1], Jui-Yi Chen[1]

蘇靜君[1], 葉子瑄[1], 蕭秋穎[1], 莊閔翔[1], 甘偉志[1], 王憲奕[1], 陳銳溢[1]

[1]Division of Nephrology, Department of Internal Medicine, Chi-Mei Medical Center, Tainan, Taiwan

[1]奇美醫院內科部腎臟科

Background：

Immune checkpoint inhibitors (ICPi) have been recognized as a breakthrough in the field of cancer therapy, but the adverse events were observed, such as acute kidney injury(AKI). Acute tubulointerstitial nephritis (ATIN) is the most common lesion by kidney biopsy. Discontinuing ICPi and corticosteroid therapy are suggested for patients with ICPi-AKI. However, there is no consensus about the effect of corticosteroid and whether re-challenge ICPi is appropriate.

Methods：

Databases including PubMed, Embase, and the Cochrane Library were comprehensively searched from inception until Sep 30, 2023, to identify studies investigating the incidence and prognosis of ICPi-AKI. The outcomes focused on the incidence of ICPi-AKI, the change of kidney function after rechallenging of ICPi, and renal recovery following corticosteroid therapy. A random-control model was utilized for analysis.

Results：

A total of eight studies comprising 9,084 patients were included in this study. The occurrence rate of ICPi-AKI was 10.5%. Upon re-challenging with ICPi following an episode of AKI, the rate of subsequent AKI was 17.8%. The individuals receiving corticosteroids after ICPi-AKI had a markedly improved of renal recovery (odds ratio: 4.85, 95% CI: 1.03 to 22.76, p = 0.05).

Conclusions：

After ICPi treatment, approximately 10.8% of patients had an onset of AKI. Besides, the result suggests that re-challenge also carries a higher risk of AKI. Remarkably, corticosteroids have proven highly effective in cases of ICPi-AKI, facilitating renal recovery. Patients who did not receive corticosteroids for ICPi-AKI exhibited poorer outcomes of renal recovery as compared to those who received corticosteroids.

Key words：

Immune checkpoint inhibitor, AKI

C011

Impact of Pre-discharge Acute Kidney Disease Recovery Status on One-Year Post Discharge Recurrent Acute Kidney Disease Occurrence

探討出院前急性腎疾病之恢復狀態對於出院後一年內再次發生住院中急性腎疾病之影響

Chia-Chun Lee[1], Kuan-Hung Liu[1], Wei-Ren Lin[1], Jo-Yen Chao[1], Chien-Tzu Tseng[1], Wei-Hung Lin[1], Te-Hui Kuo[1], Yu-tzu Chang[1], An-Bang Wu[1], Chih-Cheng Hsieh[2], Ming-Cheng Wang[1], Junne-Ming Sung[1], Chin-Chung Tseng[1]*
李佳駿[1], 劉冠宏[1], 林威任[1], 趙若雁[1], 曾千慈[1], 林威宏[1], 郭德輝[1], 張育誌[1], 吳安邦[1], 謝志成[2], 王明誠[1], 宋俊明[1], 曾進忠[1]*
Division of Nephrology[1] and Division of Critical Care medicine[2], National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University
成功大學醫學院附設醫院內科部腎臟科[1], 內科部重症加護科[2]

Background：
Acute kidney injury (AKI) had high prevalence in hospitalized patients. One among five hospitalized patients would have AKI occurrence in previous epidemiology studies. When AKI was not resolved after 7 days, it would go into acute kidney disease (AKD) status. Severe AKI and AKD would have occurrence of uremia, fluid overload or electrolyte imbalance which need intervention of renal replacement therapy (RRT), like hemodialysis (HD). Despite effort of renal support and acute illness management, poor outcome with increased mortality and dialysis dependence were still found, especially in the population with severity of KDIGO stage 3 or dialysis-required AKI/AKD. In addition, even those who survived with discharge and with dialysis withdrawal still had increased risk of recurrent AKI or chronic kidney disease incidence after discharge. In one retrospective cohort study, 28.6% patients had second hospitalization complicated by AKI with the second AKI episode occurring a median of 0.6 years after discharge. Multivariate analysis revealed that older age, lower eGFR, proteinuria and anemia were associated with recurrent AKI. Recurrent AKI was associated with increased risk of death. Of notice, greater AKI severity at the index episode was not associated with increased risk of recurrent AKI. Moreover, in other studies, risk factors of cardiac disease and AKI severity were associated with recurrent AKI post discharge in previous systemic review. Non-recovery of renal function following initial AKI was found to be associated with higher probability of further AKI episodes. About the exact effect of post discharge AKD recovery status on the future recurrent AKI episode is still needed to be explored. In this study, we conducted retrospective cohort study to survey this important issue.
Methods：
We developed AKI/AKD detection and alarm system in National Cheng Kung University Hospital (NCKUH) since 2019, which automatically detected AKI/AKD patients by capturing creatinine (Cr) data daily during hospitalized patients and analyzed severity based on AKD diagnosis formula. AKD severity and trend were recorded in AKD database by recording baseline Cr, highest Cr and recent Cr during hospitalization. Dialysis status were recorded by put in first dialysis date in AKD case who received dialysis therapy. In additional, AKD occurrence location, date, discharge status and baseline patients' characteristics like sex and age were all recorded.
With this AKI/AKD detection system, we retrospectively reviewed patients from December, 2019 to September, 2023 who had severe AKD with KDIGO stage 3 in our AKD database and followed till September, 2023. Patients with age less than 18 years old or already had dialysis catastrophic card before admission were excluded. Those who expired during hospitalization or dialysis-dependent at discharge were also excluded. The status of AKD recovery was defined as the following: (1) non-recovery group: Cr before discharge ≥ 3 times the baseline Cr; (2) partial recovery group: Cr before discharge ≥ 1.5 times but < 3 times the baseline Cr; (3) recovery group: Cr before discharge < 1.5 times the baseline Cr and highest Cr ≤ 4 mg/dL; (4) recovery group with high Cr: Cr before discharge < 1.5 times the baseline Cr but with highest Cr > 4 mg/dL. The primary investigated outcome was recurrent hospitalization with AKD within one year after discharge between different AKD groups. We also surveyed for the outcome of recurrent hospitalization with mortality. Statistics method of Cox proportional hazard model was applied and we used statistics software of R (version 4.2.2) to conduct statistics analysis.
Results：
We enrolled 2,475 patients during defined period and totally 3,375 hospitalization events were identified. The recovery group with high Cr had significant increase incidence rate of recurrent AKD and AKD with RRT. Non-recovery and recovery group with high Cr had increased mortality within one year. In Cox proportional hazard model, AKD group (hazard ratio (HR): 1.29), Cr before discharge (HR: 1.22) and male sex (HR: 1.28) had increased recurrent AKD risk whereas initial AKD occurrence in ICU had lower risk (HR: 0.54). In Kaplan-Meier curve analysis, recovery group with high Cr had poorest outcome of AKD event free survival among all four AKD groups.
Conclusions：
In survived and non-dialysis dependent hospitalized patients with severe AKD, KDIGO stage 3, not fully recovered AKD status before discharge was associated with increased risk of recurrent AKD within one year after discharge. Moreover, recovery group with high Cr over 4mg/dL carries greater risk to future AKD occurrence.
Key words：Acute kidney disease, severity, recovery, hospitalization, mortality

C012

Renal Events and Mortality in Lung Cancer Patients: A Cohort Study from Southern Taiwan with 4,081 Participants

肺癌患者的腎損傷及死亡率：來自臺灣南部 4,081 名參與者的世代研究

Feng-Ching Shen[1,2], Chung-Ting Cheng [1,2], Lu-Heng Lu[1,2], I-Ching Kuo[1,2,3], Sheng-Wen Niu[1,2,3], Hugo Y. -H. Lin[1,2,3], Szu-Chia Chen[1,2,4], Chi-Chih Hung[1,2], Jen-Yu Hung[2,5], Yi-Wen Chiu[1,2] , Jer-Ming Chang[1,2]*, Shang-Jyh Hwang[1,2]

沈峯慶 [1,2] 鄭仲廷 [1,2] 盧律衡 [1,2] 郭宜瑾 [1,2,3] 鈕聖文 [1,2,3] 林祐賢 [1,2,3] 陳思嘉 [1,2,4] 洪啟智 [1,2] 洪仁宇 [2,5] 邱怡文 [1,2] 張哲銘 [1,2]* 黃尚志 [1,2]

[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University [2] Department of Medicine, College of Medicine, Kaohsiung Medical University [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

Background：

Lung cancer is the third most common cancer and the second leading cause of cancer deaths in Taiwan according to the Taiwan Cancer Registry Annual Report 2018. As new therapies emerge, patients with cancer may be surviving longer and may suffer renal complications and lead to chronic sequalae. Kidney injury in cancer patients was associated with lower complete remission rate and a higher mortality rate than patients without kidney injury. There are various mechanisms of kidney injury in cancer patients and paraneoplastic nephropathy may be one leading cause. Auto-immune responses to the cancer-cell-derived subepithelial deposits in the glomerular basement membrane is the pathological cause. Cancer cell growth provokes glomerular selective permeability, resulting plasma protein leakage to urine as albuminuria occurred. The cancer secretion affected the kidney by podocytes injury, endothelial-mesenchymal transition, and immune overaction. To find out the risk factor and incidence of kidney injury in lung cancer patients, larger scale studies should be conducted. Therefore, this investigation aims to assess the hypothesis whether lung cancer subtype would affect renal outcome and mortality.

Methods：

We conducted a retrospective cohort study including 4081 lung cancer patients to investigate the association between cancer subtype, specifically adenocarcinoma and non-adenocarcinoma, with renal outcome and mortality. The study was conducted from January 2012 to September 2022 in Kaohsiung Medical University hospital and its affiliated hospitals. Of these patients, 47.6% were diagnosed with adenocarcinoma, 52.2% were male, the mean age at diagnosis is 65.0%, 21.2% had diabetes mellitus, 38.6% had hypertension, 6.2% had chronic kidney disease and 70.0% had advance cancer status. Renal event was defined as 50% decrease in eGFR, 2 times increase is serum creatinine or enter dialysis. Mortality was defined as death or loss of follow up.

Results：

In patients diagnosed with lung cancer, 12.8% of female and 9.4% of male had renal event (p<0.001), meanwhile 23.2% of female and 34.7% of male had experience mortality (p<0.001). Among those with adenocarcinoma, 17.9% of female and 8.9% of male had renal event (p<0.001), while 36.4% of female and 34.8% of male had experience mortality (p<0.001). For patients with non-adenocarcinoma, 8.3% of female and 9.8% of male had renal event (p=0.145), meanwhile 11.1% of female and 34.6% of male had experience mortality (p<0.001).

Conclusions：

In patients diagnosed with lung cancer, male was associated with increased mortality and female was associated with increased renal event. Delving deeper into subtypes, among patients with adenocarcinoma, more renal events and mortality were observed in female. In contrast, for those with non-adenocarcinoma, no significant association was found in renal events, however, male is associated with increased mortality.

Key words：Lung cancer, adenocarcinoma, non-adenocarcinoma, renal survival, mortality

C013

The impact of acute kidney injury with or without recovery on long-term kidney outcome in patients undergoing living liver transplantation

急性腎損傷恢復與否對活體肝移植患者腎臟的長期影響

Yi-Jung Chen[1], Ping-Fang Chiu[1,2], Pei-Ru Lin[3], Chun-Chieh Tsai[1], Yao-Peng Hsieh[1,2]

陳奕融[1], 邱炳芳[1,2], 林姵如[3], 蔡俊傑[1], 謝堯棚[1,2]

[1] Division of Nephrology, Department of Internal Medicine, Changhua Christian Hospital

[2] Department of Post Baccalaureate Medicine, National Chung Hsing University

[3] Big Data Center, Changhua Christian Hospital

[1] 彰基腎臟科, [2] 中興大學學士後醫學系, [3] 彰基大數據中心

Background：

Acute kidney injury (AKI) is associated with an increased incidence of poor liver graft and renal outcomes in patients who underwent liver transplantation (LT). To date, no comprehensive study has compared patients with and without post-LT AKI and analyzed patients who recovered from AKI versus those who did not.

Methods：

Patients who received living LT between January 2003 and January 2019 were enrolled. We diagnosed and classified AKI patients based on AKI-KDIGO guidelines by increment of creatinine after surgery when compared to serum creatinine on the day of surgery. The recovered AKI subgroup included recipients whose estimated glomerular filtration rate recovered more than 90% of baseline eGFR within 90 days after surgery. The risk of chronic kidney disease was investigated.

Results：

A total of 392 patients, met the eligible criteria and were divided into two groups (AKI vs. non-AKI) and 243 (62%) patients developed AKI within 7 days after surgery. Compared with non-AKI group, the AKI group was associated with an adjusted hazard ratio of 1.55 (95% CI 1.12- 2.14) for the risk of incident CKD. Among AKI patients, 160 (65.8%) patients recovered renal function and 83 (34.2%) patients did not. Compared with non-AKI group, the AKI non-recovery group was associated with an adjusted HR of 2.87 (95% CI 1.95- 4.21) for the risk of incident CKD, while the AKI recovery group had no significant difference in the adjusted risk of incident CKD.

Conclusions：

Post-LT AKI is associated with subsequent risk of CKD development. Taking into account recovery status, AKI was no longer associated with a higher risk of CKD if renal function recovered within 90 days after surgery. Identification and implementation of targeted and individualized therapies for patients at risk for AKI, particularly non-recovery AKI, is important to reduce incident CKD.

Key words：

acute kidney injury, chronic kidney disease, liver transplantation, renal recovery

C014

Association of Targeted Therapy with Renal Outcomes and Mortality: A Cohort Study in Lung Cancer Patients from a Southern Taiwanese Medical Center

肺癌病人接受標靶治療與腎損傷及死亡的關聯性：來自台灣南部醫學中心的世代研究

Chung-Ting Cheng, MD[1,2], Feng-Ching Shen, MD[1,2], Lu-Heng Lu, MD[1,2], I-Ching Kuo, MD[1,2,3], Sheng-Wen Niu, MD[1,2,3], Hugo Y. -H. Lin, MD-PhD[1,2,3], Szu-Chia Chen, Prof[1,2,4], Chi-Chih Hung, Prof[1,2], Jen-Yu Hung, Prof[2,5], Yi-Wen Chiu, Prof[1,2] , Jer-Ming Chang, Prof[1,2*], Shang-Jyh Hwang, Prof[1,2]

鄭仲廷 [1,2], 沈峯慶 [1,2], 盧律衡 [1,2], 郭宜瑾 [1,2,3], 鈕聖文 [1,2,3], 林祐賢 [1,2,3], 陳思嘉 [1,2,4], 洪啟智 [1,2], 洪仁宇 [2,5], 邱怡文 [1,2], 張哲銘 [1,2*], 黃尚志 [1,2]

[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [2] Department of Medicine, College of Medicine, Kaohsiung Medical University, [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

Background：

As highlighted in the Taiwan Cancer Registry Annual Report 2018, lung cancer emerges as the third most diagnosed cancer, positioning itself as the second leading cause of cancer-related fatalities in Taiwan. With the advent of novel therapy and targeted anti-cancer treatments, there has been a notable improvement in patient survival rates, surpassing the outcomes of traditional chemotherapy. EGFR (Epidermal growth factor receptor) deregulation resulted in the development of cancer through cell growth, proliferation, differentiation, survival, adhesion, invasion and angiogenesis, especially in lung cancer patietns. EGFR signaling mediates renal tubular cell dedifferentiation and may be involved in progressive renal injury. Previous studies revealed inhibition of EGFR cascade may be useful in preventing the progression of severe renal damage and renal failure. However, increasing evidence revealed that anti-EGFR class-related renal toxicity emerged regarding its renoprotective mechanisms . Renal toxicity is frequently observed with these agents and warrants further investigation. Few studies focused on the incidence of acute kidney injury in patients with lung cancer undergoing target therapy. Therefore, this investigation aims to assess the hypothesis whether target therapy, including EGFR-TKI, wound cause acute kidney injury in lung cancer patients.

Methods：

We conducted a retrospective cohort study including 4081 lung cancer patients to investigate the association between target therapy and acute kidney injury. We enrolled subjects from January 2012 to September 2022 in Kaohsiung Medical University hospital and its affiliated hospitals. Of these patients, 47.6% were diagnosed with adenocarcinoma, 32.3% (1187 patients) had target therapy, 52.2% were male, the mean age at diagnosis is 65.0, 21.2% had diabetes mellitus, 38.6% had hypertension, 6.2% had chronic kidney disease and 70.0% had advance cancer status. Acute kidney injury was defined according to Kidney Disease Improving Global Outcomes (KDIGO) criteria. Renal event was defined as 50% decrease in eGFR, 2 times increase is serum creatinine or enter dialysis. Mortality was defined as death or loss of follow up. The model was adjusted for age, gender, diabetes mellitus and hypertension.

Results：

In the fully adjusted logistic regression model(adjusted by age, gender, diabetes mellitus, hypertension), a positive association of renal event was associated with advanced stage (OR: 2.59, 95% CI: 2.16-3.11, P<0.001), heart failure (OR: 2.31, 95% CI: 1.54-3.46, P<0.001), baseline eGFR (OR: 1.014, 95% CI: 1.012-1.016, P<0.001) and present of pleural effusion (OR: 1.39, 95% CI: 1.14-1.63, p=0.0007). There was no significant difference between renal event (p=0.056) in lung cancer patients undergoing target therapy comparing to those not receiving such treatment. Subgroup analysis showed no difference between renal outcome between male and female (p=0.276). On the other hand, patients undergoing target therapy revealed a decreased mortality (p<0.001) compared with other lung cancer patients. Subgroup analysis revealed no mortality difference between male and female (p=0.887).

Conclusions：

In lung cancer patients undergoing target therapy, heart failure and patients with pleural effusion were positively associated with renal events. Patient undergoing target therapy is associated with decreased mortality but no significant association between renal events. Gender difference is not associated with renal outcome or mortality.

Key words：

Target therapy, renal event, mortality, lung cancer, EGFR-TKI

C015

Association of Immunotherapy with Renal Outcomes and Mortality: A Cohort Study in Lung Cancer Patients from a Southern Taiwanese Medical Center

肺癌病人接受免疫治療與腎損傷及死亡的關聯性：來自台灣南部醫學中心的世代研究

Lu-Heng Lu, MD[1,2], Chung-Ting Cheng, MD[1,2], Feng-Ching Shen, MD[1,2], I-Ching Kuo, MD[1,2,3], Sheng-Wen Niu, MD[1,2,3], Hugo Y. -H. Lin, MD-PhD[1,2,3], Szu-Chia Chen, Prof[1,2,4], Chi-Chih Hung, Prof[1,2], Jen-Yu Hung, Prof[2,5], Yi-Wen Chiu, Prof[1,2], Jer-Ming Chang, Prof[1,2*], Shang-Jyh Hwang, Prof[1,2]

盧律衡[1,2], 鄭仲廷[1,2], 沈峯慶[1,2], 郭宜瑾[1,2,3],鈕聖文[1,2,3], 林祐賢[1,2,3], 陳思嘉[1,2,4], 洪啟智[1,2], 洪仁宇[2,5], 邱怡文[1,2], 張哲銘[1,2*], 黃尚志[1,2]

[1] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [2] Department of Medicine, College of Medicine, Kaohsiung Medical University, [3] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [4]Department of Internal Medicine, Kaohsiung Municipal Siaogang Hospital, [5]Division of Pulmonary and Critical Care Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [2] 高雄醫學大學醫學系 [3] 高雄市立大同醫院內科部 [4] 高雄市立小港醫院內科部 [5] 高雄醫學大學附設中和紀念醫院內科部胸腔內科

Background：

Lung cancer is the third most common cancer and the second leading cause of cancer deaths in Taiwan according to the Taiwan Cancer Registry Annual Report 2018. Increasing evidence revealed that immune checkpoint inhibitors, specifically cytotoxic lymphocyte–associated antigen-4 (CTLA-4), anti-programmed cell death protein-1 (anti-PD-1) and anti-programmed cell death protein-ligand 1 (anti-PD-1), are associated with immune-related adverse effects, which includes nephrotoxicity. Previous meta-analysis of 48 clinical trials of PD-1 inhibitor therapy revealed an overall 2.1% incidence rate of acute kidney injury. However, there are still few studies focused on the incidence of acute kidney injury in patients with lung cancer undergoing immunotherapy. Therefore, this investigation aims to assess the hypothesis whether immune checkpoint inhibitor wound cause acute kidney injury in lung cancer patients.

Methods：

We conducted a retrospective cohort study including 68 lung cancer patients from January 2012 to September 2022 in Kaohsiung Medical University hospital and its affiliated hospitals to investigate the association between immunotherapy and acute kidney injury. Risk factors for AKI were assessed using logistic regression. Survival among those with and without AKI was compared using the Kaplan-Meier method.

Results：

In patients undergoing immunotherapy, no significant difference in in renal event (p=0.226) and mortality (p=0.36) was noticed compared with all lung cancer participants. Subgroup analysis revealed that no significant difference in renal event (p=0.457) and mortality (p=0.059) was noticed between male and female patients with immunotherapy. However, patients undergoing immunotherapy had a significant increase in acute kidney injury compared with all participants (26.5% and 14.0% respectively, p=0.001). In patients with immunotherapy undergoing acute kidney injury, 66.7% were KDIGO stage 1, 16.6% were KDIGO stage 2 and 16.6% were KDIGO stage 3.

Conclusions：

In lung cancer patients undergoing immunotherapy, no significant increase in renal outcome and mortality was observed comparing to general lung cancer participants. However, increased incidence of acute kidney injury was noticed.

Key words：

Acute kidney injury, immunotherapy, renal event, mortality, lung cancer

C016

Machine learning algorithm for early prediction of liberation from dialysis in critically ill adults with acute kidney injury

以機器學習早期預測重症急性腎損傷需透析治療患者之腎功能恢復

Tsai-Jung Wang[1,2], Chun-Te Huang[1], Cheng-Hsu Chen[1]

王彩融[1,2], 黃俊德[1], 陳呈旭[1]

[1]Division of Nephrology, Department of Internal Medicine, Taichung Veterans General Hospital,
[2]Department of Critical Care Medicine, Taichung Veterans General Hospital

[1]台中榮總腎臟內科, [2]台中榮總重症醫學部

Background：

Renal recovery after dialysis-requiring acute kidney injury (AKI-D) is a vital patient-centered and clinical outcome in critical care. However, a good model for AKI-D recovery is lacking. We aimed to develop models for early prediction dialysis liberation in critically ill adults with AKI-D by machine learning algorithms.

Methods：

In this retrospective cohort study in an academic medical center in Taiwan between January 2015 and December 2020, adults experiencing AKI-D during ICU stays were enrolled. We developed and temporal tested several models (eXtreme Gradient Boosting [XGBoost], random forest, and logistic regression) for predicting successful dialysis liberation (patients survived for more than 30 days after discontinuing dialysis before hospital discharge). The dataset included 90 routinely collected candidate variables known on or prior to the first 3 days of dialysis. In addition, we computed the predictor importance to the models.

Results：

We enrolled 1,381 patients receiving acute dialysis and divided them for model establishment (N = 1135) and temporal testing (n = 251), with the proportion of renal recovery being 27.3% (378/1381). Among the different algorithms, the XGBoost had the best area under the receiver operating characteristic (AUROC) curve, with AUROC of 0.81 (95% CI, 0.78-0.84) in the development cohort and 0.84 in the temporal testing cohort. Features of urine volume, variables derived from vital signs (respiratory rate, SpO2, blood pressure), and Charlson Comorbidity Index were vital drivers of the model's prediction. The calibration plot of the model showed excellent consistency between the prediction probability and the actual probability.

Conclusions：

We successfully developed early prediction models of renal recovery in ICU patients with AKI-D using data within three days after dialysis initiation. These findings may assist physicians in prognostic stratification and resources allocation soon after patients survive the acute stage. Further prospective validations are required to validate our findings.

Key words：

Acute kidney injury, critical care, dialysis, machine learning, renal recovery

C017

The impact of higher protein provision on continuous kidney replacement therapy

Keonhwa Kim[1], Da Seul Huh[1], Young Youl Hyun[1], Kyu-Beck Lee[1], Hyang Kim[1], Jihyun Yang[1]

[1] Division of Nephrology, Department of Internal Medicine, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine

Background

Various nutrition guidelines recommend increased protein supplementation with continuous kidney replacement therapy (CKRT). Recent EFFORT Protein trial, international multicenter single-blinded randomized trial in the intensive care unit supplying usual protein dose vs higher dose over 2.2g/kg/day. Subgroup analysis suggested an interaction between protein dose and patients with acute kidney injury (stage 1–3) and high SOFA score (≥9) upon admission on both time-to-discharge-alive (appendix p 15) and 60-day mortality (appendix p 16), favoring the usual protein dose. However, this harmful effect disappeared in the patient receiving kidney replacement therapy. There is the opinion that more protein is needed in KRT patients, no studies have proven their effectiveness, so studies so far have been collected and analyzed.

Method

This study is a meta-analysis study on the effect of high-dose protein supply on improving mortality in CKRT patients.

Result

One retrospective study, one prospective observational study, and one single-blinded randomized trial were included. The composite outcome was in-hospital mortality. The funnel plot showed well-distributed, not skewed study inclusion. A total of 3,070 patients were included altogether. Higher protein provision showed no survival improvement compared to usual care (odds ratio 0.67, 95% confidence interval 0.45-1.01)

Conclusion

Although it is known that there are many proteins, vitamins and trace elements that are lost through CKRT, we confirmed that increasing protein supply is not effective in improving survival. This interpretation should be prudent. Increasing protein supply in patients with acute kidney disease has an adverse effect on survival, but since the adverse effect has disappeared in patients with KRT, additional research on when, how much, and what form of supply will be appropriate will be needed.

C018

Serum IgA/C3 Ratio Predict Progression of IgA Nephropathy : A Retrospective Study
血清 IgA/C3 比率預測 IgA 腎病變進展 ： 回溯型研究

Shiao-Yu Chen[1], Shang-Feng Tsai[1,2,3], Ming-Ju Wu[1,3], Cheng-Hsu Chen[1,2,3,4], Tong-Min Yu[1,4], Ya-Wen Chuang[1,3], Hsien-Fu Chiu[1], Ya-Chin Huang[1]
陳筱郁 [1], 蔡尚峰 [1,2,3], 吳明儒 [1,3], 陳呈旭 [1,2,3,4], 游棟閔 [1,4], 莊雅雯 [1,3], 邱顯富 [1], 黃雅琴 [1]
[1]Division of Nephrology, Taichung Veterans General Hospital, [2]Department of Life Science, Tunghai University, [3]Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, [4]School of Medicine, China Medical University, Taichung, Taiwan
台中榮總腎臟科 [1], 東海大學生命科學 [2], 中興大學學士後西醫 [3], 中國醫藥大學醫學 [4]

Background：
IgA nephropathy (IgAN) is the most common type of glomerulonephritis which associated with IgA deposition and complement activation. Incremental proteinuria change has close association with disease progression. This study was designed to investigate the serum IgA/C3 ratio values, IgA, C3 level when diagnosed with IgA nephropathy for predicting follow up Urine Protein / Creatinine Ratio (UPCR) decline probability regardless of treatment.
Methods：
We assessed the relationship between baseline UPCR decline rate and eGFR drop > 5 (mL / min / 1.73 $m^{2)}$ per year according to the receiver operating characteristic (ROC) curves identifying appropriate cut-off UPCR value. We retrospectively evaluated 268 (January 2011 - January 2013) biopsy-proven IgA nephropathy according to receiver operating characteristic (ROC) curves were used to evaluate the optimal cutoff value of (1.) serum IgA/C3 ratio < 3.375 and ≥ 3.375 in two groups; (2.) serum IgA level < 334.7(mg/dl) and ≥ 334.7 (mg/dl) in two groups and(3.) serum C3 level < 117.05 (mg/dl) and ≥ 117.05 (mg/dl) in two groups. Follow these 268 participants' UPCR from January 2011 to July 2023. To compare their clinical data, the Kaplan–Meier method was applied for probability of UPCR decline curve. Mann-Whitney U-test, Chi-square test was applied for comparison of continuous variables and categorical variables. Log rank test was carried out to evaluate UPCR decline hazard ratio of groups with different risk factors. Variables with a p-value of 0.2 or less on univariate analysis were selected to enter backward selection algorithm to yield the parsimonious multivariable regression model. The assumption for proportional hazards was evaluated by using scaled Schoenfeld residuals. Hazard ratios and 95% confidence intervals (CI) were shown.
Results：
According to ROC curves, the optimal cutoff value for UPCR decline significantly was 11.096 (g/year) (AUC = 0.55), serum IgA/C3 ratio was 3.375 (AUC = 0.52), serum C3 level was 117.05 (mg/dl) (AUC=0.61), IgA level was 334.7 (mg/dl) (AUC=0.53). Kaplan–Meier curve revealed that the group of serum IgAN/C3 ratio < 3.375 have significantly higher probability of UPCR decline than the group of serum IgA/C3 ratio ≥ 3.375 group (P = 0.006); serum C3 level ≥ 117.05 (mg/dl) group have significantly higher probability of UPCR decline compared to the serum C3 level < 117.05 (mg/dl) group (P = 0.001); The UPCR decline probability of serum IgA level ≥ 334.7 (mg/dl) group was not significantly higher than the UPCR decline probability of serum IgA level < 334.7 (mg/dl) group. As for baseline clinical characteristics and laboratory data, the serum IgA/C3 ratio < 3.375 group exhibited more younger (45 vs. 51; P = 0.022), lower serum IgG level (1036 vs. 1140; P = 0.001), lower serum IgA level (279.6 vs 441.05; P < 0.001), higher serum C3 level (117.35 vs 104.75; P < 0.001) than the serum IgA/C3 ratio ≥ 3.375 group. Univariable Cox analysis suggested that lower IgA/C3 ratio (HR = 1.742, 95%CI = 1.163-2.608, P = 0.007), higher platelet count (HR = 1.003, 95%CI = 1.001-1.006, P = 0.014) and lower serum IgG level (HR = 0.999, 95%CI = 0.999-1, P = 0.012) were associated with significantly higher probability of UPCR decline. Multivariate Cox regression analsysis revealed that lower serum IgA/C3 ratio (HR = 1.522, 95%CI = 1-2.315, P = 0.049), higher platelet count (HR = 1.003, 95%CI = 1.001-1.006, P = 0.024) were associated with significantly higher probability of UPCR decline.
Limitation
This study used baseline serum IgA/C3 ratio to predict long-term probability of UPCR decline regardless of treatment. It is probably that we can use this data to guide the treament of IgAN. In such patients with low serum IgA/C3 ratio, tapering dose of immunosupressive drugs could be used to avoid complications without influencing the probability of UPCR decline. The relationship between specific treatments of participants and their probability of UPCR decline would be further analysed to support this assumption.
Conclusions：
Serum IgA/C3 ratio is likely useful to predict follow up UPCR decline probability regardless of treatment in IgA nephropathy.
Key words：
IgA/C3 ratio, IgA nephropathy, Urine Protein / Creatinine Ratio (UPCR)

C019

The Impact of Mesangial Matrix Deposition on Renal Outcomes in Taiwanese IgA Nephropathy Patients

病理基質沉積對台灣 IgA 腎病患者的腎臟預後影響

Jia-Wei Hsu[1], Cheng-Hsu Chen[1,2,3,4]
許家瑋[1], 陳呈旭[1,2,3,4]
[1.]Division of Nephrology, Taichung Veterans General Hospital, [2.]Department of Life Science, Tunghai University, [3.]Post-Baccalaureate Medicine, College of Medicine, National Chung Hsing University, [4.]School of Medicine, China Medical University, Taichung, Taiwan
[1.]台中榮總腎臟科 [2.]東海大學生命科學系 [3.]中興大學學士後醫學院 [4.]中國醫藥大學醫學院

Background：
IgA nephropathy stands as the predominant cause (26%)of primary glomerulonephritis (GN) in Taiwan. Previous research has proposed that modifications in mesangial cell behavior, such as proliferation and alterations in extracellular matrix synthesis, may play a pivotal role in the development of IgA nephropathy. Nevertheless, the clinical relevance of matrix deposition in IgA nephropathy remains unclear.
This study is designed to assess mesangial matrix deposition within histological lesions as potential predictive indicators for renal outcomes in patients with IgA nephropathy.
Methods：
We retrospectively retrieved biopsy-proven IgAN patients from 2010 to 2022. Based on mesangial matrix deposition, patients were divided into two groups. The baseline clinical data, electron microscopy and pathological phenotypes were compared. The composite renal outcome in this study was defined based on eGFR and included the following criteria: a doubling of serum creatinine (SCr), a percentage decline in eGFR of ≥50% from the baseline over a sustained period of at least 4 weeks, and an eGFR falling below 15 ml/min/1.73 m^2 sustained over at least 4 weeks. To assess kidney survival, we employed Kaplan-Meier and Cox regression methods for our analyses.
Results：
We enrolled a total of 366 IgA nephropathy (IgAN) patients, of which 28 exhibited mesangial matrix deposition. It is worth noting that, in this cohort, the timing of the biopsies was not particularly early, as many patients had undergone a period of clinical observation before undergoing the biopsy procedures. The mesangial matrix deposition group showed baseline older age (P <0.001), lower serum hemoglobin (P = 0.007), higher serum creatinine (1.83 vs. 1.34; P = 0.003), lower serum C3 (96 vs. 112; P = 0.002), lowerC3 deposition(P=0.008)(Table 1). After a median follow-up of 42.3 months, 81 (12.62%) patients achieved the primary endpoint.
The Kaplan-Meier curve analysis revealed that patients testing positive for mesangial matrix deposition exhibited significantly poorer renal survival compared to patients without matrix deposition (see Figure A).
Conclusions：
Our research underscores the critical importance of early identification of high-risk patients for end-stage renal disease (ESRD) and the progression of renal function, particularly concerning glomerular mesangial matrix deposition. We must acknowledge that our study's reliance on pathological reports raises concerns, as previous research has highlighted the poor reproducibility of the M score. The challenge of refining a standardized definition of matrix deposition among pathologists remains a significant hurdle in collaborative research efforts. Our study also has several limitations, including a relatively small sample size within the matrix deposition positive group, an older patient age, and higher serum creatinine levels in this group. Additionally, we did not account for treatment effects in our analysis.

Key words：Mesangial Matrix Deposition, IgA nephropathy, Pathology

C020

Integrative Analysis of mRNA and miRNA Expression in patients with IgA nephropathy

IgA 腎病之 mRNA 與 MiRNA 定序分析

Hsin-Tien Hou[1], Yu-Juei Hsu[1], Shun-Neng Hsu[1], Shih-Hua Lin[1], Chih-Chien Sung[1]

侯心田[1], 許育瑞[1], 許順能[1], 林石化[1], 宋志建[1]

[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

[1] 三軍總醫院內科部腎臟內科, 國防醫學院

Background：

IgA nephropathy (IgAN) is the most common primary glomerulonephritis worldwide. Previous studies have demonstrated the involvement of miRNAs in IgAN, but the role of miRNAs remains unclear. We aim to identify the miRNA-mRNA network from kidney biopsied tissue in patients with IgAN.

Methods：

Kidney tissues from IgAN patients (n=3) were extracted for both RNA-seq and small RNA-seq. Bioinformatics analysis were conducted by the Database for Annotation, Visualization and Integrated Discovery (*DAVID*), and miRNA target gene was also predicted by TargetScan for miRNA -mRNA network.

Results：

We identified differentially expressed mRNAs (DEmRNAs) and differentially expressed miRNAs (DEmiRNAs). There were 11968 mRNAs were identified by biopsied kidney RNAseq including 1260 upregulated and 32 downregulated mRNA. *Gene Ontology biological process* among upregulated mRNAs reveled terms of RNA splicing, RNA processing, lysosomal transport, regulation of ion transport and spliceosome. There were 982 miRNAs were identified by small RNAseq, and differentially expressed miRNAs (DEmiRNAs) included 3 upregulated (hsa-miR-1-3p, hsa-miR-181d-5p and hsa-miR-642a-5p) and 7 downregulated miRNAs. We further analyzed the mRNA-miRNA network and found SLC25A25A was the same target gene of three upregulated miRNA.

Conclusions：

This study demonstrated the omic approach to analyze miRNA-mRNA network from biopsied kidney in IgAN that may help further explore the molecular mechanisms of IgAN.

Key words：

IgA nephropathy, RNAseq, miRNA

C021

EXT1/EXT2 and NCAM-1 expression in Taiwan patients with lupus membranous nephropathy

本土第五型狼瘡性腎炎患者其 EXT1/EXT2 及 NCAM-1 抗原表現

Kun-Hua Tu[1,3], Tsai-Yi Wu[3], Cheng-Lung Ku[3], Ji-Tseng Fang[1], Chi-Wei Yang[1], Tai-Di Chen[2]

塗昆樺, 吳采薏, 顧正崙, 方基存, 楊智偉, 陳泰迪

[1]Department of Nephrology, [2]Department of Pathology, Chang-Gung Memorial Hospital, [3]Graduate Institute of Clinical Medical Sciences, Chang Gung University, Taoyuan, Taiwan.

[1] 林口長庚腎臟科系, [2] 林口長庚病理科, [3] 長庚大學臨床醫學研究所

Background：

Lupus nephritis could be divided into 6 categories according to ISN/RPS classification. Class V lupus nephritis has similar histologic characteristics with primary membranous nephropathy (pMN), so call lupus membranous nephropathy (LMN). Recently, there are also autoantigens found in LMN, including EXT1/EXT2[1], and NCAM-1. Thus, we conduct a retrospective study to evaluate the prevalence of EXT1/EXT2 and NCAM1 in Taiwan patients

Methods：

The investigator conduct a retrospective study at a tertiary medical center in Taiwan. From 2011/1 to 2022/12, totally 116 patients had histologic diagnosis of lupus membranous nephropathy. After exclusion as criteria, totally 63 subjects were included. Formerly stored tissue was furtherly sent for immunohistochemistry stain with EXT1/EXT2 and NCAM-1.

Results：

Among the 63 subjects, there are 12 subjects with positivity of EXT1/EXT2, and 2 subjects with positivity of NCAM-1. Interestingly, one has double positivity. EXT1/EXT2 positive subjects have no remarkable differences of clinical characteristics with negative subjects, although proteinuria in EXT1/EXT2 positive subjects seems slightly lower than negative subjects which does not achieve statistical significance. In addition, survival analysis revealed slightly better renal outcome of EXT1/EXT2 positive subjects, which does not achieve statistical significance.

Conclusions：

Although limited enrolled subjects, this study first demonstrate that EXT1/EXT2 account for 20.7% of pure lupus membranous nephropathy, and 19.0% of lupus membranous nephropathy with or without proliferative lesions (class 3 or 4). The prevalence is much lower than former reports. Contrary to former reports, EXT1/EXT2 positive subjects in this investigation, have no remarkable differences of clinical features and kidney survival during follow-up period compared with EXT1/EXT2 negative subjects. The prevalence of NCAM-1 in LMN is low (3.4%).

Key words：

Lupus membranous nephropathy, EXT1/EXT1, exostosin, NCAM-1

C022

Association between Trimethylamine N-oxide and adverse kidney outcomes and all-cause mortality in type 2 diabetes mellitus

第二型糖尿病患者血清氧化三甲胺與腎臟預後及死亡率的關聯性

Ping-Shaou Yu[1,2,3], Ping-Hsun Wu[1,3], Ming-Yen Lin[1], Shang-Jyh Hwang[1,3*], Yi-Chun Tsai[1,3,4*]
余品劭[1], 吳秉勳[1,3], 林明彥[1], 黃尚志[1,3], 蔡宜純[1,3,4]
[1.] Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Chung-Ho Memorial Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
[2.] Department of Internal Medicine, Kaohsiung Municipal Ci-jin Hospital, Kaohsiung, Taiwan
[3.] Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University
[4.] Department of Internal Medicine, Division of General Medicine, Kaohsiung Medical University, Kaohsiung Medical University Hospital, Kaohsiung 807, Taiwan.
[1] 高雄醫學大學附設中和紀念醫院腎臟內科
[2] 高雄市立旗津醫院內科部
[3] 高雄醫學大學醫學研究所
[4] 高雄醫學大學附設中和紀念醫院一般醫學內科

Background：
Type 2 diabetes (T2D) is the major contributor to chronic kidney disease and end-stage kidney disease (ESKD). Prior studies suggest an association between elevated circulating trimethylamine N-oxide (TMAO) levels and an increased risk of mortality in T2D patients. However, the impact of TMAO on kidney outcomes in T2D patients has not been thoroughly investigated. The aim of this prospective study was to investigate the relationship between fasting serum TMAO level and adverse kidney outcomes in T2D patients.

Methods：
Between October 2016 and June 2020, T2D patients were recruited and monitored every 3 months until December 2021. Serum TMAO levels were assessed using liquid chromatography-mass spectrometry. The primary kidney outcomes were doubling of serum creatinine levels or progression to ESKD necessitating dialysis. The secondary kidney outcome was a rapid 30% decline in estimated glomerular filtration rate (eGFR) within 2 years. All-cause mortality was also evaluated.

Results：
Among the 440 enrolled T2D patients (mean age of 62.6 years), we noted a distinct profile for those with a serum TMAO level > median (0.62 μM), characterized by older age, longer diabetes duration, elevated blood urea nitrogen, and lower eGFR. Over a median follow-up period of 4 years, 26 patients (5.9%) had a doubling of serum creatinine level or progression to ESKD. In multivariable analysis, the patients with a serum TMAO level > median (0.62 μM) were significantly associated with the primary kidney outcomes (hazard ratio: 3.51), and they had a 4.74-fold higher risk of mortality compared to those with a TMAO level ≤ median.

Conclusions：
Our results suggest that T2D patients with elevated circulating TMAO levels are at a higher risk of doubling serum creatinine, progressing to ESKD, and mortality. TMAO may be a potential biomarker for kidney function progression and mortality in T2D patients.

Key words：
Trimethylamine-N-oxide, type 2 diabetes mellitus, kidney outcome, all-cause mortality
關鍵字：氧化三甲胺、第二型糖尿病、腎臟預後、全因死亡率

C023

Current Status of Diabetes and Early Stage Chronic Kidney Disease Care Integration and Implementation

糖尿病及初期慢性腎臟病照護整合方案概況分析

Shu-Li Wang[1], Tzu-Hui Chen[1], Lan-Fang Kung[1], Pei-Ni Hsiao[1], Shih-Ming Hsiao[1], Yi-Wen Chiu[2]
王淑麗, 陳慈徽, 龔蘭芳, 蕭佩妮, 蕭仕敏, 邱怡文
[1]Department of Nursing, [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科

背景：2022年起健保署新增「糖尿病及初期慢性腎臟病照護整合方案」，除整併原有的糖尿病(2001年)及初期慢性腎臟病方案(2011年)外，更針對糖尿病與初期慢性腎臟病共病病人新增共同管理支付項目及獎勵措施（共管措施）。照護服務的整合，將有助於改善醫療照護品質及效率，除可避免患者病情惡化至腎臟病變階段，也能因病情早期控制和介入，降低可能避免的醫療費用支出。

方法:以南部某醫學中心之糖尿病及初期慢性腎臟病照護整合方案收案個案為對象，收錄自2022年3月1日至2023年8月31日共485位完整收案病患進行資料分析。

結果：平均年齡68.4±10.9歲，男性258位(53.3%)，女性227位(46.7%)。HbA1c< 7%有247位；低密度脂蛋白（LDL）＜130 mg/dl有472位；血壓＜130/80 mmHg有231位；UACR<300 mg/gm有42位；抽菸者有25人。CKD stage 1有26人、CKD stage 2有108人、CKD stage3a有86人、CKD stage4有2人。收案科別:內分泌科:400人、心臟血管科：61人、腎臟內科：24人。

結論：糖尿病及初期慢性腎臟病具多項共同風險因子，照護族群多有重疊或具因果關係，「糖尿病及初期慢性腎臟病照護整合方案」，可以減少重複檢驗檢查項目，強化個案管理，提升品質及照護服務的整合，改善醫療照護品質及效率，避免病情惡化至腎臟病變階段。

關鍵字：糖尿病及初期慢性腎臟病照護整合方案

C024

Novel Equations Incorporating the Sarcopenia Index Based on Serum Creatinine and Cystatin C Levels to Predict Appendicular Skeletal Muscle Mass in Patients with Nondialysis Chronic Kidney Disease

納入以血清 Creatinine 及 Cystatin C 為基礎的肌少症指標來建立非透析慢性腎臟病患四肢骨骼肌質量的預測公式

Bang-Gee Hsu[1,2], Chih-Hsien Wang[1,2], Yu-Hsien Lai[1,2], Chiu-Huang Kuo[1,3], Yu-Li Lin[1,2]

徐邦治 [1,2], 王智賢 [1,2], 賴宇軒 [1,2], 郭秋煌 [1,3], 林于立 [1,2]

[1] Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien 97010, Taiwan.

[2] School of Medicine, Tzu Chi University, Hualien 97010, Taiwan.

[3] School of Post-baccalaureate Chinese Medicine, Tzu Chi University, Hualien 97010, Taiwan.

[1] 佛教慈濟醫療財團法人花蓮慈濟醫院腎臟科

[2] 慈濟大學醫學系

[3] 慈濟大學學士後中醫學系

Background*:* Skeletal muscle mass measurements are important for customizing nutritional strategies in chronic kidney disease (CKD). The serum creatinine-to-cystatin C ratio (Cr/CysC) is a potential indicator of sarcopenia. We aimed to develop simple equations to predict the appendicular skeletal muscle mass (ASM) in CKD using readily available parameters and Cr/CysC.

Methods*:* A total of 573 non-dialysis CKD patients in stages 3-5 were evaluated for ASM using the Body Composition Monitor (BCM). These patients were randomly divided into development and validation groups at a ratio of 2:1. In the development group, ASM prediction equations were generated using stepwise multiple linear regression models. The accuracy of the equations was then tested in the validation group. Additionally, the prognostic significance of the predicted ASM from our equation was evaluated in a retrospective CKD registry comprising 1141 patients.

Results: The most optimal equation without anthropometric data and handgrip strength (HGS) (Equation 1) was: ASM (kg) = −7.949 − 0.049 × Age (years) − 2.213 × Female + 0.090 × Height (cm) + 0.210 × Weight (kg) + 1.141 × Cr/CysC. The modified equation (Equation 2) with anthropometric data and HGS was: ASM (kg) = −4.468 − 0.050 × Age (years) − 2.285 × Female + 0.079 × Height (cm) + 0.228 × Weight (kg) − 0.127 × Mid-arm muscular circumference (cm) + 1.127× Cr/CysC. Both equations showed strong correlations with the BCM-measured ASM in the validation cohort (r = 0.944 for Equation 1, r = 0.943 for Equation 2) with minimal bias. When Equation 1 was applied to the CKD registry, the estimated ASM index (ASM/Height^2) significantly predicted overall mortality over a median 54-months.

Conclusions:

The novel ASM equations offer an easy-to-approach method for predicting skeletal muscle mass in non-dialysis CKD outpatient settings, providing valuable prognostic information and guiding nutritional management strategies.

***Keywords*:** appendicular skeletal muscle mass, sarcopenia index, creatinine, cystatin C, chronic kidney disease

C025

Investigation on the current situation of establishing vascular access before dialysis in patients with end-stage renal disease－A Survey from a Medical Center in Southern Taiwan

末期腎臟病患透析前血管通路建立現況調查-以南部某醫學中心為例

Lan-Fang Kung[1], Tzu-Hui Chen[1], Shu-Li Wang[1], Shih-Ming Hsiao[1], Pei-Ni Hsiao[1], Yu-Ying Huang[1], Mei-Chuan Kuo [2]
龔蘭芳 [1], 陳慈徽 [1], 王淑麗 [1], 蕭仕敏 [1], 蕭佩妮 [1], 黃玉瑩 [1], 郭美娟 [2]
[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University, Kaohsiung Medical University Hospital
[1] 高雄醫學大學附設醫院護理部, [2] 腎臟內科

前言：血管通路的建立時機及種類一直是末期腎臟病病患及腎臟照護團隊關注的議題。末期腎臟病病患，於適當時機下事先建立好透析血管通路，在心理與身體都做好準備下，順利且安全由門診進入血液透析治療。為提升血管通路成功使用率，本院設置專責血管通路照護小組，建構血管通路照護流程。本研究主要目的是針對末期腎臟病患透析前血管通路建立現況調查。

方法：血管通路照護流程為，在建立好自體血管通路後的第4週及第8週後，經由血管超音波導入來評估，以提供並確保病患事先建立好的血管通路成熟。收錄自2022年1月至2023年9月底，南部某醫學中心腎臟內科定期回診已建立好的自體血管通路的末期腎臟病病患，共126位完整收案病患進行資料分析。

結果：平均年齡 65.4±11.5 歲；其中 77 位(61%)為男性。在接受血管通路建立時的腎功能：Cr:8.4±2.2mg/dl，GFR：6.2±1.9 ml/min/1.73m^2。截至 9 月底進入血液透析為 94 位(74.6%)，有 5 位轉診(4.0%)，目前 27 位(21.4%)還未透析持續在門診追蹤中。而針對這 94 位進入透析個案分析：血管通路建立平均的時間為：159.9±173.9 日；進入透析時的腎功能：Cr:11.3±3.1 mg/dl，GFR：4.5±1.6 ml/min/1.73m^2；有 69 位(73.4%)是從門診平順進入長期透析，而有 25 位(26.6%)是住院透析的。在血管成熟度方面其中 87 位(92.6%)是有成功穿刺的；但有 7 位(7.4%)進入透析時是使用暫時導管。兩位是因急性肺水腫來不及成熟，四位是在門診即發現血管本身條件不佳建議再次重建但被拒絕，另一位是已經確定成熟了但未持續握球運動而導致無法使用。

結論與建議：此分析顯示有92.6%血管是成熟可用且成功穿刺的，雖有26.6%是在末期疾病進展且出現嚴重尿毒症狀，經醫師評估需住院透析的，但其中的50%是其他疾病住院而進入透析。針對使用暫時導管的個案，建議是否逐一去探討了解個人及家屬的問題，而在衛教端設立更完整照護流程下，發現到血管條件不佳的個案，需更要落實及嚴謹的衛教，應如何執行握球及手臂訓練，到配合醫療端重新建立人工血管。針對血管已成熟的個案，在每次回診仍持續加強衛教之外，並請家屬在旁監督時時提醒，讓個案更重視血管成熟持續維持的重要性。

關鍵字：自體血管、血管超音波、握球運動

C026

Pre-end-stage kidney disease multidisciplinary health education programs improve comprehension about information of living donor kidney transplants: a single medical center experience

運用多元化的末期腎臟疾病前期之健康教育計畫，提升對活體腎臟移植資訊的理解力：單一醫學中心經驗

Hsin-Yi Lai[1], Yung-Ni Lee[1], Hsin-I Huang[1], Tsung-Lin Wu[1], Tung-Yun Tai[1], Yu-Min Hsiung[1], Tai-shuan Lai[1]

[1] 賴心怡, [1] 李咏倪, [1] 黃心怡, [1] 吳宗琳, [1] 戴彤芸, [1] 熊育敏, [1] 賴台軒

[1]Department of Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taiwan

[1] 國立臺灣大學醫學院附設醫院內科部

Background：

The choice of renal replacement therapies is an issue for patients with advanced chronic kidney disease (CKD). Kidney transplants are a better choice not only for improving quality of life but also for reducing long-term mortality than hemodialysis or peritoneal dialysis. However, the number of kidney transplants in Taiwan is much smaller than the number of donated organs, and it takes a considerable amount of time for a successful match. Therefore, we implemented a pre-end-stage kidney disease (Pre-ESKD) multidisciplinary health education program to improve comprehension about information of living donor kidney transplant (LDKT).

Methods：

We provide a pre-ESKD health education program for patients whose estimated glomerular filtration rate (eGFR) is less than 45 ml/min/1.73 m^2. During the program launch, the nephrologist and CKD nurse educator provided relevant information about kidney transplant. If a patient decides to choose LDKT, when the patients' less than 15 ml/min/1.73 m^2, the organ transplant team actively holds a family meeting with the patient and their relatives to discuss in depth the process of the transplant operation and the precautions after the operation.

Results：

From 2018/01/01 to 2023/08/30, a total of 22.5% (9007 patients/40110 patients) CKD patients were referred to the organ transplant team, where they received and comprehend information about LDKT. Among them, 50 successfully received kidney transplants, including 42 LDKT and 8 cadaveric kidney transplants. Nearly 12% (5 patients/42 patients) did not receive any dialysis prior to kidney transplant. The average time course of recipients from the initiation of Pre-ESKD education program to LDKT was 2.2 years.

Conclusions：

The intervention of the Pre-ESKD health education program improved comprehension skills of kidney transplants. The program helped to increase the number of LDKT and to reduce the possibility of dialysis before kidney transplant.

Key words：

kidney transplantation; living donor; kidney recipients; chronic kidney disease patients; pre-end stage kidney disease

C027

Effects of multidisciplinary care on the clinical outcomes of patients with chronic kidney disease

多專科照護對慢性腎臟病人臨床照護結果之影響

邱美玲[1], 洪國欽[2]

[1]敏盛綜合醫院 血液透析室專科護理師, [2]敏盛綜合醫院 腎臟內科主任

Background: To determine the effects of multidisciplinary care on guideline-based clinical outcomes in patients with chronic kidney disease (CKD). Furthermore, we assessed whether the effect of multidisciplinary care was clinically beneficial.

Method: We identified English and Chinese language-published reports of randomized controlled trials that evaluated the effects of multidisciplinary care on clinical outcomes of patients with chronic kidney disease. We expressed the intervention effects as mean difference, standardized mean difference, or odds ratio values and 95% confidence intervals using a random-effects model. We used the Cochrane Handbook to assess the methodological quality of randomized controlled trials.

Results: Eight randomized controlled trials were included in the meta-analysis. The analysis results revealed that multidisciplinary care decreased the systolic blood pressure MD −2.67 (95% CI = −5.00 to −0.34), diastolic blood pressure MD −1.01 (95% CI = −1.28 to −0.74), and blood pressure < 130/80 mmHg pooled OR 1.98 (95% CI = 1.42–2.77); glycated hemoglobin A1c MD −0.60 (95% CI = −0.66–0.54), but not glycated hemoglobin A1c level ≤ 7.0% pooled OR 1.59 (95% CI = 0.97–2.61); and low-density lipoprotein SMD −0.20 (95% CI = −0.34 to −0.07), but not low-density lipoprotein level < 2.0 mmol/L pooled OR 1.46 (95% CI = 0.69–3.09). Moreover, it increased the glomerular filtration rate MD 2.51 (95% CI = 2.10–2.92) for patients with CKD.

Conclusions: Multidisciplinary care led to a statistically significant improvement in clinical outcomes. However, it might not be clinically important for patients with CKD.

Key words : multidisciplinary care、chronic kidney disease、clinical outcomes

C028

互動式創新教學運用於末期腎臟病治療選擇之衛教成效

高銀璞[1]，張鈺騭[1]
台北市立萬芳醫院[1]醫務部醫事個管組

Background：
當腎臟病人進展到末期腎衰竭時，應被充分告知考慮末期腎臟病治療選擇方式，利用『醫病共享決策』(shared decision making,SDM)，了解血液透析、腹膜透析、腎臟移植及安寧療護等四種方法進行替代性治療，然而適合替代治療方法則受病人年齡、職業、自我照護、活動能力、家庭環境等個人因素各有所不同，為協助其正確選擇治療方式，傳統衛教過於艱澀容易造成病人排斥，藉由運用人工智能輔助線上系統及遊戲式創新教學，以淺顯易懂、寓教於樂的互動方式，提高病人學習興趣及效果，有效提升末期腎臟病選擇衛教成效。
Methods：
腎臟團隊自 111 年 1 月開始建立人工智能輔助的線上系統，至 112 年 9 月有 296 位病人加入此線上系統，將完整覆蓋的醫療信息傳遞給病人及其家屬。其系統讓病人積極參與決策，推薦最合適的治療方案，讓醫病達成共識，內文涵蓋末期腎臟病治療選擇單元，提供血管透析介紹，腹膜透析介紹，腎臟移植，洗腎旅程等主題，讓病人及家屬與衛教師，不受限空間、互動零距離，一對一溝通諮詢，透過即時提問、留言，個管師即時解答、關懷，醫療團隊依據反饋與病人討論達成決策，111-112 年腎臟團隊舉辦團體課程-開發腎不敗大富翁桌上遊戲，透過遊戲互動、答題、競賽方式，輕鬆學習末期腎臟病選擇內容，並於機會跟命運中，加入腎臟保健的概念，進而加深對腎臟保健的了解，另外藉由互動式體驗營模式，引導腹膜透析管路操作及機器介紹，讓病人實際操作教具，減少恐懼、焦慮，進而選擇自己合適透析方式，來提升生活品質。
Results：
1.腎臟替代治療方案，腹膜透析：血液透析比例（%)，16.2%：83.7%（110 年）vs.24.4%：75.5%（111 年)、29.2%:70.7%(112 年 1-9 月)。
2.腎不敗大富翁課程:111 年滿意度:4.95%(5 分計)，112 年滿意度:4.98%。病人及家屬反饋:覺得很棒、很清楚、課程印象深刻、家屬可以一起參與互動高、不了解內容還有一對一可以問覺得很放心等，讓病人及家屬達到零距離互動。
Conclusions：
末期慢性腎臟病人，影響選擇的因素:以病人的意願、自我照顧能力及生活品質為重要的考量，藉由人工智能輔助健康教育平台和信息連接方法，網路平台提供易於獲取的健康教育信息，再加上腎不敗大富翁桌上遊戲，有效改進了傳統健康教育艱澀難懂方式，在醫病之間建立有效的溝通橋樑，讓病人和醫療團隊共同做出醫療決策，取得良好的效果。
Key words：
末期腎臟病、互動式學習、醫病共享決策、桌上遊戲

C029

Analysis of the impact of COVID-19 on chronic kidney disease
分析新冠肺炎對慢性腎臟病的影響

Chi-Ling Hsu, Ching-Tan Cheng. Yueh-Ting Lee, Shang-Chin Liao, Chien-Te Lee
許琪聆, 鄭晶丹, 李岳庭, 廖上智, 李建德
Kaohsiung Municipal Feng Shan Hospital - Under the management of
Chang Gung Medical Foundation
高雄市立鳳山醫院(委託長庚醫療財團法人經營)

一 、目的

2019 年 12 月新冠肺炎疫情造成全世界大規模蔓延，衍生新的社交方式：自我防護戴口罩及社交距離；從剛開始造成病人發燒、肌肉痠痛、疲勞、全身無力、咳嗽、噁心、腹痛、腹瀉、鼻塞、流鼻水、嗅味覺異常、頭痛、呼吸困難等症狀，歷經 3 年病毒變種，covid-19 疫苗問世，慢慢轉為輕症免隔離，疫後新生活模式，衛生福利部疾病管制署統計至 2023 年 3 月全台確診病例數超過 1000 萬例。慢性腎臟病人者如果確診新冠肺炎，對於本身疾病的風險也會更高。

二、方法

本院慢性腎臟病衛教室收集自 2021 年 7 月~2022 年 6 月確診新冠肺炎之慢性腎臟病病人 stage 3b~5 的病人共 214 名，分析病人於確診後第 6 個月及第 12 個月，病人腎絲球過濾率下降的情形，並分析預後伴隨症狀對病人產生的影響；收案病人 stage3b 共 126 名，stage 4 共 71 名，stage 5 共 17 名，收案期間，stage3b、4、5 的病人各有 2、1、1 人，因新冠肺炎重症(2 名)及心血管疾病(2 名)死亡而取消收案，故各分期病人數如下：stage3b 共 124 名，stage 4 共 70 名，stage 5 共 16 名。

三、結果

經資料分析後，在確診第 6 個月，stage3b 的病人腎絲球過濾率下降在 17.7~23.4%，stage 4 的病人腎絲球過濾率下降在 11.8~16.2%，stage 5 的病人腎絲球過濾率下降在 7.1~9.5%；在確診第 12 個月，stage3b 的病人腎絲球過濾率下降在 10.9~13.8%，stage 4 的病人腎絲球過濾率下降在 7.7~11.3%，stage 5 的病人腎絲球過濾率下降在 4.9~7.7%；2021 年 7 月~2022 年 6 月期間，有意願施打新冠肺炎疫苗的病人分別為：stage3b 共 51 名(41.1%)，stage 4 共 32 名(45.7%)，stage 5 共 5 名(31.2%)；施打疫苗後，stage 3b~5 的病人有 55 名的病人因自覺不適就診，心血管問題有 13 名，皮膚症狀有 5 名，嗅味覺消失有 8 名。

四、結論

新冠肺炎病毒傳播經不斷變種及疫苗問世，雖然可以減少因確診後的重症但仍有無法預測的未來，目前已改變及調整世界對抗病毒的方式，對於免疫力差的慢性腎臟病病人，還有更多的挑戰，包含醫師、衛教師、營養師提供病人、家屬正確及適當的自我照顧方式，生活型態的改變，及因腎臟病帶來的身體症狀及情緒的影響，讓病人改善因確診後遺症，以正向積極的態度和自己的疾病共存。

關鍵字：慢性腎臟病、新冠肺炎

C030

Interdisciplinary care program reduces the incidence of dialysis in CKD stage 5 patients

Ya-Lin Huang[1], Shih-Yuan Hung[1], Yi-Che Lee[1], Hsi-Hao Wang[1], Li-Chun Ho[1], Po-Jui Chi[2], Ching-Yang Chen[1], Yahn-Bor Chen[1], Ching-Fang Wu[3], Min-Yu Chang[1]
[1]Division of Nephrology, E-Da Hospital / I-Shou University
[2]Division of Nephrology, E-Da Dachang Hospital / I-Shou University
[3]Division of Nephrology, E-Da Cancer Hospital / I-Shou University

Objectives: The incidence of end-stage renal disease (ESRD) in Taiwan remains highest in the world. Therefore, delaying the entry into dialysis, reducing complications associated with ESRD, and enabling patients to achieve appropriate care are the common goals of renal care teams. We set up an interdisciplinary care program according to the Joint Commission International (JCI) CCPC-ESRD (Clinical Care Program Collaboration-End Stage Renal Disease) for care of CKD stage 5 patients in E-Da hospital.

Methods: The care program enrolled patients with CKD stage 5 without dialysis since 2016. There were combinations of physicians, disease managers, nurses, pharmacists, dietitians, social workers and multiple related teams. Patient care was guided by team-consensus guidelines and cross-team discussion. Laboratory data, nutritional assessment and drug compliance were monitored at least trimonthly. Education for disease management, diet control and medication use were performed regularly. The incidence of dialysis, frequency of renal-associated emergency visits, frequency and duration of renal-associated hospitalization were analyzed retrospectively between 2016 and 2022 with an age, gender and diabetes matched group with general care.

Results: A total of 86 patients were included in the program and a matched-control group of 87 patients was compared. Both groups were followed up after enrollment until occurrence of dialysis or up to 1.5 years. The baseline eGFR was 8.78±2.66 and 9.45±2.86 (p=0.1129). The incidence of dialysis was 28.67 (95% C.I. 19.20-41.17) per 100 person-years in study group and 48.18 (95% C.I. 34.42-65.61) per 100 person-years in control group (p=0.0065). Kaplan-Meier curves for dialysis-free survival between two groups was significantly better in study group (p=0.0207). When stratified by age and diabetes, patients in CCPC-ESRD group showed better dialysis-free survival if they were ≥65 years old (p=0.0423) or without diabetes (p=0.0246). The frequency of renal-associated emergency visits, frequency and duration of renal-associated hospitalization were significantly lower in study group.

Conclusions: CCPC-ESRD care program in E-Da hospital is an interdisciplinary and integrated team care especially for patients in CKD stage 5. The care system provides detail and attentive support when patients are facing renal failure. It not only reduces the incidence of dialysis in comparison to patients with general care during the same time period, the frequency of renal-associated emergency visits and hospitalization are also decreased. We also demonstrate that this care program has more power for non-dialysis renal support especially in patients older than 65 years old or non-diabetes. An interdisciplinary team care for CKD patients should be encouraged and carried out.

C031

Exploring the Current Status of Preparing Vascular Access in Hemodialysis Patients

探討血液透析病人預先建立血管通路之現況

Li-Ching Chiang[1], Chih-Ying Huang[1], Chiao-Chuan Huang[1], Chun-Chieh Tsai[2], Ping-Feng Chiu[2], Chew-Teng Kor[3]

江麗卿[1], 黃智英[1], 黃巧鵑[1], 蔡俊傑[2], 邱炳芳[2], 許秋婷[3]

[1.]CKD education center, Changhua Christian Hospital, [2.]Division of Nephrology, Changhua Christian Hospital, [3.] Internal Medicine Research Center, Changhua Christian Hospital

[1] 彰化基督教醫院慢性腎臟病衛教中心

[2] 彰化基督教醫院腎臟內科 [3] 彰化基督教醫院大數據中心

Background：

末期腎臟病人經醫病共享決策(Shared Decision Making, SDM)後選擇接受血液透析者，醫療團隊針對肌酸酐大於 7mg/dL 尚未建立動靜脈瘻管病人，強烈建議完成瘻管手術。病人接受血液透析前須有個熟成的血管通路，以安全順利的方式進入透析治療，本研究探討血液透析病人事先建立動靜脈瘻管時機及成效。

Methods：

本研究採回溯性方式，以中部某醫學中心 2019 年 1 月至 2021 年 12 月 CKD 個案管理結案為血液透析病人共 359 位，進入血液透析有預先建立動靜脈瘻管 126 位與無預先建立動靜脈瘻管 233 位各佔(35.1% vs 64.9%)，探討預先建立動靜脈瘻管 126 位病人，進入血液透析時使用動靜脈瘻管及非動靜脈瘻管相關因素的差異性。

Results：

預先建立動靜脈瘻管 126 位病人，進入血液透析時使用動靜脈瘻管或非動靜脈瘻管分別為 74 位 vs 52 位(58.7% vs 41.3%)。成功使用動靜脈瘻管透析病人以男性居多 (66.2% vs 42.3%, p=0.008)；教育程度國中以上(52.7% vs 34.6%, p=0.045)；有經濟獨立(71.6% vs 50%, p=0.013)。而使用動靜脈瘻管與非動靜脈瘻管進入透析時的肌酸酐值中位數 11(9-12) vs 10(8-11), p=0.013；動靜脈瘻管準備天數中位數 109(61-218) vs 59 (20-113), p<0.001。由 Restriction cubic spline 發現瘻管準備日和成功使用瘻管透析有線性正相關，顯示準備期越長成功使用瘻管透析勝算高。後續使用邏輯式回歸模型分析，發現當動靜脈瘻管準備期>60 天相較於動靜脈瘻管準備期<30 天的病人，成功使用瘻管透析的勝算為 5.3 (1.1,25.0)，p= 0.037；當動靜脈瘻管準備期>90 天，成功使用瘻管透析的勝算為 10.1(3.1,33.3)，p<0.001。

Conclusions：

經分析結果顯示，兩組在建立動靜脈瘻管時的腎絲球過濾率介於 3.6-6.1ml/min/1.73m^2 之間，隨著動靜脈瘻管的準備期長，成功使用瘻管透析的機會增加，而充分的瘻管備期有助於避免末期腎臟病病人因病情變化需要提早透析治療而使用非動靜脈瘻管。

Key words：

末期腎臟病人、動靜脈瘻管

C032

Case Sharing- Supporting St. Kitts and Nevis, diplomatic allies of Taiwan, in establishing Chronic Kidney Disease Care Project

協助邦交國『聖克里斯多福及尼維斯』建構慢性腎臟病照護計畫經驗分享

王友仁[1], 江玲芳[1], 林秀雯[1], 鄭士妍[2], 戴辛翎[1], 李榮芬[1], 曾偉誠[3], 林志慶[3]

[1]臺北榮民總醫院護理部 [2]輔仁大學醫學院護理系 [3]臺北榮民總醫院腎臟科

Background：

聖克里斯多福及尼維斯為我加勒比海地區邦交國，人民平均餘命 75.6 歲，主要死因以慢性病為主。該國慢性腎臟病盛行率超過 14%，慢性病導致之罹病、失能及死亡已成為克國衛生發展之重要挑戰。克國欽羨我國在腎臟病防治之專業成果，經由外交部委託財團法人國際合作發展基金會(簡稱國合會) 與台北榮總合作，推動強化克國慢性腎臟病之慢性病防治照護體系之計畫。

Methods：

分享臺北榮總腎臟科如何協助友邦國家「聖克里斯多福及尼維斯」建構慢性腎臟病基礎防治工作及強化該國腎臟病體系。

根據克國資料指出該國腎臟病危險因子包含不健康的習慣 (如：嗜甜食、缺乏運動及飲酒) 及生物危險因子(如：高血壓、高血糖、高血脂、過重及肥胖)，若所有登錄之病患皆須接受透析治療，則會造成龐大的醫療費用負擔。評估歸納克國之慢性病防治體系不夠完善的原因如下：1. 政府相關政策制定不夠完整；2. 社區缺乏推動慢性腎衰竭防治所需之管理能力；3. 醫療體系腎臟科醫護人力與專業能力不足。

本科執行「聖克里斯多福及尼維斯慢性腎臟病基礎防治體系建構計畫」，其目標為:1.強化慢性病資料庫登錄及追蹤管理模式；2.改善醫療單位相關硬體設備，並派遣克國醫護人員至本院接受腎臟照護訓練及專業技能；3.基層衛生人員至本院完成種子教師培訓，以落實於返國後推動慢性腎臟病防治所需之管理能力。

這是段授人以漁、篳路藍縷的過程，各職類人員如何發揮其專業角色、整合資源做最有效的管理與分配，並善用資訊化發展與智能化管理，達到事半功倍的效益。

Results：

1.本院三年共培訓 15 位友邦種子教師，派遣四位醫護顧問親赴友邦開辦照護訓練班及衛教推廣訓練班；當地共 481 位醫護人員參與。

2.當地共舉辦 64 場健康醫療講座，2000 人參與；舉辦 46 場尿液篩檢，共 1146 人參與；並運用多媒體宣導腎臟病基礎防治，成效卓著。

3.舉辦小學、國中健康衛教與競賽活動共 15 場，766 人參與。

4.全國 17 間社區衛生中心之慢性病個案管理追蹤表單之導入，完成糖尿病及高血壓病患之電子化資料收集，並建立高危險族群個案追蹤管理系統，定期進行資料登錄。

5.辦理世界腎臟日系列衛教活動，並運用海報、刊物、電視、廣播、社群平台推廣腎臟病保健；透過衛生中心及衛教活動，發放衛教單張至少 20,000 份。

Conclusions：

本院秉持經驗分享之理念，協助友邦增加醫療照護能力、改善醫療環境及體系的建立，將醫療照護的成功經驗跨越文化與國界，將成功腎臟保健照護經驗推向國際舞台，於 109 年獲得國際醫療衛生促進協會頒布「第四屆國際醫療 典範獎」。良善的健康政策，需要大家共同的努力，向下扎根、永續經營，翻轉克國世代不同的人生!

Key words： 國際醫療

C033

A Woman with Chronic Kidney Disease Presenting Abdominal Pain

一位慢性腎臟病女性以腹痛做為表現

Yeh-Chen[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Huai-Hsuan Chang[1], Wei-Hung Lin[2]
陳燁[1], 邱郁雯[1], 林怡秀[1], 張懷萱[1], 林威宏[2]
Nursing Department[1], Division of Nephrology[2] National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

Background：

一位 58 歲女性，已婚，職業為家管，過去有慢性腎臟病第五期、第二型糖尿病、高血壓及胃食道逆流之病史，家族病史為糖尿病及冠狀動脈疾病。在疾病歷程上，2021 年 11 月 6 日因急性慢性腎臟病合併尿道感染入院治療觀察治療，因病況穩定及感染改善於 2021 年 11 月 16 日辦理出院，但於出院當日下午出現腹痛之情形入本院急診就醫。

Methods：

透過身體評估檢查發現，病人精神倦怠但無發燒及畏寒；觸診腹部時病人表示肚臍區域疼痛，但觸診時臉部表情並無異樣。住院第四天出現 4 次大量血便，反抽鼻胃管無咖啡色液體，抽血檢驗發現血色素有往下之趨勢(2021/11/15 9.2g/dL→11/22 8.2g/dL)，初步臆測診斷為憩室出血、腫瘤疾病、結腸炎、血管發育不良、痔瘡或肛裂及直腸潰瘍。透過病歷查閱，2021/11/16 腹部電腦斷層排除腫瘤疾病的可能；2021/11/23 大腸鏡檢之診斷結果為發炎性腸道疾病、CMV 結腸炎或非典型感染，故排除了憩室出血、血管發育不良、痔瘡或肛裂的可能。病人仍有間歇性血便之情形，審視過去曾使用之藥物，其中 Kalimate 會造成下消化道出血(已於 2021/11/22 停用)，並追蹤自體免疫項目無異常，故排除結腸炎之可能性；2021/12/07 再次進行第二次大腸鏡檢，切片結果顯示腸道有晶體附著，懷疑為 Kalimate 造成，鏡檢下呈現 H & E stain，最後確定診斷為藥物造成之直腸潰瘍。

Results：

常用來治療慢性腎臟病病人高血鉀或高血磷之藥物，如：Kalimate、Kayexalate 或 Sevelamer 屬於離子交換樹脂，會產生藥物晶體附著於腸胃道黏膜上引發腸胃道出血，應立即停止藥物使用。

Conclusions：

Kalimate/Kayexalate 可能造成腸胃道損傷之不良反應，故應審慎評估造成慢性腎臟病病人的高血鉀之原因，可分為三個階段，第一階段解決可能非飲食造成的原因，如便祕、高血糖、酸中毒或使用保鉀利尿劑等；第二階段評估病人有無食用果汁、洋芋片或巧克力等營養價值較低的食物；第三階段衛教病人蔬菜川燙減少鉀離子之攝取，並提供低鉀水果的種類，如西瓜、水梨或蘋果，且水果分量每日約飯碗之八分滿，以減少不必要之藥物攝取。

Key words：

慢性腎臟病、腹痛、腸胃道出血

C034

Decrease serum decorin level associated with aortic stiffness in patients with non-dialysis advanced chronic kidney disease stage 4 to 5

低的血清核心蛋白聚醣濃度跟非透析第四期到第五期慢性腎臟病患者中樞動脈硬度有關

Ho-Hsiang Chang [1], Chi-Chong Tang [1], Hung-Hsiang Liou[3], Bang-Gee Hsu[1, 2]
張賀翔 [1]，鄧子聰 [1]，劉宏祥 [3]，徐邦治 [1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1] 花蓮佛教慈濟醫院腎臟內科, [2] 花蓮慈濟大學醫學系, [3] 新北市新仁醫院

Background:
Decorin is a proteoglycan that is produced by skeletal muscles in a result of stretching and constitutively suppresses the extracellular matrix accumulation, stimulates angiogenesis and reparation, and negatively regulates inflammation, oxidative stress, and apoptosis. Chronic kidney disease (CKD) accelerates atherosclerosis via augmentation of inflammation and perturbation of lipid metabolism. In this study, we explored the relationship between serum decorin levels and carotid-femoral pulse wave velocity (cfPWV) values in non-dialysis-dependent stage 4-5 CKD patients.

Methods:
Fasting blood samples and baseline characteristics were obtained from 120 non-dialysis-dependent stage 4-5 CKD. Serum decorin concentrations were determined by enzyme immunoassay kit. Aortic stiffness was defined as carotid-femoral pulse wave velocity (cfPWV) values >10 m/s according to the ESH-ESC guidelines.

Results:
Fifty-two non-dialysis-dependent stage 4-5 CKD patients (43.3%) had been defined as aortic stiffness group. The non-dialysis stage 4-5 CKD patients with DM had high prevalence of aortic stiffness ($p = 0.040$) than those without DM. CKD patients in the aortic stiffness group had older age ($p < 0.001$), higher systolic blood pressure (SBP; $p = 0.029$), UPCR ($p = 0.025$), and lower serum albumin ($p = 0.032$), and decorin level ($p = 0.002$) compared to those in control group. After adjusting factors significantly related to aortic stiffness by multivariable logistic regression analysis, the results demonstrated that lower serum decorin levels (odds ratio (OR): 0.694, 95% confidence interval (CI): 0.556–0.866, $p = 0.001$), DM (OR: 3.676, 95% CI: 1.340–10.079, $p = 0.011$), and age (OR: 1.080, 95% CI: 1.035–1.128, $p < 0.001$) were the independent predictors of aortic stiffness non-dialysis-dependent stage 4-5 CKD patients. Multivariable forward stepwise linear regression analysis of the factors significantly associated with cfPWV values showed that DM ($\beta = 0.184$, adjusted R^2 change = 0.025, $p = 0.029$), age ($\beta = 0.305$, adjusted R^2 change = 0.085, $p < 0.001$), log-UPCR ($\beta = 0.211$, adjusted R^2 change = 0.075, $p = 0.018$), and decorin level ($\beta = -0.279$, adjusted R^2 change = 0.062, $p = 0.001$) were the independent predictors of cfPWV values in non-dialysis-dependent stage 4-5 CKD patients.

Conclusions:
Serum decorin level is negatively correlated with aortic stiffness among patients with non-dialytic CKD stage 4 to 5.

Key words:
Decorin, Advanced chronic kidney disease, Aortic stiffness, Carotid-femoral pulse wave velocity

C035

New Development Hemodialysis Versus Peritoneal Dialysis Modality Selection and Care Differences

新開發的透析模式選擇工具與護理成效差異比較

YR He[1], YC Hsu[2], YS Wei[3], JE Tsai[4], LJ Wu[5], HL Tai[6*]
何侑蓉[1], 徐筠真[2], 魏毓萱[3], 蔡嘉恩[4], 吳婈嘉[5], 戴辛翎[6*]
[1,2,3,4,5,6] Department of Nursing, National Taipei University of Nursing and Health,6 Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5,6] 國立台北護理健康大學護理系, [6] 臺北榮總護理部

Background：
Every year, approximately tens of millions of end-stage renal disease patients are faced with the difficult decision of choosing a dialysis modality—making a challenging choice between hemodialysis and peritoneal dialysis. This study evaluates the value of a new decision aid tool in assisting with the selection of dialysis modality.

Methods：
We searched for 18 relevant publications in 2 different databases that were published between 2018 and 2023. These databases included: The Cochrane Library, PubMed. Totally 18 studies: 4 randomized control trials (RCTs) and 14 non-randomized control trials (non-RCTs) that met the inclusion criteria were included Methodological quality of case series studies: CASP critical appraisal instruments based.

Results：
The study commenced with 234 participants who had given consent, of which 94 (40.2%) were lost to follow-up before the initiation of the study. Of those who began the study, 140 in total (70 in each arm), an additional 7 were subsequently lost to follow-up. Those who utilized the decision aid manifested lower decisional conflict scores (42.5 vs 29.1; $P < 0.001$) and boasted higher average knowledge scores (90.3 vs 76.5; $P < 0.001$). Both arms exhibited high decisional self-efficacy scores, which were not influenced by the use of the decision aid. The uncertainty regarding the choice of dialysis treatment diminished from 46% to 16% post-utilization of the decision aid. The vast majority of users (>90%) attested to the efficacy of the decision aid in facilitating the decision-making process. Initial analyses indicated that participants in the intervention arm, with a college degree or higher, experienced an average reduction in decisional conflict scores of 8.6 points more than those with some college education or below after utilizing the decision aid (raw $P = 0.01$); however, this finding lost its statistical significance post-correction ($P = 0.2$). The average decisional conflict scores were comparable among the control and pretest responders, residing at 43 and 44, respectively.

Conclusions：
Like other decision aids used in different health decisions, those who completed review of our decision aid indicated improved knowledge, better preparation for decision making, and reduced decisional conflict but no significant improvement in decision self-efficacy shortly after its use. Our results suggest that the extent of benefit from the decision aid on reducing decision uncertainty might vary by age and education level, while the reduction in decisional conflict might vary based on education. These factors might be indicators of differences in engagement with the decision aid.

Key words：
Dialysis;Shared Decision Making; Care Differences

C036

The Impact of Mix Mode of Learning in Dietetian Intership in The Nutrition and Chronic Kidney Disease Workship

以混合式教學指導實習生舉辦慢性腎臟病工作坊之學習成效

賴柏宏[1], 侯玟伊[2], 黃瑞芳[3]

[1.2]天主教中華聖母修女會醫療財團法人天主教聖馬爾定醫院營養室,[3]天主教中華聖母修女會醫療財團法人天主教聖馬爾定醫院教研部

Background:

營養師是經由國家考試合格的專業人員，除了扮演指導民眾飲食建議及營養衛教的角色，臨床教學訓練也是相當重要的一環。營養師在考上執照前，唯一能接受臨床教學，將理論與實務執行合而為一的機會，便是實習的時候。過去的實習教學多以講師為中心，並未考慮實習生接受訓練後，是否具備相對應的能力。本研究以混合式教學，教導實習生如何利用自身的知識，舉辦一場「慢性腎臟病-手作低蛋白點心工作坊」，以提升實習生整合專業知識與實務執行的能力，確認教學成效。

Methods:

本研究以 2022 年兩名暑期實習生為研究對象，工作坊課程安排分為課室教學、現場實作，實習生自行製作慢性腎臟病飲食課程教學講義、設計線上互動小遊戲-尋找低蛋白點心、製作低蛋白點心，再由資深營養師從旁指導。招募 10 名社區民眾參與課程，讓實習生利用自身專業知識，轉為教導社區民眾健康知識與技能，從而提升學習成效。

Results:

研究發現課程介入前後，社區民眾對於慢性腎臟病-低蛋白飲食的認知上，後測結果優於前測，且達統計上之顯著性差異（$p<0.05$）。工作坊的課程平均滿意度為 5 分(Likert Scale 5 分量表,分數 1-5 分)。實習生對整體教學平均滿意度為 4 分(Likert Scale 5 分量表,分數 0-4 分)，顯示社區民眾與實習生對於工作坊課程、翻轉教學課程皆給予正面評價。

Conclusions:

教學活動過程中，實習生由原先的學生角色，轉變為指導老師，原先艱深的專業知識，都需自我理解後，再轉為社區民眾可以理解的語言，使實習生的學習效益更為有效。較可惜的是，活動舉辦期間，為 covid-19 疫情流行期間，願意參與的民眾人數不多，期待往後能再透過更進一步的研究，以確認此教學模式之成效。

Key words: 低蛋白點心、勝任能力、混合式教學

C037

Result of Information System Optimization in Renal Biopsy SDM-Experience in a Medical Center in Southern Taiwan

優化資訊系統應用於腎臟切片檢查 SDM 推動成效–以南部某醫學中心為例

Yu-Chen Kuo, Sheng-Ju Chiang, Shiu-feng Liu, Mei-Hong Chen, Wang-Ju Yang, An-Bang Wu

郭育甄[1], 姜昇如[1], 劉秀鳳[1], 陳美弘[1], 楊琬如[1], 吳安邦[2]

[1] Department of Nursing, National Cheng Kung University Hospital, Tainan, Taiwan

[2] Division of Nephrology, National Cheng Kung University Hospital, Tainan, Taiwan

[1] 國立成功大學醫學院附設醫院護理部, [2] 國立成功大學醫學院附設醫院腎臟科

目的

造成腎臟疾病的原因很多，但當病人得知自己腎臟功能有問題，即便現今影像診斷進步日新月異，但仍無法精準判斷腎病之原發病因。除了抽血、檢驗尿液是否有血尿或蛋白尿之狀況，最重要的就是腎臟切片。腎臟切片可以判斷腎臟受損的程度，較精準給予醫療人員恰當的治療選擇。本院導入腎臟切片 SDM，當需判斷病人腎臟病原發病因，給予合適治療時，由醫師啟動 SDM，轉介 CKD 衛教師執行「患腎臟病的我，是否需要執行腎臟切片檢查」。希望藉由醫病共享決策，融合醫療資訊，讓病人決定是否執行腎臟切片檢查，早期診斷早期治療。

方法

是否接受腎臟切片檢查 SDM，啟動的地點為門診。門診對象為腎臟功能異常或嚴重蛋白尿病人。過程中提供系統性的輔助工具指引，例如：紙本 PDA、衛教單張、圖像、模型道具、影片等提供衛教指導。並進一步同理病人的擔憂、徬徨、難以抉擇的原因，經過醫、病充分的雙向溝通、尊重，協助選擇最符合自己想法的治療方式，達到腎病階段性整體照護的目標。

結果

共 75 位腎病病人參與是否執行腎臟切片選擇 SDM，決定腎臟切片者:51 人；拒絕接受檢查者:9 人；無法決定者 15 人。進行 SDM 前焦慮程度(5 分法):4.8 分；進行 SDM 後焦慮程度(5 分法):3.9 分。

結論

國際間研究顯示，醫病共享是進行醫療決策的理想模式，因它以病人為中心，將病人視為團隊的一份子，藉著良好的溝通方式和輔助工具，讓病人了解不同治療方式的優缺點，讓病人提出喜好及價值觀，釐清心中的疑慮。再藉著醫病間彼此討論，透過諮詢減少焦慮與決策衝突，一起達成最佳的治療選項共識，協助病人在面對不同治療模式選擇時，能自主且在知情情形下做決定。

C038

Effectiveness of End-Stage Renal Disease Management in Regional Teaching Hospital

王麗萍[1]，楊靜薇[1]，陳姿樺[1]，黃慧娟[1]，黃筠婷[2]，王弘偉[2]，郭育淇[2]
奇美醫療財團法人佳里奇美醫院[1]護理部，[2]腎臟科

Background: Studies have indicated that a low-protein diet, in addition to managing symptoms of uremia, can also slow down the rate of decline in estimated glomerular filtration rate (eGFR) and consequently delay the initiation of dialysis treatment. This article aims to explore the effectiveness analysis of renal disease progression in end-stage renal disease (ESRD) patients following assessment and health education guidance from the medical team.

Method: The study was conducted at a hospital in the southern region from January 2022 to December 2022. Newly diagnosed ESRD patients in stages 3b, 4, and 5, as classified by eGFR, were included in the study. In addition to providing comprehensive individual ESRD care guidance through face-to-face meetings three times a year, nutritional counseling by a dietitian was conducted every six months. The maximum observation period was 18 months, during which patients' laboratory reports and disease progression were tracked. The results were analyzed using descriptive and inferential statistics, including ANOVA and pair-t tests.

Results: During the care period, a total of 177 ESRD patients were enrolled, including 103 males, with an average age of 72.5±12.6 years, an average BMI of 25.6±4.5 kg/m², an average eGFR of 26.8±11 ml/min/1.73m², and an average albumin level of 3.9±0.5 g/l. In the Stage 3b group, there were 77 patients, an average age of 73.2±11.3 years, an average BMI of 25.9±4.7 kg/m², an average eGFR of 37.3±4.5 ml/min/1.73m², an average Hb level of 11.9±2.1 mg/dl, and an average albumin level of 4±0.5 g/l. In the Stage 4 group, there were 66 patients, an average age of 71.8±12.6 years, an average BMI of 25.4±4.2 kg/m², an average eGFR of 22.7±4.1 ml/min/1.73m², an average Hb level of 11.5±1.9 mg/dl, and an average albumin level of 3.9±0.5 g/l. In the Stage 5 group, there were 34 patients, an average age of 72.4±15.3 years, an average BMI of 25.1±4.9 kg/m², an average eGFR of 10.7±2.5 ml/min/1.73m², an average Hb level of 9.6±1.5 mg/dl, and an average albumin level of 3.7±0.4 g/l. Among these three groups, only UPCR (1462 ± 453.4, 2337.8 ± 556.6) showed a significant difference ($P<0.05$).

After an 18-month observation, the average changes in eGFR for each group were 43.3±13.3 ml/min/1.73m² ($P<0.05$), 28.2±14.1 ml/min/1.73m² ($P<0.05$), and 11.6±5 ml/min/1.73m² ($P>0.05$). Albumin levels were on average 4.1±0.4, 4.0±0.3, and 3.7±0.4 g/l, no significant differences ($P>0.05$). Hb levels were on average 12.1±2, 11.1±2, and 9.2±1.6 mg/dl, no significant differences ($P>0.05$). During the observation period, 12 patients underwent hemodialysis treatment, 1 patient received peritoneal dialysis, and 12 patients passed away.

Conclusion: During the care period, the "case management model" enabled ESRD patients to achieve stable control of eGFR, Hb, and albumin levels. Additionally, 3 ESRD patients received early psychological preparation and preparation for dialysis access due to disease progression, ultimately undergoing dialysis treatment successfully. Therefore, the "case management" model, in addition to providing patients with specific knowledge, enhancing self-care abilities, and offering nutritional education, is even more crucial in enabling patients to delay the deterioration of kidney function and prepare for entry into dialysis treatment.

Keywords: End-Stage Renal Disease, case management model, delaying kidney function deterioration.

C039

Proton pump inhibitor use and association with the AKI of chronic kidney disease

Chien-huei Huang[1], Chih-Jung Tsai [2], Chien-Chou Su[3], Chi-Tai Yen[4], Ju-Ling Chen[12], Ching-Lan Cheng[12]

[1]Department of Pharmacy, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan.

[2]School of Pharmacy, Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan.

[3]Clinical Innovation and Research Center, College of Medicine, National Cheng Kung University Hospital,

[4]Department of Nephrology, Ministry of Health and Welfare, Tainan Hospital, Tainan, Taiwan.

Backgrounds：

Proton pump inhibitors (PPIs) were the mostly prescribed medications for gastric acid suppression. But there was more evidence showed the PPIs-related adverse renal effects. This study aimed to explore the risk of PPIs and AKI among CKD patients with stage 3b to 5 (Pre-ESRD).

Methods：

This is a retrospective cohort study to patients with CKD with stage 3b to 5 under PPIs or H2 blocker (H2B) treatment, using National Health research Insurance Database (NHID) in Taiwan. A Cox proportional hazards model was used to evaluate the risk of events between PPI and H2B.

Results：

There were 83,432 pre-ESRD patients in this cohort study. The incidence of AKI was 6.18% in the PPI users and 4.81% in the H2B users (adjusted HR, 1.395; 95% CI: 1.06–1.84). After 1:1 propensity score matching, the incidence of AKI was 6.18% in the PPI users and 3.71% in the H2B users (adjusted HR, 1.90; 95% CI: 1.28–2.83). Among individual PPI users, omeprazole and esomeprazole were significantly associated with a higher risk of AKI (adjusted HR, 1.83; 95% CI: 1.00-3.36, adjusted HR 1.84; 95% CI: .25-2.71, respectively).

Conclusions：

Our study showed that the use of PPI associates with higher risk of AKI than use of H2B among pre-ESRD patients in Taiwan.

KeyWords：

Proton pump inhibitors, Acute kidney injury, Pre-ESRD

C040

Renal Outcomes of Combination Therapy with Sodium-glucose Cotransporter 2 Inhibitors and Renin-Angiotensin System Blockers in Patients with Type 2 Diabetes Mellitus

在第二型糖尿病患者中，鈉葡萄糖共同輸送器 2 抑制劑與腎素-血管收縮素系統阻滯劑的聯合治療對腎臟結果的影響

Ying-chun Lee[1], Ming-Hsien Tsai[1], Yu-Wei Fang[2]
李迎春[1], 蔡明憲[1], 方昱偉[2]
[1]Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan, [1,2]Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan
[1]新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科, [1,2]新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科

Background
Sodium-glucose cotransporter 2 inhibitors (SGLT2i) have clinical benefit for patients with type 2 diabetes mellitus especially in renal outcome. However, it remains uncertain whether combination with conventional renin-angiotensin system blockers(RASBs) having synergistic effects. This study was designed to examine the renal outcomes in these patient groups with and without combination therapy.
Methods
This retrospective cohort study, utilizing Taiwan's National Health Insurance Research Database, centered on patients with type 2 diabetes mellitus. The enrollment period extended from January 1, 2016, to December 31, 2016, encompassing 1,937,938 individuals. This investigation segregated the population into two cohorts: the case group (3,622 individuals) consisted of patients who had utilized RASBs and SGLT2i, while the comparison group (3,622 individuals) composed of patients who had used RASBs and dipeptidyl peptidase 4 inhibitors (DPP4i). The groups were meticulously matched at a 1:1 ratio concerning gender, age, and Charlson Comorbidity Index (CCI).
Results:
In patients with Type 2 diabetes using RASBs, the study evaluated the impact of SGLT2i use on various renal outcomes in comparison to DDP4i use . Prior to matching, unadjusted hazard ratios (HR) displayed notable differences for chronic kidney disease (CKD) (0.66; 95% CI, 0.58–0.74,), advanced renal failure (0.64; 95% CI, 0.44–0.93), and the commencement of long-term dialysis (0.61; 95% CI, 0.38–0.97,). Even after matching, significance endured for CKD (0.74; 95% CI, 0.65–0.84), onset of advanced renal failure (0.62; 95% CI, 0.42–0.92), and commencement of long-term dialysis (0.53; 95% CI, 0.32–0.87).
Conclusion:
Combination therapy with the combination of SGLT2i and RASBs can provided better renal outcomes, including incidence of acute kidney injury, advanced chronic kidney disease and end-stage kidney disease in patients with type 2 diabetes mellitus.
Key words: Sodium-glucose cotransporter 2 inhibitors, angiotensin II receptor blockers, dipeptidyl peptidase 4 inhibitors , acute kidney injury, chronic kidney disease, dialysis

C041

The Efficacy of Using Music Therapy to Improve Anxiety in Renal Biopsy Patients

透過音樂治療改善腎臟切片病人焦慮之成效

Wang, H. H.[1], Sun, W. N.[2]

王惠新 [1], 孫婉娜 [2]

[1]NCKUH, [2]NCKUH

[1] 國立成功大學醫學院附設醫院護理師, [2] 國立成功大學醫學院附設醫院

Background

臨床上為診斷不明原因腎疾病，或做為治療計畫擬定考量，皆須透過腎臟切片檢查進行鑑別診斷，文獻指出當病人面臨未知且侵入性檢查時，會伴隨焦慮、害怕及緊張等情緒，間接導致血壓升高，而腎臟為富含血流之器官，血壓上升時，會大幅增加腎臟切檢查的片出血風險。根據 2021 年統計單位腎臟切片病人，有高達 38.7%因焦慮導致血壓不穩，而給予非預期性針劑降壓藥物，分析原因為二(1)病人對於流程不熟悉；(2)因屬於高風險侵入性檢查增加焦慮感。

Methods

2022 年 2 月 1 日由單位醫護人員組成改善小組，藉由系統性文獻回顧及統合分析發現，侵入性檢查前給予音樂治療，能有效降低焦慮所引起之高血壓。改善小組成員依據單位特性考量下，於 9 月 1 日起於切片室設置專屬音樂播放器，及設備操作流程圖，並提供三種音樂類別(台語歌、中文歌、輕音樂)，於切片過程中使用播放器提供病人聆聽，執行一個月後因病人將近 65%無法選擇音樂類別，與音樂治療師共同討論後，於 10 月 1 日起音樂種類固定為輕音樂至切片結束，並將音樂治療納入單位腎臟切片常規。針對切片流程不熟悉部分，則透過(1)拍攝互動式衛教影片；(2)設計圖解版衛教單張；(3)入院當天進行切片檢查室環境介紹，並在病人入院當天提供，確認是否有閱讀影片及單張。

Results

音樂治療策略推行後，統計至 2023 年 1 月 7 月非預期性使用針劑藥物比率為 33.3%，並進行次族群分析發現無診斷高血壓的切片病人，非預期性使用針劑藥物比率為 13.6%，並透過 GAD-7 焦慮量表分析焦慮情況，結果發現介入後 GAD-7 分數由 5.07 分(SD±5.16)下降至 4.07 分(SD±4.92)達統計上差異。

Conclusions

介入音樂治療可有效降低侵入性檢查之焦慮分數，應持續將音樂治療介入措施平行推廣至門診，於入院檢查前介入，增進緩解焦慮成效，提升照護品質。

Key words

Music Therapy, Renal Biopsy, Anxiety

C042

Effects of the Foot Comfort Care on Sleep in Patients with End-stage Renal Disease

探討足部舒適護理於末期腎臟疾病病人睡眠之影響成效

Shu-Hua, Pan[1,3], Chih-Chien, Sung[2], Hsiang-Yun, Lan[3]

潘淑華[1,3*], 宋志建[2], 藍湘勻[3]

[1]Department of Nursing, Tri-Service General Hospital Keelung Branch, [2] Division of Nephrology, Tri-Service General Hospital, [3] School of Nursing, National Defense Medical Center

[1] 三軍總醫院基隆分院護理部, [2] 三軍總醫院腎臟內科, [3] 國防醫學院護理研究所

Background：

台灣末期腎臟疾病發生率及盛行率居全球之冠，末期腎臟疾病接受血液透析治療後，容易出現的身體症狀為疲倦、憂鬱、搔癢及下肢水腫、睡眠問題等不舒適症狀，而病人最常會有睡眠之問題，若是忽略這些症狀可能會影響病人整體健康狀況和生活品質之情形，先前研究發現足浴可改善睡眠之情況，因目前針對末期腎臟疾病病人的不適症狀的研究較多為鈣營養與社會支持等研究，而目前研究缺乏由舒適護理來改善睡眠之探討，因此本研究欲探討運用足部舒適護理對改善末期腎臟疾病病人睡眠之成效。

Methods：

本研究採縱貫性、重複測量、類實驗性研究設計，收案於 111 年 12 月 15 日至 112 年 3 月 31 日，於醫院血液透析室及透析診所招募末期腎臟疾病病人 80 名，符合納入條件的病人分配至兩組，一組對照組為透析診所透析病人，給予足部照護衛教單張一次；另一組為實驗組為醫院血液透析室透析病人，除給予足部照護衛教單張之外，並給予實施足部舒適護理；共六週，每週給予三次足部舒適護理，一次 40 分鐘。測量工具包括基本人口學調查表、匹茲堡睡眠品質量表，於介入措施前、介入後第二週、第四週以及第六週給予兩組測量，而研究資料採 SPSS 23.0 統計軟體來分析，以廣義估計方程式(Generalized estimating equations, GEE)來進行統計分析。

Results：

本研究完成資料收集個案共有對照組 40 位、實驗組 40 位，以廣義估計方程式之多項式迴歸 (Multiple Linear Regression) 探討睡眠之可能影響因子，在睡眠品質總分部份，後測 1、2、3 時，實驗組睡眠品質總分的改變量較對照組的改變量分別減少 3.75 分、5.59 分、7.84 分，*p* 值皆 ＜.001，且達統計上的顯著差異。

Conclusions：

本研究結果發現足部舒適護理對睡眠品質有顯著效果。因溫水足浴為一種非侵入性，且容易取得、執行的方法簡單，它藉由物理治療的原理讓皮下血管擴張、改善血液循環，提供舒適感，建議可提供主要照顧者、腎友、健康民眾相關足部知識及操作過程及標準化的流程，協助推行在居家、養護機構、日間照護中心等各醫療院所的病人，使其睡眠品質及舒適感提升，並降低疲憊感受。

Key words：

末期腎臟疾病、血液透析、足浴、睡眠品質、疲憊、舒適

C043

A Project to Promote the Urea Reduction Ratio in Hemodialysis Patients
提升血液透析病人尿素氮清除率專案

Hsiang-Hui Chiu[134], Ling-Fu Huang[23], Tzu-Ting Lin[13], Han-Wen Yang[13], Chin-Feng Lu[13], Pu-Hung Hsiao[13]

邱湘惠[124] 黃鈴富[34] 林姿廷[24] 楊涵雯[24] 呂金鳳[24] 陳季筠[24] 蕭普鴻[24]

[1.]Chang Gung University of Science and Technology, [2.]Department of Nursing, [3.]Department of Nephrology, [4.]Tainan Municipal Hospital

[1]長庚科技大學(嘉義分部) [2]護理部 [3]腎臟科 [4]台南市立醫院

Background：

蒐集 111 年 1 月至 3 月病人尿素氮清除率<70%的有 22%，運用查檢表查檢病人尿素氮清除率低的原因有 1.護理人員調降血液流速 2.透析時間不足 3.穿刺部位不適當 4.兩次透析間體重大於 5% 5.血管功能不佳 6.未更改人工腎臟

Methods：

採 531 評價法，總共找出 16 個對策，並進行對策評價，共圈選 12 個對策。

對策一:1.舉辦團體衛教 2.進行海報製作 3.製作醫師評估提醒小卡 1-1 舉辦兩次團體衛教。2-1 進行尿素氮清除率海報製作並張貼於公布欄。3-1 製作醫師評估提醒小卡，每次醫師查房時提醒醫師。對策二:1.舉辦動靜脈廔管穿刺教學在職教育 2.更新製作護理衛教工具 3.困難 on 針病人採床邊教學 4.製作線上血管走向圖 5.製作洗腎室與心臟外科聯繫單。1-1 進行 1 場穿刺教學在職教育。2-1 製作廔管穿刺衛教工具。3-1 針對困難 on 針病人，實際指導護理人員於病人床邊進行教學，並提出討論可行方案。4-1 將廔管走向圖進行線上電子化，方便人員穿刺前觀看。5-1 與心臟外科醫師討論製作聯繫單，讓病人於回診時帶給心臟外科，讓醫師與護理人員更能掌握病人血管問題。

Results：

於 7-9 月份尿素氮清除率 22%，故進行再對策，將評估小卡改線上交班系統，並且針對尿素氮清除率病人，進行個別性分析，針對這些病人進行加強再衛教。對於透析病人尿素氮清除率認知問卷前後測正確率，整體進步率達 19%。在護理人員衛教完整性問卷前後測部分，整體進步率達 13%。尿素氮清除率小於 70%的病人，由 22%降至 20%達到目標值。

Conclusions：

尿素氮清除率上升，可以提升病人透析品質，但對於如何維持仍是一大考驗。

Key words：

血液透析、尿素氮清除率

C044

Factors Associated with Faster residual Renal Function decline in pre-ESRD patients

探討影響末期腎臟病前期之病人殘餘腎功能較快速惡化的因子

Yi-Ling Chang[1], Yun-Ting Huang[2], Hui-Hsuan Huang[1], Hsien-Yi Wang[2], Wei-Chih Kan[2]
Chih-Chiang Chien[2], Chia-Chun Wu[2], Ming-Yen Jiang[2], Jui-Yi Chen[2], I-Ning Yang[2],
Jyh-Chang Huang[2]
張意鈴[1]黃筠婷[2]黃惠暄[1]王憲奕[2]甘偉志[2]簡志強[2]吳佳純[2]江銘彥[2]陳銳溢[2]楊翼寧[2]
黃志強[2]
Division of Nursing, Chi Mei Medical Center, Tainan, Taiwan[1]
Division of Nephrology, Chi Mei Medical Center, Tainan, Taiwan[2]
奇美醫療財團法人奇美醫院護理部[1]腎臟科[2]

Background:

Some experience a faster deterioration in renal function, while others exhibited a more gradual decline in chronic kidney disease (CKD) patients. We aimed to investigate the factors that influence the rapid decline of kidney function in these individuals by utilizing the data in Pre-ESRD program.

Methods:

The data were collected from patients in "Pre-ESRD Patient Care and Education Program" in a medical center in the southern region of Taiwan. The estimation of glomerular filtration rate (eGFR) was performed by simplified Modification of diet in renal disease (MDRD) formula. A total of 216 CKD patients were included in the study after excluding 49 patients with acute renal injury. 80 participants were female (age: 71±12, initial eGFR: 16.2±15.8 mL/min), and 136 were male (age: 70±13, initial eGFR: 16.9±10.1 mL/min). The decline in renal function was evaluated based on the daily decline rate by comparing final eGFR to initial eGFR.

Results:

In comparison to stages 3 and 4, CKD stage 5 patients with a lower initial eGFR (eGFR <10 mL/min) experience a relatively smaller degree of decline in eGFR. In multivariate linear regression studies, ΔeGFR is related to the initial concentration of creatinine. Individuals with the fastest decline in eGFR had initial eGFR values as high as 20 mL/min. The Dialysis group has lower initial eGFR values (<15 mL/min) and a slower rate of ΔeGFR decline. Lower initial eGFR, slower rate of ΔeGFR decline, and lower serum albumin levels are associated with a higher probability of dialysis requirement during the observation period.

Conclusions:

The slower decline in residual kidney function may be attributed to the shorter observation periods. The initiation of dialysis led to early termination of observation of kidney function, potentially misleading the interpretation of a slower decline in kidney function.

Key words:

Chronic kidney disease, end-stage renal disease, eGFR, residual renal function

C045

A Pharmacokinetic Study of Polymyxin B in Healthy Subjects and Subjects with Renal Insufficiency

健康受試者和腎功能不全受試者的多黏菌素 B 藥物動力學研究

Hsin Ming-Hsien Tsai, Yu-Wei Fang
蔡明憲, 方昱偉
Division of Nephrology, Department of Internal Medicine, Shin-Kong Wu Ho-Su Memorial Hospital, Taipei, Taiwan,
新光醫療財團法人新光吳火獅紀念醫院內科部腎臟科

Background

The pharmacokinetic (PK) profile and potential side effects of polymyxin B in individuals with chronic kidney disease remain uncertain. As a result, we aim to assess the pharmacokinetics of a single intravenous (IV) infusion of polymyxin B in both healthy participants and those with renal insufficiency. Our objective is to compare the PK parameters of polymyxin B between individuals with renal insufficiency and their healthy counterparts. Additionally, we seek to evaluate the safety and tolerability of a single IV infusion of polymyxin B in both healthy subjects and those with renal insufficiency.

Methods

Design: This was an open-label, single-center, single-dose, parallel-group study to evaluate the PK and safety profiles of polymyxin B administered by IV infusion in healthy subjects and subjects with renal insufficiency.

Groups: Arm 1: Subjects with Creatinine Clearance (CL_{cr}) ≥ 90 mL/min. Arm 2: Subjects with CL_{cr} between 60 and 89 mL/min (inclusive). Arm 3: Subjects with end-stage renal disease (ESRD) receiving intermittent hemodialysis (IHD) therapy.

Measurement: All eligible subjects received a single dose of 0.75 mg/kg (i.e., 7,500 units/kg) total body weight (TBW) polymyxin B by IV infusion (approximately 1 hour) in the morning of Day 1 (the next day after the admission). Subjects returned the clinical site in the morning of Day 3 for the PK sampling and safety assessments on an outpatient basis. The PK parameters, including C_{max}, $AUC_{0\text{-}last}$, $AUC_{0\text{-}inf}$, CL, K_{el}, $t_{1/2}$, V_z, $Ae_{(0\text{-}t)}$, $Fe_{(0\text{-}t)}$, CL_R, and CL_{NR}, that may be calculated.

Results:

There were 29 subjects screened but only 22 subjects allocated in this study, including 8 subjects in Arm 1 (normal renal function group), 7 subjects in Arm 2 (mild renal insufficiency group), and 7 subjects in Arm 3 (long-term IHD group). All 22 allocated subjects completed the study. After a single 1-hour IV infusion of 0.75 mg/kg polymyxin B, the CL of polymyxin B was slightly lower in subjects with mild renal insufficiency and much lower in ESRD subjects with long-term IHD when compared with healthy subjects. The Vz of polymyxin B was slightly higher in subjects with mild renal insufficiency and much higher in ESRD subjects with long-term IHD when compared with healthy subjects. The $t_{1/2}$ of polymyxin B was prolonged by approximately 2 hours in subjects with mild renal insufficiency, and approximately 10 hours in ESRD subjects with long-term IHD. Moreover, there was no death observed in this study.

Conclusion:

The 90% CIs of the GMRs (Arm 2/Arm 1) for Cmax, AUC0-last, and AUC0-inf of polymyxin B indicated that the exposure to polymyxin B after a single 1-hour IV infusion of 0.75 mg/kg polymyxin B in subjects with mild renal insufficiency was comparable to that in healthy subjects.

Key words: polymyxin B, pharmacokinetic, chronic kidney disease,

C046

Plasma selenium and zinc could reverse kidney damage from nephrotoxic metals in chronic kidney disease

血中硒和鋅能逆轉慢性腎臟病人因腎毒性金屬所導致之腎損傷

Cheng-Jui Lin, MD, PhD[1,2,3], Tzu-Ying Chen, MD[1], Hong-Mou Shih, MD, PhD [1], Pei-Chen Wu, MD[1], Chi-Feng Pan, MD[1], and Chih-Jen Wu MD, PhD[1,2]

林承叡 [1,2,3], 陳姿穎 [1], 施宏謀 [1], 吳培甄 [1], 潘吉豐 [1], 吳志仁 [1,2]

馬偕紀念醫院 腎臟內科 [1], 馬偕護理專科學校 [2], 馬偕醫學院 醫學系 [3]

[1]Division of Nephrology, Department of Internal Medicine, MacKay Memorial Hospital, Taipei, Taiwan.

[2]Department of Medicine, Mackay Medical College, New Taipei, Taiwan.

[3]Mackay Junior College of Medicine, Nursing and Management, Taipei, Taiwan.

Introduction: Chronic kidney disease (CKD) is a condition defined as a persistent change in kidney structure or function, or both, that compromises human health. Environmental exposure to heavy metals (e.g. cadmium, lead, arsenic and mercury) is common, and high exposure levels are known to cause nephrotoxicity. Micronutrients such as selenium and zinc are positively associated with better kidney function and renal outcomes. This study determined the associations between CKD and heavy metal exposures measured in blood or urine within a community-dwelling population, and assessed whether and how selenium and zinc modified the associations.

Method: Data were extracted from 4 cycles of the US National Health and Nutrition Examination Survey (NHANES) database (2011–2012, 2013–2014, 2015–2016 and 2017–2018).

Results: Univariate analysis showed that higher quartiles of plasma lead and cadmium concentration were more likely associated with CKD than the lowest quartile, and along with folate, were linked to greater odds of CKD. Conversely, as plasma selenium and serum zinc increased, the odds of CKD decreased. Multivariate analysis had similar results after adjusting for relevant confounders. Higher plasma cadmium quartiles were associated with higher odds of CKD. Associations between higher quartiles of plasma selenium and serum zinc were significantly associated with lower odds of CKD.

Conclusion: Elevated blood levels of heavy metals increase CKD, whereas elevated concentrations of plasma selenium and serum zinc decrease CKD. A high serum zinc concentration appears to interact with low-toxicity heavy metals to reduce CKD risk. This study suggests that increased selenium and zinc in the body along with avoidance of heavy metal exposures could protect against CKD.

Keywords: Selenium, Zinc, Nephrotoxicity, Chronic kidney disease

C047

Optimal assessment of osteoporosis using dual-energy X-ray absorptiometry in patients with kidney disease

運用雙能量 X 光骨質密度吸收測量儀對腎病患者進行骨質疏鬆症的最佳評估

Chung Ting Cheng [1,2,3], PO-CHIH SHEN [1,4,5], Ping-Hsun Wu [1,2,3,5]

Kaohsiung Medical University Chung-Ho Memorial Hospital [1]Department of Internal Medicine [2]Division of nephrology [3]Department of orthopaedics [4]Kaohsiung Medical University School of Medicine [5]

Background：

Osteoporosis is common in patients with chronic kidney disease (CKD). Bone mineral density (BMD) measurement, crucial for diagnosing osteoporosis, is commonly assessed using Dual-energy X-ray absorptiometry (DXA). However, DXA results, expressed as areal density, can be influenced by artifacts. Our study uses DXA to examine lumbar spine and femoral neck BMD differences in non-dialysis CKD patients.

Methods：

Between 2010 and 2023, we included 884 CKD patients who were examined for DXA to evaluate their osteoporosis status. After excluding incomplete BMD data or artificial implants (e.g., internal fixations or hip replacement), we analyzed 656 CKD patients with complete individual lumbar spine or femoral neck BMD data. The aorta calcification was evaluated by X-rays, abdominal computed tomography (CT), or magnetic resonance imaging (MRI) examination and was further categorized into calcified and non-calcified groups. We investigated the BMD differences between the lumbar spine and femoral neck across calcified and non-calcified groups.

Results：

Compared to non-calcified groups, there were significantly lower T scores of BMD in bilateral femoral necks in calcified groups. However, there were no differences in T scores of BMD in the lumbar spine and femoral neck between calcified and non-calcified groups. Evaluating the T score of BMD in each CKD patient, we found a higher lumbar spine BMD than femoral neck BMD. Interestingly, the T score of BMD differences between the lumbar spine and femoral neck were found in L3 and L4 but not in L1 and L2 areas between calcified and non-calcified groups. A predominant aorta vascular calcification could be identified in the late CKD stage by evaluating the abdominal aorta calcification from routine images (X-rays, CT, or MRI).

Conclusions：

While examining DXA, the measurement of BMD in the femoral neck area is more reliable than in the lumbar spine area. Some artifacts, such as aorta calcification, can affect the BMD in the lumbar spine. We propose a sufficient BMD assessment by femoral neck alone in patients with kidney disease.

Keywords: Bone mineral density, Dual-energy X-ray absorptiometry, osteoporosis, chronic kidney disease

C048

Enhancing the implementation rate of health education for chronic kidney disease through intelligent care systems

透過智能照護系統提升慢性腎臟病衛教執行率

王曉菁[1], 張鈺鏸[1], 高銀璞[1]
萬芳醫院醫務部醫事組[1]

Background：

台灣末期腎臟病的盛行率高居世界第一位，健保署推動「末期腎臟病前期（Pre-ESRD）之病人照護與衛教計畫」，透過跨團隊照護模式，進行提升病人的自我照護認知，進而減緩腎功能惡化、避免併發症及延緩慢性腎臟病病人進入透析時程。為有效追蹤管理病人異常檢驗值及共病風險因子狀況，與資訊室跨部門合作，建立智能照護系統，以提升對慢性腎臟病人全人整體照護。

Methods：

110 年本單位慢性腎臟病人接受營養評估及衛教執行率 49.5%，團隊為提升衛教率，故進行分析，顯示:1.個管師以人工管理方式進行管理病人、2.個管師逐一檢視異常檢驗數值，提醒當日看診醫師，每日耗時約 4 小時/天、3.病人至腎臟、營養、藥師等衛教室距離相距約 200-400 公尺以上，導致病人不耐等候及找尋衛教室狀況下，放棄衛教諮詢，院方於 111 年 1 月進行衛教中心一站式服務，與門診相鄰，減少病人奔波往返時間，111 年 3 月與資訊室合作建立智能照護系統，運用資訊自動篩檢檢驗異常數值(k>5 mEq/L、腎絲球過濾率（eGFR）<15ml/min、HBA1C>8%、UPCR>1000 mg/g)、共病症(糖尿病、肝炎、戒菸、COPD 等)、CKD 第五期病人透析手術日期(AVF、Tenckhoff)、潛在可收案名單等自動偵測及提示，讓腎臟團隊人員藉由照護系統快速了解病人目前狀態，容易追蹤、提醒病人進行衛教。

Results：

1.慢性腎臟病人接受營養評估及衛教執行率，由 110 年 49.45%，111 年上升至 62.49%，112 年 1-9 月 85.9%

2.針對病人進行滿意度調查(5 分計)發現，由 110 年 4.12，111 年上升至 4.56，112 年 6 月 4.86，有逐漸上升。

3.每日檢視病人衛教清單及異常數值，經智能照護系統導入前耗時約 4 小時/天，導入後耗時約 1 小時/天，導入後節省時間可減少 3 小時/天

Conclusions：

「智能照護系統」，自動偵測分析病人數據，預測病程發展，根據預測結果，提供相應的衛教，藉由立即提醒腎臟醫療照護團隊，後續監測照護，避免慢性腎臟病快速進展至末期腎臟病透析時程。另外提供一站式衛教服務，不僅可以提供病人即時、個人化的衛教資訊，還可以優化醫療資源分配，減少不必要的醫療開銷，增加病人返診時至衛教室接受衛教諮詢意願，從而提高慢性腎臟病病人的生活質量。

Key words：

智能照護、一站式衛教、跨部門合作

C049

Advancing a Public Welfare Initiative Integrating Chronic Kidney Disease Education, Home Dialysis, and Telemedicine for Comprehensive Care of Rural Kidney Patients

推動一個結合慢性腎病衛教、居家透析及遠距醫療的公益計畫以完整照護偏鄉腎友

Chien-Hsiu Liu, Ya-Pei Yu, Ching-I Yu, Chian-Hua Chiou, Ben-Chung Cheng, Terry Ting-Yu Chiou, Wen-Chin Lee

劉建秀 游雅珮 俞靜儀 邱千華 鄭本忠 邱鼎育 李文欽

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital

高雄長庚醫院 腎臟科

背景:

提高認知率一直是推廣慢性腎病衛教的首要課題。然而如同所有教育普遍存在著城鄉差距一般，慢性腎病衛教也迫切需要城鄉均衡。此外，每逢颱風暴雨、天災路斷，偏鄉腎友更是經常受困，或是涉險奔波去洗腎。這些不斷重複的新聞畫面，燃起了我們醫護團隊提出此一慢性腎病整合性衛教的公益計畫的意志。在醫院的鼓勵下，我們提出的長庚醫療公益計畫題目是【結合慢性腎病、居家透析 及遠距醫療完整照護偏鄉腎友公益計畫】，目的是希望使偏鄉地區腎友得到完善的慢性腎病照護知識，且提供最適合當地腎友又是本院所擅長的居家透析與腎臟移植，更能彌補健保署山地離島地區醫療給付效益提昇(IDS)計畫的缺憾。

方法:

一年期計畫共舉辦四場活動，服務對象為高屏偏鄉地區，初期先選定屏東縣瑪家鄉瑪家村、屏東縣來義鄉、高雄市甲仙區、高雄市杉林區，預計服務 1000 人次，爾後再逐年推廣至更多地區，事先與當地衛生所醫護人員、社區村里長確認服務時間及對象，每次出勤之工作人員約 5 人，結合本院專業人員進行衛教內容講解以及當地醫護人員的母語口譯，並回答民眾相關醫療問題。

結果:

9 月辦理二場活動，活動當天早上 8 點專車團隊出發至當地進行衛教及徵答活動，參與衛教的原住民居民均為年紀大的長者，對於腎臟保健及衛教透析醫療相關問題，需要較多的時間講解及專人翻譯。首場 9/24 到屏東縣三地門鄉達瓦蘭教會，配合教會禮拜時間結束之後進行團體衛教活動，服務 100 人次。第二場 9/26 到屏東縣來義鄉文樂衛生室及南和衛生室，服務 80 人次，二場滿意度均為 100%。

結論:

到偏鄉地區舉辦腎臟保健衛教活動可加強慢性腎臟病人腎臟保健知識，有助延緩腎臟病惡化進入透析，對於有需求的腎友，傳達腹膜透析及腎臟移植的正確觀念可增進民眾醫療常識及針對末期腎臟病友接受腹膜透析意願提升度皆有極大的助益。這次一年期的公益計畫已有好的開始，未來除了平行推展之外，針對偏鄉腎友也能透過遠距醫療的方式執行衛教，植管傷口照護以及運送透析藥水等。

關鍵字: 偏鄉腎友、慢性腎病、衛教、居家透析、遠距醫療

C050

Sudoscan Evaluation in Chronic Kidney Disease Patients

慢性腎臟病患者的催汗試驗評估

Liang-Te Chiu[1], Yu-Li Lin[2,3], Chih-Hsien Wang[2,3], Chii-Min Hwu[4], Hung-Hsiang Liou[5*], and Bang-Gee Hsu[2,3*]

裘亮德[1], 林于立[2,3], 王智賢[2,3], 胡啟民[4], 劉宏祥[5*], 徐邦治[2,3*]

[1]Division of Nephrology, Department of Internal Medicine, Dalin Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Chiayi, Taiwan

[2]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan

[3]School of Medicine, Tzu Chi University, Hualien, Taiwan

[4]Section of Endocrinology and Metabolism, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

[5]Division of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan

[1]佛教慈濟醫療財團法人大林慈濟醫院暨腎臟內科, [2]佛教慈濟醫療財團法人花蓮慈濟醫院暨腎臟內科, [3]慈濟大學醫學系, [4]臺北榮民總醫院內分泌暨新陳代謝科, [5]新莊新仁醫院腎臟內科

研究背景

慢性腎病人（chronic kidney disease）往往會出現多發性神經病變 (polyneuropathy)。Sudoscan 是一種非侵入性工具，可評估皮膚電化學傳導（electrochemical skin conductance; ESC），並已被證實對診斷糖尿病性多發性神經病變具有有效性。我們的目標是利用 Sudoscan 調查 CKD 患者中的多發性神經病變。

研究方法

在這項橫斷性研究中，我們納入了一個包含 700 名慢性腎病患者的群體。所有參與者都接受了 Sudoscan 測試。我們將具有手部 ESC 值低於 40μS 或腳部 ESC 值低於 50μS 定義為異常的電化學皮膚傳導。估計的腎絲球濾過率（eGFR）是根據 MDRD (Modification of Diet in Renal Disease)研究確定的方程式計算的。

研究結果

在患有慢性腎病的 700 名病患中，有 344 名患有糖尿病。我們觀察到隨著慢性腎病從 1-2 期進展到 3 期，再到 4-5 期，無論是手部還是腳部的 ESC 數值都有所下降（手部 ESC 中位數：54.0，45.5，41.8，trend $p < 0.001$；腳部 ESC：64.5，60.5，55.0，trend $p < 0.001$）。此外，異常的手部和腳部 ESC 讀數在 CKD 後期增加（手部 ESC：1-2 期、3 期、4-5 期：26.6％、40.9％、45.7％，趨勢 $p < 0.001$；腳部 ESC：1-2 期、3 期、4-5 期：21.7％、34.0％、40.6％，趨勢 $p < 0.001$）。

在沒有調整的初步分析中，我們發現無論病患是否患有糖尿病，手部和腳部 ESC 值與估計腎小球濾過率（eGFR）均存在顯著正相關。然而，隨著 CKD 的進展，患有糖尿病的個體手部和腳部 ESC 的下降比沒有糖尿病的患者更為顯著。儘管如此，在多變量線性回歸分析中，ESC 與 eGFR 之間的關係並不具有統計學意義。

研究結論

患有進階 CKD 的個體中，異常的電化學皮膚傳導的情況明顯增加。此外，與無糖尿病者相比，患有糖尿病的個體表現出較差的電化學皮膚傳導功能。

關鍵字：chronic kidney disease, diabetese, polyneuropathy, sudoscan

C051

The protective effect of sacubitril/valsartan on ischemic stroke in early chronic kidney disease and normal renal function patient

血管張力素受體-腦啡肽酶抑制劑在初期慢性腎臟病患者及正常腎功能病人中的中風保護效果

陳逸安, 歐朔銘, 林志慶, 唐德成

Yee-An Chen,MD[1,4], Shuo-Ming Ou, MD, PhD [1,2,3#;] Chih-Ching Lin, MD, PhD[1,2]; Der-Cherng Tarng, MD, PhD[1,2]

[1.]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

[2.]School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan

[3.]Institute of Clinical Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan

[4.]School of Medicine, MacKay Medical College, Taipei, Taiwan

# These authors were co-corresponding authors.

[1] 臺北榮民總醫院腎臟科, [2] 陽明交通大學, [3] 陽明交大臨床醫學研究所, [4] 馬偕醫學院

Background：

Recent studies second analysis suspected that sacubitril/valsartan can improved patient's renal function. However, Prospective ARNI versus ACE Inhibitor Trial to Determine Superiority in Reducing Heart Failure Events after Myocardial Infarction (PARADISE-MI) trial showed sacubitril–valsartan was not associated with a significantly lower incidence of death from cardiovascular causes or incident heart failure than ramipril among patients with acute myocardial infarction. But data was still lacking in discussing ischemic stroke prevention and more real-world study was needed.

Methods：

This study included all patients with early chronic kidney disease or normal renal function patient and aged ≥ 20 years between Mar 1, 2017 to Mar 1, 2020. We examined 797 propensity score–matched patients of sacubitril/valsartan users and control groups.

Results：

Results: After propensity score-matching, Cox proportional hazards model found sacubitril/valsartan users still has better outcome in reducing ischemic stroke (hazard ratio；HR, 0.25; 95% confidence interval [CI], 0.10-0.62, *P* value =0.003). The Kaplan-Meier method also revealed sacubitril/valsartan users still has better outcome in ischemic stroke.

Conclusions：

Sacubitril/valsartan reduced ischemic stroke in early CKD patient and normal renal function patient. Other study needs to be conducted for further confirmation and validation of the findings or results.

Key words：

Sacubitril/valsartan , Chronic kidney disease, Ischemic stroke; Renal function

C052

探討慢性腎臟病病人不同決策角色偏好之健康識能差異

Exploring the differences in health literacy among chronic kidney disease patients with different decision-making role preferences

Pei-Ni Hsiao[1], Shih-Ming Hsiao[1], Mei-Chuan Kuo[2] , Shang-Jyh Hwang[2], Yi-Wen Chiu[2], Chia-Lun Lee[1]

蕭佩妮[1] 蕭仕敏[1] 郭美娟[3] 黃尚志[3] 邱怡文[3] 李佳倫[1]

[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科

背景：醫病共享決策是慢性腎臟病病人面臨腎臟替代療法選擇時，能否接受疾病並良好適應的重要關鍵，然而不同決策角色偏好與健康識能可能會影響醫病共識的達成。本研究目的為探討慢性腎臟病病人不同決策角色偏好之健康識能差異，了解不同決策角色對健康識能程度可能有助於醫病共享決策的介入。

方法：採橫斷式研究，以立意取樣選取南臺灣某醫學中心門診之慢性腎臟病第五期的未透析病人為研究對象，研究工具以決策控制偏好量表(Control of Preference Scale, CPS)評估病人參與決策過程，該量表有五題，結果分為「主動」、「合作」及「被動」三種角色類型；另以中文多面向健康識能量表(Mandarin Multidimensional Health Literacy Questionnaire, MMHLQ)為評估受訪者之健康識能程度的工具，量表包含五個面向：「獲取健康資訊」、「理解健康資訊」、「評估健康資訊」、「應用健康資訊」及「溝通與互動」，共 20 題自陳式題目。資料收集期間自 2019 年 3 月至 2020 年 2 月，資料以 SAS 9.4 套裝軟體進行統計分析。

結果：共收案 75 位參與腎臟替代療法決策個案，其中男性 54 位(72%)，65 歲以下有 45 位(60%)，高中以下有 43 位(57%)，健康識能是有限及不足的有 45 位(60%)。決策偏好類型依序為合作角色 39 位(52.1%)、被動角色 19 位(25.3%)、主動角色 17 位(22.6%)。主動型的健康識能總分分數平均為 35.64±8.65、合作型的健康識能分數平均為 31.05±5.13、被動型的健康識能總分分數平均為 28.55±5.52。比較主動型、合作型、被動型三個決策角色偏好對於健康識能分數達顯著差異($F=6.08$，$p=0.0036$)。事後檢定 3 種決策偏好類型對於健康識能分數是否不同，其顯著性差異發生在主動型與合作型(95%信賴區間為-8.887~0.294，$p<0.05$)，以及主動型與被動型兩組之間(95%信賴區間為-12.02~2.149，$p<0.05$)。

結論：

慢性腎臟病病人不同決策偏好類型之健康識能程度有顯著差異，本研究應有助於臨床照護團隊執行醫病共享決策時，應注意不同決策角色與病人健康識能高低程度所重視偏好的差異。

關鍵字：慢性腎臟病、決策角色偏好、健康識能

C053

Evaluating the effectiveness of pre-ESRD care and education program for patients with advanced CKD

提升末期腎臟病前期個案照護與衛教計畫成效探討

Ling Juang , Fang Lieng Yeh, Ya Ling Chen
姜菱, 葉芳伶, 陳雅玲
Tri-Service General Hospital Nephrology
三軍總醫院腎臟科

Background：
依據 2022 台灣腎臟病年報資料，2020 年透析人數 88,880 人，末期腎臟病(End stage renal disease,ESRD)病人總醫療點數 708.8 億點，占全民健保總點額 9.3%，醫療成本耗費龐大。衛生福利部中央健保署於 2016 年推動「末期腎臟病前期（Pre-ESRD）之病人照護與衛教計畫」，針對慢性腎臟病高危險群，提供具實證效益之照護，目的為早期發現，積極介入與治療，有效延緩病人進入透析治療。本院為積極投入 Pre-ESRD(pre-end stage renal disease,Pre-ESRD)照護計畫與效益，增編跨團隊照護與人力編制、簡化照護作業流程、增設照護警示查詢 Wrb 功能與跨院區衛教室，以提升照護完整性與持續性。

Methods：
針對腎臟科門診就醫病人，符合末期腎臟病前期(Stage 3b、4、5 期及蛋白尿)之收案條件，藉由診間系統提示與需求，轉介病人至腎臟病衛教室，腎臟照護衛教師運用台灣腎臟醫學會建置「腎臟病照護平台」進行病人衛教追蹤管理，本院建置 CKD 查詢警示 Wrb 功能，即時獲得最新檢驗數據，掌握當診病人最新動態，藉由簡化作業流程，能夠提供充足衛教時間，運用繪製仿實品衛教單、腎功能趨勢圖、檢驗報告單，讓病人對於衛教指導內容具臨場感，加深衛教印象，強化腎臟保健重要性。

Results：
統計本院 2018 至 2022 年加入 Pre-ESRD 照護人數，108 年 3812 人；109 年 4274 人；110 年 4836 人；111 年 5247 人，經分析後 2021 年較 2018 年成長 37.6%，分析中央健保署整體照護率 111 年 79.0%，高於北區醫學中心照護平均值 9.2%，顯示衛教師進行照護改善措施與照護成效後，皆具顯著成效。

Conclusions：
多篇研究顯示，慢性腎臟病病人即早加入「末期腎臟病前期（Pre-ESRD）之病人照護與衛教計畫」，能夠有效延緩腎功能惡化。當衛教師積極介入，主動篩選個案，提供慢性腎臟病人即早接受腎臟照護知識概念，結合醫師、衛教師、營養師、藥師等跨領域專業團隊，提供整合性個別化照護，更能有效延緩病人進入透析時程，減少健保醫療負荷。

Key words：
末期腎臟病前期、腎臟照護衛教師

C054

The Correlation between Polypharmacy and Anxiety in Advanced Chronic Kidney Disease

慢性腎衰竭病人進入透析前多重用藥及其焦慮程度之相關性

Yuh-Ru Liu [1], Li-Ju Chang [1], Tzu-Chen Lin [2], Cheng-Lun Chiang [1], Chih-Yen Hsiao [1], Chin-Ya Su [1]
劉育如 [1], 張莉茹 [1], 林慈珍 [2], 江政倫 [1], 蕭志彥 [1], 蘇勤雅 [1]
[1] Department of Nephrology, [2] Nurse Practitioner, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan
戴德森醫療財團法人嘉義基督教醫院 腎臟科 [1], 內科專師組 [2]

Background：
Patients with chronic kidney disease (CKD) are common to use of multiple medications due to kidney diseases and multiple comorbidities, particularly in this aging society. The polypharmacy is associated with lower health-related quality of life, but not with psychological distress such as depression or anxiety in dialysis patients. However, the impact of polypharmacy on anxiety in non-dialysis CKD patients is undetermined. Our study aims to investigate the association between polypharmacy and anxiety in advanced CKD patients.
Methods：
Patients with CKD and near dialysis preparation (serum creatinine > 6 mg/dL) who followed up in our nephrology out-patient departments from July 2022 to July 2023 were enrolled. We excluded the patients who just hospitalized, or some of long-term medications were not prescribed at our hospital. The demographic data and number of long-term medications were collected from electronic medical record. The anxiety was measured by the professional nurses, and used the anxiety scoring system from 1(minimal anxiety) to 5(severe anxiety) as the anxiety assessment.
Results：
Total number of patients included in final analysis were 94, with average age of 68.43 years old and 57.4% were male. Most of the patients (91.5%) were polypharmacy, and 39% patients needed to take more than 10 kinds of difference drugs. The mean tablet of capsule use in a day was 15.71. The mean anxiety score was 3.46. The elderly had more polypharmacy, and the Pearson's correlation coefficient was 0.307 (p=0.003). However, the polypharmacy was not correlated with anxiety severity (Pearson's correlation coefficient was -0.080, p=0.443), and so as the amount of drugs use (Pearson's correlation coefficient was -0.035, p=0.741).
Conclusions：
Out study suggested the polypharmacy is prevalent in advanced CKD patients, and the patients have moderate anxiety in pre-dialysis status. The polypharmacy or the number of drugs use are not associated with the severity of anxiety in these patients.
Key words：
chronic kidney disease, polypharmacy, anxiety

C055

Exploring illness perception in patients with advanced chronic kidney disease
探討晚期慢性腎臟病人之疾病感知

Shih-Ming Hsiao[1], Pei-Ni Hsiao [1], Mei-Chuan Kuo[2], Tzu-Hui Chen[1], Shu-Li Wang[1],Lan-Fang Kung[1], Yu-Ying Huang[1], Shang-Jyh Hwang [2], Chia-Lun Lee [1*]
蕭仕敏 [1] 蕭佩妮 [1] 郭美娟 [2] 陳慈徽 [1] 王淑麗 [1] 龔蘭芳 [1] 黃玉瑩 [1] 黃尚志 [2]
李佳倫 [1*]
[1]Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University;
[2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan
[1] 高雄醫學大學附設中和紀念醫院護理部
[2] 高雄醫學大學附設中和紀念醫院腎臟內科

背景：
慢性腎臟病（Chronic Kidney Disease, CKD）病人的疾病感知與臨床結果有關，是影響對於健康因應行為的重要因素，疾病感知好的病人能採取有效行動因應疾病，進而接受並做出治療選擇，所謂疾病感知即是病人對於目前疾病的看法，這個看法會因為病人的知識、以往的罹病經驗而有所不同，病人對疾病感知的強烈負面看法也是 CKD 疾病進展及加速進入透析的預測指標。而及早瞭解病人對於疾病的負面認知，可以幫助病人積極面對，找到應對策略以減緩腎功能進展與惡化，本研究目的為探討晚期 CKD 病人之疾病感知。

研究方法：
本研究採橫斷性立意取樣，收案地點為台灣高雄某醫學中心腎臟內科門診，收案對象為經腎臟科醫師診斷 CKD 第五期的門診病人。使用結構式問卷收集資料，問卷包括基本資料表與簡短疾病感知問卷（Brief Illness Perception Questionnaire, BIPQ，基本資料表題目有：性別、年齡、婚姻狀況、教育程度、主要照顧者、主要醫療決策者、血清肌酸酐值（Creatinine）、腎絲球過濾率（eGFR）等。採用 BIPQ 來評估病人對自身疾病的認知和情緒反應，問卷共 8 題，每題 0-10 分且代表一個面向，分數越高表示該面向的感受愈強烈。以 SAS 9.4 統計套裝軟體進行資料分析。

研究結果：
2019 年 3 月 1 日至 2020 年 2 月 28 日共收案 89 位，平均年齡為 63.7±13.3 歲，男性(68.5%)、高中(含)以下(60.7%)、主要醫療決策為自己(70.8%)、無工作(57.3%)者佔多數。資料分析結果發現，疾病感知(BIPQ)總分平均為 6.68±1.14，分數最高的前三項依序為「持續時間線」為 8.48 ±2.51，「關心疾病程度」為 8.30±1.97，「治療控制」為 6.98±1.82。將病人以 BIPQ 總分中位數 6.5 進行分組，分別有 45 位 BIPQ 總分低於 6.5、44 位高於 6.5，比較慢性腎臟病人在 BIPQ 八個次量表的差異，結果發現在「疾病影響」、「症狀辨識」、「關心疾病程度」、「疾病了解程度」、「情緒影響」(P<0.001)、「持續時間線」(P=0.002)、「治療控制」(P=0.035)，兩組均有顯著差異。

結論：
晚期 CKD 病人疾病感知最在意的前三項依序為「您認為您的疾病將持續多長時間」、「您有多關切您的疾病」、「您認為您接受的治療(藥物等)能在多大程度上對疾病有所幫助」。建議醫療照護者在病人照護過程中，可以以簡單結構 BIPQ 問卷訪談了解病人特質、看法及決策模式想法，持續評估及觀察病人的疾病感知及情感表現，進而提供相關措施以提升病人的自我照顧及決策能力。

Keywords: chronic kidney disease (CKD), Illness perception

C056

INSIDE CKD: Projecting the Burden of Chronic Kidney Disease in Taiwan between 2022 and 2027

I-Wen Wu[1], Mei-Yi Wu[1], Salvatore Barone[2], Claudia Cabrera[3], Juan Jose Garcia Sanchez[4], Lise Retat[5], Markiyan Mitchyn[5], Mai-Szu Wu[1]

[1] Division of Nephrology, Department of Internal Medicine, Shuang Ho Hospital, Taipei Medical University, Taiwan. [2] Global Medical Affairs, AstraZeneca, Gaithersburg, MD, USA. [3] Global Medical Affairs, AstraZeneca, Gothenburg, Sweden. [4] Health Economic and Payer Evidence, AstraZeneca, Cambridge, UK. [5] HealthLumen Limited, London, UK.

Background: Chronic kidney disease (CKD) is a challenging health burden, affecting 9.1% of the global population. People in the early stages of CKD are often asymptomatic. Yet, delayed or absent diagnosis often leads to irreversible kidney damage that leaves CKD patients with limited treatment options at late stage. In order to raise the awareness of early CKD diagnosis and intervention, we aim to implement a microsimulation modeling approach to project the clinical and economic burden of CKD between 2022 and 2027 in Taiwan.

Methods: The validated Inside CKD microsimulation model generated a virtual population based on known demographic, epidemiological and economic data sources for Taiwan. Each individual was assigned a CKD stage, comorbidity status (type 2 diabetes, hypertension), complication status (stroke, heart failure and/or myocardial infarction), and a probability of receiving kidney renal therapies. All the survey or epidemiological data were country-specific when available. Proxy from UK, South Korea and Japan were used when local data was not available.

Results: The prevalence of CKD in Taiwan is projected to increase from 10.6% to 12.4% by 2027. This represents an absolute increase of 1.8% in the prevalence. Renal replacement therapy (RRT) cases are projected to increase by 7% to 103,601 by 2027, of which 91,493 will be under hemodialysis (HD), 8,089 will be under peritoneal dialysis (PD) and 4,018 will have a renal transplant. This represents a 6.9%, 8.9% and 4.7% increase by 2027 in HD, PD and renal transplant, respectively. The CKD-related cardiovascular complications (heart failure (HF), myocardial infarction (MI) and stroke) are projected to remain high in the diagnosed CKD population with ~47,000 new cumulative incident cases between 2022 and 2027. There are projected to be 147,192 total cumulative all-cause deaths in patients diagnosed with CKD between 2022 and 2027. Total annual healthcare costs (in NT$) associated with diagnosed CKD and RRT are projected to increase by 19.7% to NT$62.18 billion by 2027.

Conclusions: In spite of the implementation of national prevention programs the projected burden of CKD remains high. These clinical and economic projections for Taiwan may provide the foundation for shaping our upstream programs or policy interventions to mitigate and minimize the projected burden and costs of related complications, kidney failure and the need for RRTs.

Key words: chronic kidney disease, microsimulation model, projected burden

C057

Association of non-alcoholic fatty liver disease and liver fibrosis with kidney disease risk

Ming-Yan Jiang [1], Yun-Ting Huang [1], I-Ning Yang [1], Jui-Yi Chen [1], Chih-Chiang Chien [1], Wei-Chih Kan [1], Jyh-Chang Hwang [1], Hsien-Yi Wang [1]

[1] Renal Division, Department of Internal Medicine, Chi Mei Medical Center

Background

Growing evidence suggests that non-alcoholic fatty liver disease (NAFLD) is a multisystem disease affecting extra-hepatic organs and is associated with several cardiometabolic diseases including diabetes and cardiovascular disease (CVD). The purpose of our study is to evaluate the association of NAFLD and liver fibrosis with the risk of kidney disease among non-institutional general population in the United States (U.S.).

Methods

The study population was recruited from 2017-2018 cycle of the U.S. National Health and Nutrition Examination Survey (NHANES). We included 2,832 participants aged ≥ 18 years without hepatitis B or C, self-reported autoimmune hepatitis, or drinking more than a moderate amount of alcohol. Liver fibrosis is measured by FibroScan® using ultrasound and the vibration controlled transient elastography. The results were categorized into ≤ 7.0 kilopascals (kPa) (F0 to F1), 7.1 to 10.0 kPa (F2), 10.1 to 14.0 kPa (F3), and ≥ 14.1 kPa (F4). Liver steatosis was assessed by Controlled Attenuation Parameter (CAP) score and was divided into < 238 dB/m, 238-260 dB/m (S1), 261-290 dB/m (S2), and > 290 dB/m (S3). In addition, we calculated Fibrosis-4 (FIB-4) index and dichotomized into FIB-4 ≤ 2 and > 2. Kidney disease was defined by estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73 m^2 or urinary albumin-creatinine ratio (ACR) ≥ 30 mg/g.

Results

The average age of the study population was 53.2±18.3 years old and 51.5% of them was male. Among 2,832 participants, 583 had kidney disease. We observed a higher prevalence of liver fibrosis and liver steatosis among individuals with kidney disease. When compared with individuals of F0 to F1, the risk of kidney disease was higher for those of F2 (crude OR: 1.53; 95% CI: 1.13-2.05), F3 (crude OR: 1.60; 95% CI: 1.02-2.50), and F4 (crude OR: 3.19; 95% CI: 2.03-5.00). After adjusting for potential confounders including age, sex, race, body mass index, diabetes, hypertension, CVD, triglyceride, total cholesterol, smoking status, education level, marital status, and family income, we observed no significant difference in risk of kidney disease between those of F0-F1, F2, and F3, but the risk was higher for those of F4 (adjusted OR: 2.17; 95% CI: 1.23-3.81). Additionally, we observed that FIB-4 index >2 is a significant risk factor for kidney disease (adjusted OR: 1.70; 95% CI: 1.25-2.33). We observed no significant difference in risk of kidney disease for those of S1, S2, and S3 when compared with those of CAP < 238 dB/m.

Conclusions

Severe liver stiffness or fibrosis, but not steatosis, were significant associated with kidney disease risk. However, the causal relationship and underlying mechanisms remained to be investigated.

Key words: Non-alcoholic fatty liver disease, liver fibrosis, chronic kidney disease.

C058

Implementing Share Decision Making Program to Reduce Emergent Dialysis with Temporary Catheter：Based on a Medical Center in Northern Taiwan

運用醫病共享決策降低末期腎臟病患暫時性透析導管使用率：以北部某醫學中心為例

Hsin-I Huang[1], Yung-Ni Lee[1], Hsin-Yi Lai[1], Tsung-Lin Wu[1], Yu-Min Hsiung[1], Tung-Yun Tai[1], Tai-Shuan Lai[1]

黃心怡[1], 李咏倪[1], 賴心怡[1], 吳宗琳[1], 熊育敏[1], 戴彤芸[1], 賴台軒[1]

[1]Department of Internal Medicine, National Taiwan University Hospital, Taiwan

[1]國立臺灣大學醫學院附設醫院內科部

Background：

When patients entering chronic kidney disease (CKD) stage 5, defined by estimated glomerular filtration rate (eGFR) less than 15 ml/min/1.73m2, renal replacement therapy (RRT) was introduced and vascular access was suggested to place in advance. However, still many CKD patients did not accept vascular access placement when uremic symptoms develop and emergent dialysis was performed via temporary double-lumen catheter(TDLC).

Methods：

A sharing decision making (SDM) program was launched for patients who entered CKD stage 5. A QR code was generated to collect individual basic information, to provide health education program for RRT choice and to evaluate the patient's decision-making results. Other applications included setting checklists for patients and nurse educators, placing slogans in outpatient clinics to remind team members to initiate SDM as standard process, digitalizing health education sheets and presenting by cellphones or tablets, and monitoring the utilization of TDLC every month.

Results：

In 2023, the activation rate of SDM program reach to 93.6%.

A total of 107 patients entered hemodialysis, from which 53 cases received TDLC. The rate of TDLC use declined from 61.1 % to 20.0% from December 2022 to August 2023.

Conclusions：

The share decision making program successfully avoided emergent dialysis and reduced the use of temporary double-lumen catheter.

Key words：

Chronic kidney disease, emergent dialysis, share decision making

C059

Promote the full launch of the "Kidney Protection Strategy"

推動『護腎攻略』 全面啟動

Mei-ER Hsu[1] , Yi-Hsuan Tsai[2], Pei-Yu Huang[3], Tzu-Fei Chen[4] , Pi-Jung Chen[5], Sheng-Wen Niu[6]
徐美娥[1], 蔡怡萱[2], 黃沛妤[3], 陳姿妃[4], 陳碧蓉[5], 鈕聖文[6]
[1,2,3,4,5]Nursing Department, [6] Department of Nephrology, Kaohsiung Municipal Ta-Tung Hospital
高雄市立大同醫院(委託財團法人高雄醫學大學經營)[1,2,3,4,5] 護理部, [6] 腎臟內科

Background：
依據台灣腎臟醫學會『2021 腎病年報』公布，台灣罹患腎臟病人口約 12%，罹病人口突破 200 萬。然而腎臟病早期症狀並不明顯，約 9 成不知道自己罹患腎臟病，而近 6 成病患確診時已是晚期，面臨住院、需要接受透析，甚至死亡的風險，所以提升國人「腎臟病健康識能」是刻不容緩的。

Methods：
本院為提升民眾健康識能及居家照護能力，院內及院外(走入學校及社區) 全面推廣包括：辦理講座~邀請各專科主講、營造「腎利人生」友善環境(院內外無所不在衛教影片、海報及衛教單等)、醫院網站及 FB 宣導、線上直播、製作影片並提供 QR code 下載及辦理腎利人生衛教宣導闖關活動等等，全方面多元啟動。

Results：
112 年本院全面推廣成果如下：1.健康衛生講座院內外共 70 場。2.院內所有的電視牆上播放衛教影片。3.本院衛教園地與社區公佈欄，張貼海報及免費提供衛教單。4.院內網站、FB 隨時提供講座及活動訊息、衛教資訊及影片等。5.腎臟科醫師也親上直播台，主講腎臟全面照護。6.因應疫情，提升居家照護能力，製作食譜與運動海報，並製成影片，提供 QR code 下載，在家也能輕鬆做料理及運動。7.配合世界愛腎日及各節慶日等，院內外共辦理闖關衛教宣導活動共 7 場及篩檢 8 場，更走入學校及社區，讓「護腎」正確觀念從小培養。

Conclusions：
根據衛生福利部統計，腎臟疾病年年佔健保支出第一名，國人十大死因前 10 名，本院積極推動腎臟病防治工作，院內院外「全面啟動」推廣「護腎攻略」 ，更走入兒科門診及校園，讓愛護腎臟從小做起。期望藉由多元及全面推動，提升國人「腎臟病健康識能」，而期望能早期預防、早期治療及延緩疾病惡化，並減少健保醫療支出。

Key words：
護腎攻略 腎臟病健康識能

C060

Removing uremic toxin by oral absorbent with pH-controlled releasing capsule may help improving renal function

Tien-Tien Cheng[1*], Han-Hsing Tsou[1*], Hsiang-Tsui Wang[2†], Wen-Sheng Liu [1, 3†]
[1]Institute of Food Safety and Health Risk Assessment, National Yang Ming Chiao Tung University
[2]Institute of Pharmacology, College of Medicine, National Yang Ming Chiao Tung University
[3]Nephrology, Zhongxing Branch, Taipei City Hospital
Note: [*]Tien-Tien Cheng and Han-Hsing Tsou have equal contributions to this article.
†Authors to whom correspondence should be addressed.

Introduction
The number of patients with chronic kidney disease (CKD) is increasing. Oral toxin adsorbents may provide some value. Also, a novel uremic toxin, acrolein, has been shown to be related to CKD progression. A total of 81 patients taking oral activated charcoal toxin adsorbents, which were embedded in capsules that dissolved in the terminal ileum (AC-134) three times a day for one month, were recruited. The renal function, hemoglobulin, inflammation markers, and acrolein were checked before and after the intervention. Compared to the baseline, the renal function was improved with a better glomerular filtration rate (GFR) and significantly lower acrolein and a trend of increase in hemoglobin (p=0.054) after the intervention. However, Interleukin 6, tumor necrosis factor-alpha, indoxyl sulfate, and p-cresol had no significant changes. Patients with im-proved GFR (responders) (about 77%) and non-responders had similar GFRs at the baseline. Re-sponders had a higher acrolein value at the baseline and after the intervention, with a significantly larger reduction in acrolein. This form of activated charcoal showed the potential to decrease the acrolein level and improve the GFR, which might be a better indicator of renal function. Further studies are needed with longer follow-ups and comparisons of other toxin adsorbents.
Materials and Methods
An Institutional Review Board (IRB)/Ethics Committee approval was obtained
before the trial, and the study was conducted in full compliance with the Declaration of Helsinki. This study was approved by Taipei City Hospital (IRB: TCHIRB-11106016).Informed consent was obtained from all subjects involved in the study. Written informed consent was obtained from the patients for the publication of this paper. This study tested whether this new form of pH control released capsules (AC-134)with activated charcoal improved the GFR (by decreasing serum Cr and BUN) and whether the change in uremic toxin levels (IS, PCS, and acrolein) correlated with
inflammation markers (interleukin 6 (IL6) and Tumor necrosis factor (TNF)).
Participants with impaired renal function ranging in age from 18 to 90 were included
in this study. Specifically, individuals diagnosed with proteinuria or stage 3–5 chronic
kidney disease (CKD) with a GFR lower than 60 were recruited. The intervention
involved the administration of activated charcoal, originally intended to absorb toxins by gastric lavage, encapsulated within a capsule designed to disintegrate in the terminal ileum (AC-134). All participants were instructed to take two capsules three times a day for one month (30 days). Those who were excluded from the study were patients with renal failure who had received a transplant or were undergoing hemodialysis or peritoneal dialysis, patients receiving chemotherapy for a malignancy, those who had a blood transfusion in the past two weeks or intravenous medication (such as a lipid-based nutritional supplement, propofol, dopamine, methotrexate, fluorouracil, vancomycin, prednisolone, furosemide, or cyclosporine), and those who were unwilling to sign the study agreement. Before and after the intervention, several parameters were assessed, including BUN, Cr, estimated GFR (eGFR), hemoglobulin (Hb), IS, PCS, IL6, and TNF. Detection of acrolein in plasma using a competitive enzyme-linked immunosorbent assay (ELISA) was described previously. A responder was defined as having an increase in GFR after the intervention. Patients were divided into two subgroups, responders and non-responders, and the above-mentioned factors were compared. Patients undergoing dialysis were excluded from the study. Statistical analyses were performed using SPSS 19.0. Categorical variables are expressed as the number and percentage (N (%)). Continuous data with a normal distribution is presented as the mean accompanied by the standard deviation (SD) or the median and interquartile range (IQR).
Results
This study recruited 81 patients aged around 70, and about 70% were male. After the intervention, significant decreases were noted in the BUN, Cr, and acrolein levels, with an increase in GFR.
Conclusions
Activated charcoal combined with dietary fiber within a capsule designed to break down at the colon (AC-134) showed the potential to decrease the uremic toxin acrolein, and this uremic toxin accumulation and clearance from human body might be a better indicator of GFR and renal function.
Keywords: Chronic kidney disease, Uremic toxin, pH-controlled releasing capsule

C061

Analysis of Shared Decision-Making in the Choice of Treatment Modalities for End-Stage Renal Disease Patients

醫病共享決策對於末期腎病變病人選擇治療模式之分析

柯素惠[1], 高惠雯[1], 林淑愛[1], 陳佩盈[1], 陳麗娟[1], 郭美祺[1], 蕭惠萍[1], 張伊菁[1], 戴辛翎[1], 田久芸[1], 李榮芬[1], 施瓊玉[1], 吳美珠[1], 黎思源[2], 林志慶[2]

[1.] 護理部 臺北榮民總醫院

[2.] 腎臟科 內科部 臺北榮民總醫院

Abstracts

醫病共享決策介入讓末期腎病變病人了解未來治療模式，讓病人及家屬依其個別需求與醫療人員共同參與醫療討論，選擇適合自己的治療模式，以期能儘早建立長期透析管路，減少緊急透析臨時股靜脈導管置入。

Background：

本院配合醫策會醫病共享決策政策推行，讓病人充分瞭解治療模式及建立長期透析管路之重要性，協助治療模式選擇，醫師依據腎絲球過濾率小於 15mL / min / 1.73m^{2}啟動醫病共享決策照護諮詢。

Methods：

2022/06/01~2023/05/31 共有 164 位接受醫病共享決策照護諮詢，以達有效接軌醫療照護，及時介入透析治療。

Results：

164 位病人介入醫病共享決策，平均年齡 64.5 歲，男性 91 人(55.48%)，女性 73 人 (44.52%)，選擇血液透析 83 人(50.6%)，腹膜透析 41 人(25%)，維持慢性腎臟照護 21 人 (12.8%)，失聯者 9 人(5.5%)，死亡 9 人(5.5%)，腎臟移植 1 人(0.6%)。進一步探討選擇腹膜透析者，有 8 位(19.5%)介入緊急股靜脈導管，進行血液透析治療，平均住院天數 31 天，延遲腹膜透析開始時間，顯示及早介入醫病共享決策，預先植管的重要性，可避免緊急透析及其相關危險性及併發症，讓病人更平順的進入腹膜透析治療。

Conclusions：

期望病人接受醫病共享決策照護諮詢能儘早進行治療模式之選擇，有效規劃植管與後續照護，減少病人經歷緊急置入股靜脈導管之歷程，形同提早為腹膜透析做好準備。

Key words：腹膜透析、醫病共享決策

C062

Lacto-ovo vegetarian diet mitigated the risk of chronic kidney disease in overweight individuals

奶蛋素可減少過重個案罹患慢性腎病之風險

Yi-Chou Hou[1], Jia-Sin Liu[2], Kuo-Cheng Lu[2], Ko-Lin Kuo[2,3]

侯羿州[1] 劉佳鑫[2] 盧國城[2] 郭克林[2,3]

[1]Department of Internal Medicine, Cardinal Tien Hospital, New Taipei City, Taiwan.

[2]Division of Nephrology, Taipei Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, New Taipei city, Taiwan

[3]School of Post-Baccalaureate Chinese Medicine, Tzu Chi University, Hualien, Taiwan.

[1.]天主教新店耕莘醫院腎臟科 [2.]台北慈濟醫院腎臟科 [3.]慈濟大學後中醫系

Background：

Being overweight, with a body mass index >25, is associated with multiple comorbidities, including chronic kidney disease (CKD). A plant-based diet, such as a vegetarian or lacto-ovo vegetarian diet, serves as a preventive strategy for CKD in patients. The aim of this study was to investigate whether a vegetarian diet lowers the occurrence of CKD in overweight subjects.

Methods：

The retrospective study was performed in Taipei Tzu Chi Hospital. The incidence of chronic kidney disease (CKD) was evaluated according to the self-reported eating habits (vegetarians, lacto-ovo vegetarians, or omnivores), overweight(with a BMI ≥25 or higher abdominal circumference (>90 cm in male or >80 cm in female)) or not, or other biochemical or hematologic parameters. The interaction between different factors for the development of CKD were analyzed by Structural equation modeling.

Results：

Among these 6,567 subjects, the subjects with lacto-ovo vegetarians (n = 1933) had lower incidence of CKD than dietary habits as vegans (n = 357) and omnivores (n = 4277) [26.2% vs. 32.8% (vegans) and 30.7% (omnivore group), $p < 0.001$]. The incidence of overweight was the highest in omnivore group. The lacto-ovo vegetarian group [OR:0.79, 95% confidence interval [CI):0.70–0.90) lower the risk of CKD occurrence than the omnivore group. After adjusting for age and sex in SEM model, the lacto-ovo diet lowered the risk for CKD from being with a high BMI (OR:0.82, $p < 0.001$) or a higher triglyceride(TG)/high-density lipoprotein(HDL) ratio (OR:0.76, $p < 0.001$; OR:0.55, $p < 0.001$)

Conclusions：

Lacto-ovo vegetarian dietary habits are associated with a lower occurrence of CKD in obese patients. The mitigating effect of the lacto-ovo vegetarian diet was due to the hazard of a higher BMI and TG/HDL ratio.

Key words：

overweight, chronic kidney disease, vegan diet, lacto-ovo vegetarian diet, obesity, TG/HDL cholesterol ratio, insulin resistance.

C063

Real-World Insights: Metformin Link to Lower End-stage Renal Disease Risk in ADPKD Cases

IC Kuo[1,2], MY Lin[3], YS Tsau[4], JJ Lee[1,3], YW Chiu[1,3]

郭宜瑾[1,2], 林明彥[3], 曹宇翔[4], 李佳蓉[1,3], 邱怡文[1,3]

[1] Kaohsiung Medical University, [2] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital, [3] Division of Nephrology, Kaohsiung Medical University Hospital, [4] Department of Medical Research, Kaohsiung Medical University Hospital

[1] 高雄醫學大學, [2] 高雄市立大同醫院內科, [3] 高雄醫學大學附設中和紀念醫院腎臟內科, [4] 高雄醫學大學附設中和紀念醫院醫學臨床醫學研究部

Background：

Autosomal Dominant Polycystic Kidney Disease (ADPKD) is a progressive genetic disorder marked by bilateral renal cysts and extrarenal manifestations, ultimately resulting in renal failure. Emerging research indicates that Metformin may influence the intracellular mechanisms of ADPKD, though its clinical significance remains uncertain.

Methods：

We applied the Taiwan National Health Insurance Database (NHIRD) to investigate the clinical impact of Metformin utilization in ADPKD patients in real-world practice. The Metformin user group was defined by more than 90 days of usage. To mitigate selection bias, we established a non-user group with a 1:2 ratio, matching for age, sex, and comorbidities by propensity score matching method. Statistical significance was determined with a two-tailed p-value of less than 0.05.

Results：

10,222 ADPKD cases were identified in the NHIRD between 2009-2018. After the stringent inclusion, exclusion criteria, and the matching process, the Metformin user group composed of 778 cases, and the non-user group of 1546 cases. The Metformin user group exhibited a significant reduction in the risk of end-stage renal disease, as indicated by the crude hazard ratio (0.72, 95% CI 0.56-0.93, p=0.01). This effect remained consistent in the fully-adjusted model (0.75, 95% CI 0.58-0.97, p=0.03), the competing risk model (0.71, 95% CI 0.56-0.89, p=0.003), in subgroup analyses.

Conclusions：

The Metformin usage in the real-world practice showed a significant risk reduction in end-stage renal disease.

Key words：

Autosomal Dominant Polycystic Kidney Disease, Real-world study, End Stage Renal Disease

C064

Predicting hyperkalemia in patients with advanced chronic kidney disease using the XGBoost model

XGBoost model 對慢性腎臟病患者之高血鉀預測率

Han-Hui Liu[1], Hsin-Hsiung Chang[2,3], Jung-Hsien Chiang[2], Chun-Chieh Tsai[1], Ping-Fang Chiu[1,4]
劉瀚徽[1], 張信雄[2,3], 蔣榮先[2], 蔡俊傑[1], 邱炳芳[1,4]
[1] Division of Nephrology, Department of Internal Medicine, Changhua Christian Hospital
[2] Department of Computer Science and Information Engineering, National Cheng Kung University
[3] Division of Nephrology, Department of Internal Medicine, Antai Medical Care Corporation Antai Tian-Sheng Memorial Hospital
[4] Department of Post Baccalaureate, College of Medicine, National Chung Hsing University
[1] 彰基腎臟科, [2] 成功大學資訊工程系, [3] 安泰醫院腎臟科, [4] 中興大學學士後醫學系

Background：
Hyperkalemia is a common complication of chronic kidney disease (CKD). Hyperkalemia is associated with mortality, CKD progression, hospitalization, and high healthcare costs in patients with CKD. We developed a machine learning model to predict hyperkalemia in patients with advanced CKD at an outpatient clinic.

Methods：
This retrospective study included 1,965 advanced CKD patients between January 1, 2010, and December 31, 2020 in Taiwan. We randomly divided all patients into the training (75%) and testing (25%) datasets. The primary outcome was to predict hyperkalemia ($K^+ > 5.5$ mEq/L) in the next clinic vist. Two nephrologists were enrolled in a human-machine competition. The area under the receiver operating characteristic curves (AUCs), sensitivity, specificity, and accuracy were used to evaluate the performance of XGBoost and conventional logistic regression models with that of these physicians.

Results：
In a human-machine competition of hyperkalemia prediction, the AUC, PPV, and accuracy of the XGBoost model were 0.867, 0.700, and 0.933, which was significantly better than that of our clinicians. There were four variables that were chosen as high-ranking variables in XGBoost and logistic regression models, including hemoglobin, the serum potassium level in the previous visit, angiotensin receptor blocker use, and calcium polystyrene sulfonate use.

Conclusions：
The XGBoost model provided better predictive performance for hyperkalemia than physicians at the outpatient clinic.

Key words：
Machine learning, Hyperkalemia, Chronic kidney disease

C065

Early intervention of kidney health education improves the health literacyin general pupulations

早期腎臟保健衛教介入改善一般民眾的健康識能

Shu-Er Hsueh, Ya-Pei Yu, Hsin-Yi Lin, Yu-Chuan Hsiao, Dian-Shou Chuang, Lung-Chih Li, Wen-Chin Lee

薛淑娥 游雅珮 林欣怡 蕭妤娟 莊滇收 李隆志 李文欽

CKD Education Room, Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital

高雄長庚紀念醫院內科部腎臟科慢性腎病衛教室

Background

為知道一般民眾對腎臟病及腎臟病高風險因子的了解，以及早期介入腎臟保健衛教後健康識能的差異。

Methods

以本院家醫科門診參加成人預防保健之民眾為對象。自 2023 年 9 月 1 日至 2023 年 10 月 15 日止，共納入 31 位民眾。除收集抽血資料外，還運用「民眾腎臟病健康識能提醒機制腎臟照護認知與行為」問卷，了解民眾在醫師進行成人預防保健報告解釋前後，對腎臟照護認知是否有所變化。

Results

31 位民眾中，男性有 14 人，佔 45.16%，女性有 17 人，佔 54.84%，平均年齡 57.12 歲，其中只有一位民眾確診腎臟病，其於民眾無合併其他慢性疾病。

首先，經由醫師解釋成人健康檢查報告並配合腎臟保健衛教單張講解後，民眾對腎功能認知方面從 6.45%提升至 83.87%。其次，導致腎臟病高風險因子的認知從 19.35%提升至 87.10%。再者，對於自我是否有這些腎臟病高風險因子的認知，也從 35.48%提升至 58.06%。最後，對於知道如何保護腎臟的認知，從 19.35%提升到 80.64%。

Conclusion

由以上結果可知，一般民眾對於腎臟病、自我腎臟功能及如何保健的認知有限，為精進慢性腎臟病防治成效，應及早介入健康識能教育以達「防微杜漸、全民共同參與慢性腎臟病防治」的目標。

Key words

慢性腎臟病、腎功能、腎臟保健、健康識能

C066

Efficacy and safety of initiating SGLT2 inhibitor treatment in CKD stage 4-5 patients in a propensity score-matched cohort

起始 SGLT2 抑制劑治療於腎臟病第 4-5 期的效益與安全性，一個傾向分數配對世代研究

Chi-Chih Hung[1], Ping-Hsun Wu[1], Mei-Chuan Kuo[1], Yi-Chun Tsai[1], Jer-Ming Chang[1], Yi-Wen Chiu[1], Shang-Jyh Hwang[1] for the DAPA advKD Investigators

洪啟智[1], 吳秉勳[1], 郭美娟[1], 蔡宜純[1], 張哲銘[1], 邱怡文[1], 黃尚志[1] 代表所有研究參與者[1]

Devision of Nephrology, Kaohsiung Medical University

[1] 腎臟內科 高雄醫學大學

Background：

Sodium-glucose co-transporter 2 inhibitor (SGLT2i) could improve renal outcome and heart failure in early chronic kidney disease (CKD) with or without diabetes. Whether late initiation of SGLT2i in CKD stage 4-5 patients could still improve renal outcome is not known. Furthermore, other beneficial effects such as increasing hemoglobin and decreasing potassium are still significant are unclear.

Methods：

We retrospectively analyzed 98 patients treated with SGLT2i and compared with 98 patients without SGLT2i treatment by propensity score-match. We examined eGFR slope by multivariate linear regression models and clinical outcomes by competing risk Cox regression.

Results：

There were 132 (67.3%) diabetes and 66 (33.7%) CKD stage 5. The eGFR slopes (mL/min/1.73m2/year) before vs. after SGLT2i were -4.9 (-8.0 to -1.9) vs. -1.4 (-5.7 to 1.2), and ΔeGFR slope was significantly positive. SGLT2i group had marginally lower hazard ratio (HR) for renal outcome (renal replacement therapy + 50% decline in eGFR): 0.79 (0.60-0.95) and also lower HR for composite renal and cardiovascular outcome: 0.75 (0.57-0.91) after 2 years of follow-up. The eGFR dip >10% in 1 month after SGLT2i was 35.7%. Better hemoglobin and NT-pro BNP were also found after SGLT2i. There were similar adverse effects including acute kidney injury between groups.

Conclusions：

SGLT2i is associated with better renal outcome without increasing adverse effects in patients with CKD stage 4-5.

Key words：

SGLT2 inhibitor, CKD

C067

Remote Care for Autosomal Dominant Polycystic Kidney Disease (ADPKD) with Tolvaptan

遺傳體顯性多囊腎(ADPKD)使用 Tolvaptan 之遠距照護

Yi-Pei Chen, Pei-Ni Hsiao[1,2], Daw-Yang Hwang[1,3]

陳宜霈 [1] 蕭佩妮 [1,2] 黃道揚 [1,3.]

[1]Department of Nephrology, Kaohsiung Medical University Hospital,[2] Department of Nursing, Kaohsiung Medical University Hospital, [3] National Health Research Institutes

[1] 高雄醫學大學附設中和紀念醫院腎臟內科 [2] 高雄醫學大學附設中和紀念醫院護理部

[3] 國家衛生研究院

背景：自體顯性多囊腎(Autosomal Dominant Polycystic Kidney disease, ADPKD)簡稱多囊腎，為常見的腎臟病遺傳疾病，常見症狀有血尿、高血壓、背痛、腰痛等症狀。臨床治療多以控制血壓、大量飲水、減少鹽分攝取作為減緩多囊腎惡化的方式，自 2018 年衛服部核准 Tolvaptan 用於延緩多囊腎惡化的治療藥品，提供臨床醫師在照護多囊腎患者上多一重選擇，而 Tolvaptan 在第三期臨床試驗時常見副作用為口渴(12%-63.7%)、口乾症(7%-23%)、頻尿(69.5%)、多尿(4%-24%)等症狀，是導致患者對此藥物藥品耐受度差的原因。

方法：本研究為回溯性，以立意取樣選取自 2018 年 11 月 01 日至 2023 年 09 月 01 日南臺灣某醫學中心門診使用 Tolvaptan 治療多囊腎之患者。門診首次給藥時邀請患者加入「Line Official Account Manager」軟體進行個案照護，而本研究主要為比較患者有無使用「Line Official Account Manager」進行照護對其 Tolvaptan 終止使用的情況。

結果：回溯期間共有 113 位多囊腎患者使用 Tolvaptan，男性 71 位(62.83%)、女性 42 位(37.16%)，其中有 54 位(47.78%)加入使用「Line Official Account Manager」追蹤照護。終止用藥人數共有 23 位(20.35%)，其中高達 18 位(原因:3 位透析；1 位備孕；5 位不想使用；1 位肝功能異常；6 位經濟因素位；1 位過敏；1 位轉院)(78.26%)是未加入「Line Official Account Manager」照護措施，僅有 5 位(原因:2 位透析；1 位備孕；1 位其他共病；1 位不想使用)(21.73%)是加入照護措施但終止用藥。

結論：有使用「Line Official Account Manager」照護措施介入的患者，其終止使用藥物的人數低於未使用照護措施的原因可能是受到使用 Tolvaptan 患者在初期使用時會有許多副作用導致的不適，若有團隊即時的諮詢，調整藥物使用方式，減少副作用的不適感，進而降低終止用藥的機會。

關鍵字：遺傳體顯性多囊腎、Tolvaptan、Line Official Account Manager

C068

The related risk factors of diabetic nephropathy in patients with type 2 diabetes mellitus

探討第二型糖尿病病人罹患糖尿病腎病變的風險模式

LP HSU[1], PL Tseng[2]

徐禮平 [1], 曾芃廩 [2]

[1] Division of Nephrology Pingtung Christian Hospital, [2] Nursing Department Ping tung Christian Hospital

[1] 屏東基督教醫院腎臟科, [2] 屏東基督教醫院護理部

Background：

糖尿病最常見的長期併發癥之一是腎臟損傷,大約 40%的糖尿病患者會發展成糖尿病腎病,這也是慢性腎臟病的重要危險因子.由於糖尿病盛行率持續上升也導致末期腎臟病的發生率升高,現在已經嚴重影響國民健康

Methods：

1. 回溯性長期追蹤研究以屏東地區某醫院 2015 年至 2021 年間第二型糖尿病個案共 1818 人為研究對象
2. 由病歷資料庫中採去識別化且相關病歷資料會匿名後擷取的欄位包含年齡李秉錡身體質量指數腰圍性別教育程度飲酒嚼食檳榔運動習慣及糖尿病家族病史等等
3. 統計分析第一階段先以卡方分析或獨 t 檢定是否存在相關性接著再以羅吉斯迴歸的分析方法建構第二型糖尿病人罹患糖尿病腎病變的評估模式

Results：

橫斷性病例對照研究中在控制潛在相關因素後,較低的教育程度,嚼食檳榔,較高的收縮血壓,空腹血糖升高,HbA1c 升高和血清尿酸濃度升高與代謝綜合症與糖尿病患者的腎病變相關

另一方面,在沒有代謝綜合症的糖尿病患者,教育程度,空腹血糖升高,和血清尿酸升高,在調整混雜因素後與糖尿病腎病相關

Conclusions：

本研究證明了患有或未患有代謝綜合症的患者與糖尿病腎病相關的危險因素,認識到風險因素對於優化糖尿病腎臟病健康管理和改善預後至關重要

Key words：

代謝綜合症,糖尿病腎臟病危險因子

C069

High burden of ventricular premature complexes is an independent risk factor of the development of kidney failure in chronic kidney disease patients.

高心室早期收縮負荷是慢性腎臟病病人進展到腎衰竭的風險因子

Chien-Shien Lee [1 #], Chih-Hen Yu [2 #], Chao-Yu Chen [3], Ting-Chun Huang [3], Mu-Shiang Huang [3], An-Bang Wu [2], Chin-Chung Tseng [2], Junne-Ming Sung [2]

# Lee CS and Yu CH contributed equally to this study

李見賢 [1], 余志恆 [2], 陳昭佑 [3], 黃鼎鈞 [3], 黃睦翔 [3], 吳安邦 [2], 曾進忠 [2], 宋俊明 [2]

[1] Department of Internal Medicine, Medicine College, National Cheng-Kung University Hospital (NCKUH), [2] Renal Division, Department of Internal Medicine, Medicine College, NCKUH

[3] Cardiovascular Division, Department of Internal Medicine, Medicine College, NCKUH

[1] 成功大學醫學院附設醫院內科部 [2] 成功大學醫學院附設醫院內科部腎臟科

[3] 成功大學醫學院附設醫院內科部心臟血管科

Background：

Ventricular premature complexs (VPCs) are strongly linked to heart failure, and a higher VPCs burden independently increases the risk of cardiovascular mortality. Additionally, heart failure accelerate the progression of chronic kidney disease (CKD). The primary objective of this cohort study is to assess whether a high VPCs burden serves as an independent risk factor for the development of kidney failure in CKD patients.

Methods：

We designed a single-center, and retrospective cohort to clarify the role of VPC burden in composite renal outcome in Taiwan. We analyzed the database from the National Cheng Kung University Hospital-pre End Stage Kidney Disease (NCKUH-preESKD) and NCKUH-Holter . A total of 527 patients who had long term follow up in these two database were enrolled in this study.

Results：

The mean follow-up duration for assessing the composite renal outcome was 571 days (Q1: 202 days, Q3: 1093 days). The hazard ratios for Log VPCs, VPC 100-100,000 beats per day, and VPC > 100,000 beats per day regarding the composite outcome (including a sustained eGFR decline of at least 40%, end-stage kidney disease, or renal-related death), with events shorter than 180 days excluded, were 1.159 (95% CI, 1.030-1.305, p = 0.014), 1.251 (95% CI, 0.868-1.677, p = 0.353), and 2.42 (95% CI, 1.165-5.020, p = 0.018), respectively. These ratios were adjusted for age, diabetes (DM), and CKD stages and compared to individuals with a low VPC burden (<100/day).

Conclusions：

High burden of VPCs, defined by log VPC or with cutoff of 100 beats/day and 10000 beats/day, is independent predictor of composite renal outcome in CKD population.

Key words：

ventricular premature complex , eGFR decline, end-stage kidney failure , renal-related death.

C070

Association between severity of covid-19 infection and ratios of hyponatremia
Covid 病人嚴重度與低血鈉發生率之關係研究

黃紹誠[1]，王玠仁[2]，鍾心珮[2]，林承叡[1,3,4]
馬偕紀念醫院 腎臟內科[1]，馬偕紀念醫院 胸腔內科[2]，馬偕護理專科學校[3]，馬偕醫學院 醫學系[4]

Background: Hyponatremia (serum Na+ < 135 mg/dl) is the most common electrolyte abnormality detected in hospital. The purpose of this study is to understand the relationship between severity of covid-19 infection and hyponatremia.

Methods: In this prospective study, we enrolled 308 patients with Covid-19 infection in northern medical center. Sodium level after admission and before discharge were collected for all study patients. Statistical analysis was used to evaluate the association between severity of covid-19 infection and hyponatremia, and outcome.

Results: This study enrolled 168 male and 140 female patients. The average age was 62.88 ± 15.2 year-old. The numbers of patient with and without oxygen supplement were 190 and 118 respectively. The ratio of hyponatremia in all patient was 38.3%. Hyponatremia ratio of patient without and with oxygen supplement were 30.5% and 43.2% (p = 0.026), respectively. The mortality rate of initial normonatremia and hyponatremia were 17.4% and 11.9% (p = 0.192), respectively. The average duration of admission were 19.1 and 20.6 days (p = 0.494) in normonatremia and hyponatremia, respectively.

Conclusion: These results indicated that the patient with oxygen supplement while admission had higher rate of hyponatremia incidence. The mortality rate and average duration of admission had no significant difference between normonatremia and hyponatremia.

Keywords: Covid, hyponatremia

C071

Association between Vitamin D Levels and COVID-19 Vaccine Induced Immunogenicity and Breakthrough Infection among Dialysis Patients

探討透析病人維他命 D 濃度與新冠疫苗之免疫原性及突破性感染之相關性

Wan-Chuan Tsai, Mei-Fen Pai, Kuei-Ting Tung, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng

蔡萬全, 白玫芬, 董奎廷, 吳泓彥, 邱彥霖, 楊如燁, 徐愷翔, 徐世平, 彭渝森

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: Vitamin D has a critical role in immune function and respiratory tract infection. The association between vitamin D level and COVID-19 vaccine induced immune response and breakthrough infection is uncertain. We aimed to evaluate whether the dialysis patients with lower vitamin D levels had a poor immunogenicity following COVID-19 vaccines and high risk of breakthrough infection.

Methods: In this prospective observational study, we enrolled 203 study participants including 170 on hemodialysis therapy, and 33 on peritoneal dialysis. The 25-hydroxyvitamin D was analyzed in serum using an electrochemiluminescence immunoassay analyzer (ECLIA) (Roche Diagnostics GmbH, Germany). The humoral response was assessed by measuring binding antibodies and neutralizing antibodies against the SARS-CoV-2 spike receptor-binding domain (RBD) and presented as geometric mean titers (GMT) with 95% CI. Presence of SARS-CoV-2 infection was diagnosed by RT-PCR in nasopharyngeal swab.

Results: Among the study participants, 53% had vitamin D deficiency (< 20 ng/ml). Participants with vitamin D deficiency had a similar vaccine immunogenicity regarding neutralizing antibodies titers (U/mL) (GMT 758, 95% CI, 603-952 vs GMT 804, 95% CI, 646-1000; $P = 0.71$), neutralization inhibition (%) (GMT 84, 95% CI, 79-89 vs GMT 85, 95% CI, 80-91; $P = 0.69$) or anti-RBD titers (U/mL) (GMT 4088, 95% CI, 3342-4999 vs GMT 4379, 95% CI, 3447-5562; $P = 0.66$) compared to those with higher vitamin D level. Although those with vitamin D deficiency tended to have a higher rate of breakthrough infection in univariate analysis (50% vs 38%; $P = 0.06$), such association was vanished after vaccination was adjusted ($P = 0.10$). Besides, there was no difference in Ct value among those with vitamin D deficiency or not (18.6 ± 5.6 vs 19.4 ± 4.8; $P = 0.69$).

Conclusion: Vitamin D deficiency was common among dialysis patients, however, we did not observe a poor immunogenicity following COVID-19 vaccines and a higher incidence or severity of breakthrough infection in those with vitamin D deficiency.

關鍵字：突破性感染、新冠肺炎、透析、免疫原性、疫苗、維他命 D。

Key words: Breakthrough infection; COVID-19; dialysis; immunogenicity; vaccination; vitamin D.

C072

Relationship between Vitamin D Levels and Immune Response of COVID-19 Vaccine and Breakthrough Infection among Health-Care Workers

探討醫護人員維他命 D 水平與新冠疫苗之免疫反應及突破性感染之相關性

Wan-Chuan Tsai, Ju-Yeh Yang, Yen-Ling Chiu, Hon-Yen Wu, Mei-Fen Pai, Kuei-Ting Tung, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng

蔡萬全 楊如燁 邱彥霖 吳泓彥 白玫芬 董奎廷 徐愷翔 徐世平 彭渝森

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: Data regarding vitamin D as a means to promote the immune response and reduce the inflammatory response has been growing. To date, the association between vitamin D level and COVID-19 vaccine induced immune response and breakthrough infection remains unclear. The aim of this study was to assess whether lower vitamin D levels elicited a poor immune response following COVID-19 vaccines and high risk of breakthrough infection.

Methods: In this prospective observational study, we measured 25-hydroxyvitamin D level in 72 health-care workers. The humoral response was assessed by measuring binding antibodies and neutralizing antibodies against the SARS-CoV-2 spike receptor-binding domain (RBD) and presented as geometric mean titers (GMT) with 95% CI. Presence of SARS-CoV-2 infection was diagnosed by RT-PCR in nasopharyngeal swab.

Results: The mean age of the study participants was 44 ± 8 years. Among the participants, 71% had vitamin D deficiency (< 20 ng/ml). We observed that those with vitamin D deficiency had a similar vaccine immunogenicity regarding neutralizing antibodies titers (U/mL) (GMT 1105, 95% CI, 942-1296 vs GMT 982, 95% CI, 728-1324; $P = 0.44$), neutralization inhibition (%) (GMT 92, 95% CI, 90-95 vs GMT 91, 95% CI, 87-96; $P = 0.68$) or anti-RBD titers (U/mL) (GMT 4849, 95% CI, 5061-6759 vs GMT 5144, 95% CI, 4183-6327; $P = 0.31$) compared to those without vitamin D deficiency. Neither the rate of breakthrough infection (49% vs 52%; $P = 0.80$) nor Ct value (24.4 ± 6.1 vs 23.0 ± 7.8; $P = 0.77$) differed among those with vitamin D deficiency or those without.

Conclusion: Vitamin D deficiency is very common among health-care workers. Our data did not support the association between poor immunogenicity following COVID-19 vaccines and higher incidence or severity of breakthrough infection in those with vitamin D deficiency.

關鍵字：突破性感染、新冠肺炎、醫護人員、免疫原性、疫苗、維他命 D。

Key words: Breakthrough infection; COVID-19; health-care workers; immunogenicity; vaccination; vitamin D.

C073

Short-Term Effects of Therapeutic Diet on Bone Turnover Markers in Hemodialysis Patients: An Exploratory Analysis of a Randomized Crossover Trial

治療膳食對血液透析病人骨轉換指標的短期影響：隨機交叉試驗的探索性分析

Wan-Chuan Tsai, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Shih-Ping Hsu, Yu-Sen Peng

蔡萬全 吳泓彥 邱彥霖 楊如燁 徐愷翔 白玫芬 董奎廷 徐世平 彭渝森

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: It is of interest to know whether the dialysis-specific therapeutic diet has a favorable effect on bone turnover and we are therefore going to analyze the diet-induced changes in bone turnover biomarkers in hemodialysis patients.

Methods: Data were analyzed from thirty adults with end-stage kidney disease undergoing thrice-weekly hemodialysis in a randomized crossover trial comparing a therapeutic diet with a usual diet for 7 days, separated by a 4-week washout period during which subjects adhered to their usual diet. The therapeutic diets were characterized by adequate calorie and protein amount, natural food ingredients with low phosphorus-to-protein ratio, higher portions of plant-based food, and high fiber content. The exploratory outcome measures were mean difference (MD) in change-from-baseline bone-specific alkaline phosphatase (BAP), osteocalcin, procollagen-type 1 N-terminal-propeptide (P1NP), and C-terminal telopeptide. A total of 8 repeated measurements for each participant were obtained to assess the changes in study outcomes at different time points.

Results: The mean age of the study participants was 62 ± 11 years, the mean vintage was 7.9 ± 5.4 years and 53% was male. Compared with the usual diet, the therapeutic diet increased serum BAP level ($P = 0.02$), but had no significant effect on osteocalcin, P1NP, and C-terminal telopeptide. The significant effect of the therapeutic diet required 7 days of intervention as no change was noted after either 2 days or 5 days of intervention in any of the study outcomes. In the fully adjusted mixed effect model, we found that a reduction in dietary phosphorus intake of 100 mg was associated with an increase in serum BAP level of 0.9% (95% CI, 0.1-1.7, $P = 0.02$).

Conclusions: Within 1-week intervention period, dialysis-specific therapeutic diets rapidly changed bone formation markers in patients undergoing hemodialysis. Future studies are suggested to assess the long-term effects of therapeutic diet.

Key words: bone-specific alkaline phosphatase; hemodialysis; short-term effects; therapeutic diet; phosphorus.

關鍵字：骨特異性鹼性磷酸酶、血液透析、短期影響、治療飲食、磷。

C074

The Sharing Of Nutrition Management Imported Into Taiwan Society Of Nephrology Information Platform In A Teaching Hospital In Southern Taiwan

南部某教學醫院應用「台灣腎臟醫學會腎臟病整合照護平台」管理末期腎臟病前期(Pre-ESRD)病人營養衛教之成效分享

陳幸慧[1], 陳俞秀[1], 陳惠貞[2]

Chen Hsinghui[1], Chen Yu-Hsiu[1], Chen Hui Chen[2]

[1] 財團法人天主教聖馬爾定醫院營養室, [2] 腎臟科

[1]Department of Food and Dietetics, [2]Department of Nephrology, St. Martin De Porres Hospital

研究背景及目的：

依照「灣腎臟醫學會腎臟病整合照護平台」(以下簡稱腎醫會照護平台)2023 年 2 月 17 日公告新系統應依照新表單，調整為 Excel 匯入格式，匯入時須下載腎醫會照護平台營養衛教格式，填入資料後方可執行。本院營養師於衛教時須快速紀錄病人攝食狀況與評估，除了登錄本院「營養門診個管系統」，事後又要登錄腎醫會照護平台，相同的資料花雙倍的時間不符工作效益。故三月初藉由本院資訊科的協助將兩個系統整合。透過連結達到營養師面對腎臟病人的衛教不再是電腦操作工作量的增加，而是給予病人支持和適切的飲食計畫。本研究的目的藉由建置資訊系統連結本院門診營養諮詢衛教紀錄匯入腎醫會照護平台後檢視：一.系統將資料匯入腎醫會照護平台之完整性、二.資料上傳過程中常見問題及解決方案、三.評估營養衛教介入腎臟病人之熱量、蛋白質攝取量與建議量比較之效益及飲食問題分析。

研究方法：

本院營養資訊系統連結腎醫會照護平台之實施步驟包括下載腎醫會照護平台營養對碼表及代碼對應包括營養行為、飲食計劃執行狀況、飲食學習意願等及新增及修正本院營養衛教紀錄與對碼表之一致性。並將修正後的資料交付給資訊科程式設計師處理，從今年 3-4 月 2 個月時間完成系統設計即開始運作。本研究取得人體試驗委會核可，收集 5-7 月 CKD 門診營養諮詢患者排除洗腎病人共 398 位，208 位為男性平均年齡 71.9±13.2 歲，190 女性平均年齡 76.0±12.2 歲，收集病人 24 小時飲食紀錄、身高、體重。病人之飲食評估紀錄按月匯入腎醫會照護平台。資料分析：病人經營養衛教介入後，分析熱量、蛋白質攝取、營養狀況資料採用 SPSS(24.0 版)套裝軟體，以平均值±標準差表示。統計方法變異數分析（ANOVA）比較熱量攝取與 CKD 分期各組間的差異，營養狀況與 CKD 分期以卡方檢定判定其關聯性。

研究結果：

整體平均年齡 73.8±12.9 歲，BMI 25.7±4.8 kg/m^2，熱量攝取 1482.4±299.7 大卡(23.5 大卡/公斤)低於建議攝取 1672.6±195.0 大卡(30 大卡/公斤)。蛋白質攝取 CKD1-4 期為 0.83 克/公斤，第 5 期為 0.73 克/公斤明顯高於建議量。整體營養狀況尚可佔整體 76.9%，良好佔 8.0%，不良 11.8%，資料不全 3.3%。對於飲食學習意願或衛教後認知程度與熱量攝取並沒有明顯的相關性。

結論：

這項研究顯示收案的 CKD 患者熱量和蛋白質攝取均不符合建議，但我們應該把握每次的衛教對於攝取不足的病人提醒每日多 200 大卡的低蛋白點心的選擇及補充是好的。未來我們需要進行前瞻性或介入性研究來確定飲食的因果關係。

Key word：慢性腎臟病（Chronic kidney disease, CKD）、腎醫會照護平台

C075

Dietary Nursing Guidance and Its Role in Electrolyte Balance and Quality of Life for Hemodialysis Patients

飲食護理指導對於血液透析病人電解質平衡和生活品質的影響

YD LI[1], PL Chen[2],CW Lin[3], MY Tseng[4], TI Lin[5],HL Tai[6]*

李羿德[1], 陳姵玲[2], 林郡微[3], 曾名瑜[4], 林惇儀[5], 戴辛翎[6*]

[1,2,3,4,5,6] Department of Nursing, National Taipei University of Nursing and Health,

[6] Department of Nursing, Taipei Veterans General Hospital

[1,2,3,4,5,6] 國立台北護理健康大學護理系, [6] 臺北榮總護理部

Background：

Through specialized nutritional education and guidance, there is an expectation to improve the nutrient intake of hemodialysis patients, thus mitigating the risks associated with malnutrition. This study aims to delve into the positive impact of dietary nursing guidance on the health and nutritional status of hemodialysis patients, offering more precise treatment strategies for clinical scenarios.

Methods：

In this study, spanning from 2019 to 2023, literature searches were conducted in three major databases: The Cochrane Library, PubMed, and Airiti Library. After careful selection, two Randomized Controlled Trials (RCTs) were incorporated for analysis.

Results：

Nutritional education has been demonstrated to assist dialysis patients in controlling electrolytes and enhancing quality of life. Following the intervention in the experimental group, there was a significant reduction in the percentage of patients with hyperphosphatemia (> 5.5 mg/dl) ($p=0.04$). Additionally, levels of other electrolytes such as sodium, potassium, and magnesium were noticeably better than the control group ($p < 0.05$). Furthermore, the quality of life score was superior in the experimental group ($p < 0.05$). This study strongly recommends the implementation of health nutritional education in clinical care.

Conclusions：

The research findings highlight the instrumental role that healthcare professionals play in guiding hemodialysis patients to achieve optimal serum electrolyte balance, primarily through methods such as nutritional education training or e-learning. This guidance, rooted in the principles of dietary nursing, not only mitigates the risk of malnutrition but also significantly uplifts the quality of life for these patients. The nursing implications derived from this study underscore the necessity and paramount importance of specialized dietary nursing guidance as an integral component of clinical care for hemodialysis patients, ensuring both their physiological well-being and overall life satisfaction.

Key words：

Hemodialysis, Dietary Nursing Guidance, Nutritional Education ,Electrolyte Balance

C076

Comparison of reliability and validity of the nutritional screening assessments in elderly patients with end-stage renal disease

比較營養評估量表於老人末期腎臟病患之信效度

顧姍庭

台大醫院附設北護分院

背景與目的：末期腎臟病患中 65 歲以上老人有 63.4%需接受透析治療，顯示年紀越大出現慢性腎臟病的機率越高。老人末期腎臟病患由於腎臟已經漸漸失去功能，當腎臟功能無法維持正常生理功能甚至危及生命時，接受透析治療。而透析中會出現低血壓、肌肉抽筋、食慾下降、疲憊，甚至因營養不良導致蛋白質熱量耗損，而增加罹病率與死亡率。有效評估患者的營養功能，可提供完整的營養照護使病患獲得益處。因此本研究目的比較營養評估量表，分別為主觀整體評估 (Subjective Global Assessment, SGA)、營養不良通用篩檢工具 (Malnutrition Universal Screening Tool, MUST)、迷你營養評估 (Mini Nutritional Assessment, MNA)、營養風險篩檢 (Nutritional Risk Screening 2002, NRS-2002)之再測信度，及驗證收斂效度。

研究方法：本研究收案 62 位血液透析治療老人末期腎臟病患，提供 SGA、MUST、 MNA 和 NRS-2002 四項營養評估量表的再測信度驗證，施測包含前測與後測兩次測驗，前測與後測之間將間隔兩周。本研究使用組內相關係數 (intraclass correlation coefficient,ICC)，以檢驗再測信度，並計算最小可偵測誤差值 (minimal detectable change,MDC)以解讀數據。以 Pearson's*r* 相關係數檢測 SGA、MUST、MNA 與 NRS-2002 四項營養評估量表之間的關聯程度，以驗證收斂效度。

結果：研究將比較老人末期腎臟病患 SGA、MUST、MNA 和 NRS-2002 四項營養評估量：SGA、MUST、MNA、NRS-2002 的 ICC 值分別為 0.85、0.77、0.88、0.96。在 MDC 值部分 SGA、MUST、MNA 和 NRS-2002 的數值依序分別為 2.94、0.93、3.47、0.50。四項評估量表 MDC%值在 9.9%-24.5%之間。收斂效度部分 SGA 與 MNA、MUST 與 MNA、MNA 與 NRS-2002 的 Pearson's *r* 相關係數分別為 0.65-0.73 之間。

結論：本研究結果顯示 SGA、MUST、MNA 與 NRS-2002 營養評估量表的再測信度及收斂效度皆有好的再測信度、收斂效度及可接受的測量標準誤差，其中以 MNA 驗證結果最佳，可優先作為老人末期腎臟病患營養評估量表之選擇。研究結果有助於臨床和研究人員在 SGA、MUST、MNA 與 NRS-2002 營養評估量表中選擇適合作為老人末期腎臟病患營養評估。

關鍵字：老人末期腎臟病、營養評估量表、再測信度、收斂效度。

C077

Project to improve iron deficiency anemia in peritoneal dialysis patients

改善腹膜透析病人缺鐵性貧血之專案

盧尤娟[1] 林彥君[1] 何妙純[1] 謝宜蓁[2]

[1] 台大醫院新竹台大分院腹膜透析護理師

[2] 台大醫院新竹台大分院血液透析護理長

背景：

貧血是慢性腎臟病或透析病人常發生的併發症，最常見的原因是缺鐵以及紅血球生成素不足。貧血對腹膜透析病人會產生疲勞、認知功能下降、活動力降低、生活品質變差，增加發生相關併發症、住院機率及死亡風險。本單位品管監測發現腹膜透析病患缺鐵性貧血比率超過閾值，為改善腹膜病人之透析品質，進行改善專案，有效降低腹膜透析病人缺鐵性貧血狀況，提升透析病人照護品質。

方法：

腹膜透析室品管組每月監測腹膜透析病人血紅素（hemoglobin,Hb）、每季監測血清鐵蛋白（ferritin），2021 年發現第 1、2 季品質指標(Hb< 9 g/dL 者其 ferritin≦200 ng/mL 佔 10%以下)皆超過閾值，經由專案小組進行原因分析發現腹膜透析病人鐵質不足比率偏高，主要原因有：缺乏腹膜透析病人貧血之作業程序，規範鐵劑的施打原則，衛教單張內容缺乏貧血飲食衛教，缺鐵性貧血病人回診缺乏提醒機制。經由小組成員成立改善專案小組，改善專案內容包含：制定「腹膜透析病人貧血之作業程序」、修訂「腹膜腹膜透析飲食注意事項」衛教單張內容、製作「鐵劑提醒小卡」於回診時提醒醫師開立口服鐵劑或施打鐵劑處方。針對未達閾值之病患於醫護討論會進行討論，排除其他常見的貧血原因，適當的補充鐵劑。

結果：

經專案小組推動政策，2023 年的 2 季品質指標(Hb< 9 g/dL 者其 ferritin≦ 200 ng/mL)閾值由 12.5%(2/16)降至 7.1%(1/14)，有效降低缺鐵性貧血比率，減少腹膜透析病人因缺鐵所造成的貧血，提升腹膜透析病人照護品質。

結論：

貧血是腹膜透析病人的重要照護指標，長期貧血也會造成左心室肥大、活動力降低而導致生活品質變差，貧血也會使腹膜透析病人住院及死亡的風險上升。治療的選擇有鐵劑和紅血球生成素的補給，但必須排除其他常見的貧血原因為優先。預計接受腎移植的病人應避免不必要的輸血，因會提高排斥機率，較不容易找到交叉試驗陰性的移植腎和降低移植腎存活率。故適當補充鐵劑及紅血球生成素相當重要。本單位將貧血相關指標列為品管監測項目，定期監測相關數值，透過品管手法進行改善專案，期望能持續增進腹膜透析病人的照護品質。

關鍵字：腹膜透析、缺鐵性貧血、血清鐵蛋白

C078

Improvement Project for Lowering Parathyroid Hormone Levels in Peritoneal Dialysis Patients

降低腹膜透析病人副甲狀腺素值之改善專案

何妙純[1] 林彥君[1] 盧尤娟[1] 謝宜蓁[2]

[1] 台大醫院新竹台大分院 腹膜透析室護理師

[2] 台大醫院新竹台大分院 血液透析中心護理長

背景:

慢性或末期腎臟疾病使腎功能下降，導致高血磷、活性維生素 D 減少，鈣代謝異常，進而引起副甲狀腺機能亢進，是腹膜透析病人常見併發症之一。次發性副甲狀腺機能亢進導致高血鈣、高血磷、骨痠痛、鈣化等問題，增加心血管疾病、住院率及死亡率的風險。本單位品管組在 2021 年上半年發現 i-PTH≧800 pg/mL 超過品質指標閾值，因此成立了專案小組，旨在降低副甲狀腺素品質指標閾值，減少次發性副甲狀腺機能亢進的發生率，以降低相關併發症的風險。

方法:

品管組每半年監測腹膜透析病人的 i-PTH 指標，發現 2021 年上半年 i-PTH≧800 pg/mL 超過品質指標(20%以下)的閾值，達到 30.5%，成立專案小組，經小組進行討論原因分析如下：對高磷飲食的認知不足、疾病認知不足、未正確服用藥物、缺乏腹膜透析病人 i-PTH 異常之處理相關規範。改善專案內容包含：修訂「腹膜透析飲食注意事項」衛教單張內容、製作宣傳海報-戰勝高血磷和認識副甲狀腺亢進、修訂「腹膜透析病人常用藥物」、制訂「透析病人 i-PTH 異常之作業程序」。針對未達閾值之病人，回診時給予個別性衛教指導，必要時轉介營養師門診進行衛教指導，i-PTH 持續≧1000 pg/Ml 適時轉介外科門診。

結果

在專案小組共同努力下， 將 i-PTH≧800 pg/mL 比率由 2021 年下半年 30.5%，下降至今年上半年的 21.4%。此外，副甲狀腺切除率也從前一年的 4.9% (4/82) 提升至今年的 14.3% (10/71)； 2021 年第一季品質指標中，磷大於 6 比率 29%下降至 17%，鈣磷乘積大於 60 比率 23%下降至 11%。這些成果指標顯示，在此專案努力和改進方向是正確的，同時也提醒我們還有進步的空間。

結論:

本專案旨在提早介入治療次發性副甲狀腺亢進，以降低腎性骨病變和血管鈣化風險，進而降低心血管疾病的發生率。醫護人員需了解次發性副甲狀腺亢進的致病機轉及治療方法，並提供病患飲食控制、藥物治療、足量透析和適時轉介外科進行副甲狀腺切除手術等全方位的照護。本單位定期監測腹膜透析病人副甲狀腺素相關指標，並將其納入品管監測項目，透過品管手法進行改善專案，雖未完全達到品質指標閾值，但接近 20%的進步顯示出改善的方向。我們相信，在持續努力下，將能夠實現更優異的照護品質。

關鍵詞：次發性副甲狀腺機能亢進、腹膜透析、高血磷

C079

Uremic tumoral calcinosis on peritoneal dialysis patients

腹膜透析病人產生的腫瘤樣鈣質沉著症

曹郁文[1], 黃琪峰[1], 吳志仁[1,2,3], 林承叡[1,2,3]
馬偕紀念醫院 腎臟內科[1], 馬偕護理專科學校[2], 馬偕醫學院 醫學系[3]

Background: Uremic tumoral calcinosis (UTC), a metastatic soft tissue with calcification, which usually deposited at the weight-bearing joint, such as shoulder or hip. It is a relatively rare complication in end-stage renal disease (ESRD) patients, developed due to uncontrolled phosphorus, calcium and intact parathyroid hormone (iPTH).
Methods: We retrospectively reviewed 250 ESRD patients on PD at Taipei and Tamsui Mackay memorial hospital in recent ten years. And we accessed the clinical presentation, radiologic, lab data, treatment and outcomes.
Results: This poster enrolled 4 patients on PD. All patients were diagnosed as UTC by radiologic. They are undergoing chronic peritoneal dialysis around 4-7 years, all the cause of ESRD is chronic glomerulonephritis. There are two male and two female, and the age is around 44- to 54-year-old. The deposition of tumoral calcinosis is demonstrated at large joint, especially at shoulder and hip. Phosphorus in four patients is poorly controlled, around 6-10 mg/dL. Calcium is within a range from 8-11 mg/dL. One of patient who had parathyroidectomy in the past, so her iPTH is low, about 50 pg/mL. Two patients have severe hyperparathyroidism (iPTH>1800 pg/mL), followed by parathyroidectomy, and one has hyperfunctioning parathyroid gland with mild elevated iPTH (400-600 pg/mL). We observed for one year, the patient with hyperfunctioning parathyroid gland who received surgical treatment, resulting in nearly complete remission of calcinosis. Two patients who took phosphate-lowering agents of Aluminum hydroxide, leading to partial remission. The other patient with low iPTH, who used Sevelamer, also had partial remission.
Conclusion: UTC is an unusual complication, develops in ESRD patients with uncontrolled hyperphosphatemia and hyperparathyroidism. It always presents on weight-bearing joints. There are many kinds of treatments of UTC, but the outcome is not satisfied. In our patient, UTC is just partial remission after parathyroidectomy. For the management of UTC, the most important thing is intensively controlling the serum P and hyperparathyroidism.
Keywords: End-stage renal disease, Peritoneal dialysis, Uremic tumoral calcinosis, Hyperparathyroidism

C080

Nutrition care for hyperphosphatemia in a hemodialysis patient
血液透析病人高磷血症之營養照護

Yuen-Yuen Lin[1], Chwei-Shiun Yang[2], Kuei-Ying Huang[1]
林元媛[1] 楊垂勳[2] 黃桂英[1]
[1] Diet and Nutrition Section,[2] Department of Nephrology, Cathay General Hospital
國泰綜合醫院[1] 營養組[2] 腎臟科

Abstracts

高磷血症將造成慢性腎臟病礦物質及骨病變、副甲狀腺亢進等代謝紊亂，並為心血管疾病發病率的獨立危險因子。2017 Kidney Disease: Improving Global Outcomes 指出，控制慢性腎臟病礦物質及骨病變的方法，包括飲食控制、透析和藥物治療(磷結合劑/活性維生素 D/擬鈣劑)。本文將分享以營養介入長期高血磷血液透析病人之營養照護經驗。

Methods

病人為 79 歲女性，規律血液透析 3 年，有高血壓、糖尿病、失智、心臟病史，因長期高血磷轉介營養師。身高 155 公分，乾體重 72 公斤，BMI 30 kg/m^2(肥胖)。生化數值 Hb 9.3 g/dL, Albumin 3.8 g/dL, Ca 10 mg/dL, P 11.7 mg/dL, PTH-intact 140 pg/mL; URR 79 %, Kt/V=1.8。醫囑 Aluminum hydroxide 2# tid，隨餐磨粉服用。家庭經濟狀況佳，與兒女、24 小時看護同住。食欲佳，三餐食材定量供應，但餐間會隨意拿取剩菜食用；愛喝飲料，曾藉游泳時飲用泳池水，家屬對病人飲食態度寬鬆。營養評估發現高磷血症為多重因素造成：錯誤營養品使用、無機磷食用過多(誤食過量牙膏，內含單氟磷酸鈉)、蛋白質攝取過多、磷結合劑劑量不足。介入期間，營養師利用通訊軟體逐餐評估飲食內容，定期給予家屬和看護營養衛教，陸續修正上述高血磷之因素，達到改善高磷血症、同時維持營養狀況之目標。

Results (Outcome)

1. 營養介入期間 110 年 12 月~111 年 4 月，顯著改善病人高磷血症(介入前 11.7 mg/dL→介入後 4.4 mg/dL)，並能維持良好營養狀態(介入前白蛋白 3.8 g/dL→介入後 3.9 g/dL)。
2. 追蹤六個月，血磷和白蛋白數值均能維持良好(平均血磷數值 4.4mg/dL，平均白蛋白數值 3.9g/dL)。

Conclusions

研究發現，人體對無機磷的吸收率遠高於動、植物性食物。現代食品加工技術進步，來自加工食品中的食品添加物(無機磷)種類繁多，甚至藥物或其他物質中隱藏的無機磷，將使血磷控制更加複雜。因此教育透析病人了解加工食品對健康的傷害、多選擇新鮮食物是飲食控制高磷血症的重點。高磷血症受到多重因素影響：飲食、服藥遵從性、磷結合劑、藥物昂貴等，上述因素可能單獨發生，或同時存在；因此透析病人應定期接受營養師衛教，確保血磷正常，並同時保持良好營養狀態。

Key words

Hyperphosphatemia, inorganic phosphorous, Nutrition intervention

C081

The association between Lower LDL-C level and Cardiovascular and Renal Outcome for moderate and advanced CKD Patients under Statin: A Multi-institution Cohort Study

Chieh-Li Yen, MD[1,2]; Yung-Chang Chen, MD[1,2]; Chih-Hsiang Chang, MD[1,2]

1. Kidney Research Center, Department of Nephrology, Chang Gung Memorial Hospital, Linkou branch, Taoyuan, Taiwan
2. College of medicine, Chang Gung University, Taoyuan, Taiwan

Background: Recently, major medical societies of the United States and Europe have continuously set a lower recommended treatment goal of Low-density lipoprotein-cholesterol (LDL-C) for population with high cardiovascular (CV) risks. However, in patients with chronic kidney disease (CKD), the evidence supporting the CV protective effects of LDL-C reduction with statins is comparatively scarce compared to other high-risk groups. Thus, the appropriate LDL-C level and strategy of statin treatment across different CKD stages are mainly unclear. The only randomized-control trial (RCT) of LDL-lowering treatment in CKD patients, the SHARP study, was designed to prove the CV benefits of the use of statin and was underpower to identify the ideal LDL-C level for patients with different CKD stages. Our research team has performed a series of large real-world studies to assess the association between LDL-C levels and CV and renal outcomes in patients from moderate CKD to advanced CKD undergoing statin treatment.

Methods: This project was performed on the basis of Chang Gung Research Database (CGRD), which covers the Chang Gung Memorial Hospital system. This system includes 4 tertiary medical centers and 3 teaching hospitals across different regions and is the largest medical network of Taiwan. This project included two studies with different inclusion criteria to determine the association between LDL-C levels and outcomes across moderate CKD and advanced CKD patients, respectively. In study 1, we enrolled patients under statin treatment and firstly diagnosed with CKD stage 3 (eGFR between 60 and 30 mL/min/1.73 m^2). In study 2, we enrolled patients under statin treatment and firstly diagnosed with CKD stage 4 (eGFR between 30 and 15 mL/min/1.73 m^2). The date of diagnosis of CKD 3 or CKD 4 was defined as the index date. These patients were categorized into three groups based on their closest LDL-C levels to the index date: <70 mg/dL, 70-100 mg/dL, and ≥100 mg/dL. We employed inverse probability of treatment weighting to achieve balance in the distribution of baseline characteristics among the groups.

Results: In study 1 (CKD stage 3 patients), the LDL-C < 70 mg/dL group (7.3% vs. 8.8%, SHR: 0.82, 95% CI: 0.65-1.02) and the 70 ≤ LDL-C < 100 mg/dL group (6.8% vs. 8.8%, SHR: 0.76, 95% CI: 0.64-0.91) exhibited significantly lower risks of major adverse cardiac and cerebrovascular events (MACCEs) compared to the LDL-C ≥ 100 mg/dL group. In renal outcomes, the LDL-C < 70 mg/dL group (7.1% vs. 9.1%, SHR: 0.76, 95% CI: 0.67-0.85) and the 70 ≤ LDL-C < 100 mg/dL group (7.6% vs. 9.1%, SHR: 0.82, 95% CI: 0.73-0.91) also exhibited lower risks of new-onset end-stage renal disease (ESRD) compared to the LDL-C ≥ 100 group. On the other hand, in study 2 (CKD stage 4 patients), only the LDL-C < 70 mg/dL group exhibited significantly lower risks of MACCEs (14.3% vs. 18.7%, hazard ratio [HR]: 0.77, 95% CI: 0.69-0.86) and new-onset ESRD (25.6% vs. 29.4%, SHR: 0.87, 95% CI: 0.80-0.91) compared to the LDL-C ≥ 100 group. The CV and renal outcomes between the 70 ≤ LDL-C < 100 mg/dL group and the LDL-C ≥ 100 group did not significantly differ.

Conclusions: This study has shown that maintaining LDL-C levels below 100mg/dL for individuals with moderate CKD and below 70mg/dL for those with advanced CKD may offer significant benefits in terms of cardiovascular and renal outcomes. Combining the findings from both studies suggests that setting a lower LDL-C treatment target may be necessary to achieve cardiovascular and renal protection as CKD progresses.

Key words：CKD, LDL-C, cholesterol, cardiovascular event, MACCE

C082

The effect of low protein and higher energy nutritional supplement on nutritional status and GI function in patients with chronic kidney disease

低蛋白高熱量的營養補充品對慢性腎臟病病人的營養狀況與腸道功能的影響

吳紅蓮[1] 郭德輝[2] 王明誠[2]

[1] 國立成功大學醫學院附設醫院營養部 腎臟科[2]

背景: 許多研究提出低蛋白飲食對慢性腎臟病病人有延緩腎功能腎臟惡化的功能，且在提供足夠熱量時不會造成營養不良。在臨床衛教上，我們發現有些病人在低蛋白飲食時無法攝取足夠熱量甚至無法執行低蛋白飲食認為會營養不良。因此本研究想探討提供低蛋白高熱量的營養補充品且接受低蛋白飲食衛教對慢性腎臟病病人的營養狀況與腸道功能之影響。

材料: 從南部某醫學中心的腎臟門診篩選腎絲球過濾率 45 以下的病人共收案 96 位分兩組，介入組是提供低蛋白高熱量營養補充品: 每日 2 包((225 卡/0.4 克蛋白質/2 克膳食纖維/包)(諾亞普羅丁 LPK 聖補前由瑪里士實業有限公司提供)與飲食指導；控制組: 未提供低蛋白營養補充品，但接受飲食指導，研究進行 6 個月，3 個月追蹤 1 次，並通過醫院人體試驗委員會審查同意且每位病人皆簽署臨床試驗同意書。由專一腎臟專科營養師指導飲食與評估飲食攝取並執行 7 分制主觀整體營養評估(7 points subjective global nutritional assessment (SGA).與腸胃道功能評估。

結果:介入組年齡平均 63.0±10.3 歲 ，控制組年齡平均 67.4±10.2 歲，慢性腎臟病主病因都以糖尿病占比多，分別為 31.3% vs 37.5% 。7 分制主觀整體營養評估方面: 介入組在 9 個面向除水腫變化不易評估無顯著差異，其他面向在第三與第六個月皆有顯著改善，食慾變化(5.5±1.3 vs 6.2±0.9 vs 6.3±1.0 分, $P<0.05$)、腸道功能變化(5.5±1.2 vs 6.2±0.8 vs 6.2±1.0 分, $P<0.05$)、活動力變化(5.5±1.1 vs 6.1±0.7 vs 6.0±0.8 分, $P<0.05$)、脂肪層變化(5.1±1.2 vs 5.6±0.9 vs 5.7±1.0 分, $P<0.05$)、肌肉量變化(5.2±0.9 vs 5.8±0.5 vs 5.6±0.6 分, $P<0.05$)、SGA 總分(5.3±0.9 vs 5.9±0.6 vs 5.8±0.7 分, $P<0.05$)，而控制組只有在瘦肌肉量面向有顯著增加(5.2±0.8 vs 5.6±0.8 vs 5.4±0.8 分, $P<0.05$)。介入組在總熱量的攝取有顯著的增加(1553±285 vs 1642±225 vs 1692±220 大卡, $P<0.05$)、蛋白質攝取顯著減少(48.0±13.9 vs 41.1±9.4 vs 42.6±11.9 克, $P<0.05$)，而控制組在三大營養素攝取上皆無顯著的差異。在腸道功能方面，介入組大便硬度有顯著改善，大便硬度正常比例顯著增加(58.3% vs 72.9% vs 72.9%, $P<0.05$)，而排便有些硬比例顯著下降。排便時感覺輕鬆且無壓力比例有顯著增加(47.9% vs 68.7% vs 70.8%, $P<0.05$)，控制組在便秘 3 個面向都無顯著的改善。

總結: 本研究發現低蛋白高熱量的營養補充品與飲食衛教，在介入第三個月就可以顯著改善慢性腎臟病病人的營養狀況與腸道功能，改善排便。

關鍵字 : 低蛋白高熱量的營養補充品、營養狀況、腸道功能、慢性腎臟病

C083

Effects of Melatonin on bones in Hemodialysis Patients

褪黑激素對透析患者骨代謝的影響

Kuo-Chin Hung, Chih-Jen Weng, Tian-Hua Chuang, Chao-Lin Huang
洪國欽, 翁志仁, 莊天華, 黃朝麟
Department of nephrology, Min-Sheng General Hospital
桃園敏盛醫院 腎臟科

Background: Melatonin is the main substance secreted by the human body. The synthesis of melatonin is mainly stimulated through darkness and inhibited by light. 30% to 80% of end-stage kidney disease (ESKD) have sleep disturbances, which interfere with the sleep-wake cycle and impair their quality of life. The effect of melatonin on bone health has been confirmed both in vivo and in vitro studies. Melatonin stimulates osteoblast (OB) proliferation, functional activity and enhances the differentiation of human adult mesenchymal stem cells (hAMSC) into OB. There is no clinical evidence on how melatonin affects bone health among ESKD patients.
Methods: We will recruit 67 maintenance HD patients with sleep disturbances. Patients with decreased BMD will be randomly assigned to receive Melatonin 10mg p.o (n = 29) or without Melatonin (n = 38). Primary objective: To determine the changes in bone turnover markers melatonin use in maintenance HD patients. Secondary objective: To determine the changes in BMD after 6 months supplementation of melatonin in maintenance HD patients.
Results: The serum C-terminal telopeptide of type I collagen (CTX) significant decrease P <0.001, a marker of bone resorption; and serum procollagen type 1 amino-terminal propeptide (P1NP) significant higher P= 0.006, a marker of bone formation. The serum IL6 decreased after 6 months taking melatonin (P= 0.002), as an inflammation marker.
Conclusions: Our study subjects had decreased serum CTX levels and increased P1NP levels. The use of melatonin may lead to a decrease in bone resorption and an increase in bone formation. Furthermore, the reduction of inflammation could lead to an improvement in bone mineral density. Melatonin supplementation is suggested to improve sleep quality and bone health in maintenance HD patients.

Keywords: Bone Mineral Density, Melatonin, Sleep Disorders, Osteoporosis.
關鍵字 ： 骨質密度、褪黑激素、睡眠障礙、骨質疏鬆症。

C084

To manage secondary hyperparathyroidism by clinical audit with share decision making and application

以臨床稽核手法結合醫病共享決策與智慧應用程式管控續發性副甲狀腺亢進

Ya-Wen Lin, Shu-Chin, Yeh, Yi-Chou Hou

林雅雯[1] 葉淑琴[1] 侯羿州[2]

[1] Department of Nephrology, Cardinal Tien Hospital, New Taipei City, Taiwan

[1] 天主教新店耕莘醫院安康院區血液透析中心 [2] 天主教新店耕莘醫院 腎臟科

Background：

副甲狀腺亢進在末期腎病的照護重要議題，會造成末期腎病病患產生骨質疏鬆以及血管鈣化，進而影響病患心血管死亡比例，治療方式需要結合磷離子結合劑、維生素 D、副甲狀腺切除、擬鈣劑以及飲食磷離子控制。目前整合式監測臨床稽核結合醫療智慧與醫病共享決策策略來控制續發性副甲狀腺亢進的角色不明，本研究希望以此介入模式評估副甲狀腺控制效率

Methods：

本單位建立臨床稽核實踐機制，建立兩大稽核目標: (1) 目標一：降低透析病人副甲狀腺荷爾蒙(iPTH)>300pg/ml 之比例(<40%) (2) 目標二：確保 iPTH>300pg/ml 之病人均能接受相應治療，及定期追蹤鈣磷乘積情形(鈣磷合格率超過 85%)。期間介入醫病共享決策方式以及智能 APP 與衛教改善，確認兩大目標達標

Results：

109 年單位建立兩大稽核目標，發現(iPTH)<300pg/ml 之比例為 49.3%,鈣磷乘積合格率為 82%，期間開發醫病共享決策以及智能 APP 使用，提升病患了解控制必要性，(iPTH)<300pg/ml 之比例為 59.6%,鈣磷乘積合格率為 88.8%。111 年引入衛教單張圖示化，(iPTH)<300pg/ml 之比例為 72.7%,鈣磷乘積合格率為 89%。

Conclusions：

臨床稽核手法為建立副甲狀腺亢進目標確認的重要方式，智能程式開發、醫病共享決策以及衛教手法圖示化可有效提升副甲狀腺控制率

Key words：

臨床稽核、醫病共享決策、續發性副甲狀腺亢進、智能程式開發

C085

Femoral artery calcification and hip fracture risk in hemodialysis patients
血液透析患者股動脈鈣化及髖部骨折風險

Shun-Neng Hsu[1], Chun-Liang Hsu[2], Jhao-Jhuang Ding[3], Yu-Juei Hsu[1, *]

[1] 三軍總醫院 內科部 腎臟內科, [2] 三軍總醫院 骨科部, [3] 三軍總醫院 小兒科部

[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

[2] Orthopaedic Department, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

[3] Department of Pediatrics, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan.

Objectives: Compared with the general population, end-stage kidney disease (ESKD) requiring hemodialysis (HD) patients are at increased risk for vascular calcification and bone fractures. Although associated risk factors of hip fractures have been reported, the role of femoral artery calcification (FAC) in HD patients remains unknown. This study aims to determine the role of FAC score and its association with incidental hip fractures. **Methods:** We retrospectively analyzed 170 hemodialysis (HD) patients who presented with incident falls between 2007 and 2014. All patients received posterior-anterior plain X-rays of the hip. The FAC score was defined as the total length of calcification plaques/the length of the femoral vessel revealed on hip radiographs. Predictors of hip fracture were determined using Cox models. **Results:** One hundred and thirty HD patients who met the inclusion criteria were enrolled, and 55 patients had an incident hip fracture. The overall incidence rate of hip fracture was 6.18 per 1,000 person-years. The patients in the fracture group were older than those in the non-facture group (75.04 ± 9.28 vs. 65.56 ± 13.38 years; $p < 0.0001$). The fracture group was found to have lower serum creatinine (Cr), albumin, and cholesterol but higher aspartate aminotransferase (AST) than the non-fracture group. Compared to the non-fracture group, the fracture group had a higher FAC score (0.38 ± 0.33 vs 0.19 ± 0.28; $p < 0.001$). In multivariable analyses, older age and higher FAC scores were independent risk factors for hip fractures. Moreover, in subgroup analysis, in HD patients with diabetes mellitus (DM), the high FAC score, older age, and hyponatremia were independent risk factors for hip fractures. **Conclusion:** A plain X-ray FAC score and age were independent risk factors for a hip fracture in HD patients, especially those with diabetes.

Keywords: diabetes, dialysis, end-stage kidney disease, hip fracture, femoral artery calcification

C086

Physician acceptance on clinical decision support systems for anemia management in ESKD patients: A qualitative research

探討腎臟科醫師對透析患者貧血治療臨床輔助系統接受度的質性研究

Ju-Yeh Yang[1,2], Raymond N. Kuo[2]

楊如燁 [1,2], 郭年真 [2]

[1] Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan

[2] Institute of Health Policy and Management, College of Public Health, National Taiwan University, Taipei, Taiwan

[1] 亞東紀念醫院, [2] 台灣大學公共衛生學院健康政策與管理研究所

Background：

Anemia management in end-stage kidney disease (ESKD) patients remains a huge burden in the daily nephrology practice. Clinical decision support systems (CDSS) have been developed to address this issue. Nevertheless, relevant factors to physician acceptance remains elusive. In this qualitative research, we conduct in-depth interview with nephrologists to explore the relevant factors associated with physician acceptance.

Methods：

We invited nephrologists with more than 3 months experience of caring ESKD patients on hemodialysis at Far Eastern Memorial Hospital to participate in a semi-structured in-depth interview. We also explored nephrologists' concerns on CDSS.

Results：

A total of seventeen nephrologists participated the qualitative research. All nephrologists concurred that CDSS was beneficial to clinical care. Fourteen (4/17) nephrologists believed CDSS could expedite the work and saved the time in interpretation of data. Eight physicians praised reminder functions of CDSS. Sixteen physicians mentioned about limitations of CDSS: not individualized to patient conditions (10/17), could not handle uncommon situations (10/17), too short prior reference time period (7/17), too rapid adjustment of erythropoietin (7/17).

No physician thought CDSS would influence professional judgement. In contrast, eleven physicians mentioned that CDSS could provide beneficial inputs for clinical judgement. Of note, up to twelve physicians expressed concerns of physicians' dependence on CDSS.

Conclusions：

Nephrologists concurred that CDSS could lessen workload, but expressed concerns about over-dependency on CDSS, especially for young physicians.

Key words：

Anemia, decision support systems, hemodialysis, physician acceptance, dependence

C087

Relationship between bone mineral density, serum sclerostin and physical activity in hemodialysis patients

血液透析病人骨質密度、血中抑硬素及身體活動量的關係

Te-Hui Kuo [1,2] An-Bang Wu [1] Wei-Hung Lin [1] Jo-Yen Chao [1] Ching-Chung Tseng [1] Hung-Hsiang Liou [3] Ming-Cheng Wang [1,4]
郭德輝 [1,2] 吳安邦 [1] 林威宏 [1] 趙若雁 [1] 曾進忠 [1] 劉宏祥 [3] 王明誠 [1,4]
成大醫院腎臟科 [1] 成大公共衛生研究所 [2] 新仁醫院腎臟科 [3] 成大臨床藥學與藥物科技研究所 [4]

Background Sclerostin is a glycoprotein produced by osteocytes that inhibits bone formation by blocking the Wnt signaling pathway, which is important for bone growth and maintenance. Sclerostin levels are affected by many factors, such as age, sex, hormones, and physical activity. Previous studies have shown that higher sclerostin levels are associated with higher bone mineral density (BMD) and lower fracture risk in healthy people. However, the role of sclerostin in dialysis patients, who have high risk of bone and cardiovascular problems, is unclear. Furthermore, physical activity is a factor that affects both BMD and bone-related biomarkers but is rarely monitored and seldom considered in previous clinical studies. To address this, the present study adopted a cross-sectional design to investigate the relationship among BMD, bone-related biomarkers, and physical activity recorded by a consumer wearable device.
Methods We enrolled patients who had been on hemodialysis for at least three months at a single center. We collected their demographic data, comorbid conditions, medication use, and laboratory data from their medical records and monthly blood tests. We measured their serum sclerostin levels by enzyme-linked immunosorbent assay (ELISA), along with other bone-related biomarkers, such as fibroblast growth factor 23 (FGF-23), dickkopf-1 (DKK-1), osteocalcin (OC), cross-linked C-telopeptide of type 1 collagen (CTX), and 25-hydroxyvitamin D (25-OH vitD). We performed dual-energy X-ray absorptiometry (DEXA) scans to assess their BMD at the lumbar spine and femoral neck regions. We also obtained lateral abdominal X-rays to evaluate their abdominal aortic calcification (AAC) score of vascular calcification. In addition, we asked the patients to wear a consumer wearable device for one week to monitor their daily physical activity, mainly step counts and heart rates. We calculated the mean of daily step counts and the percentage of physical activity with moderate intensity or higher (PA-MIH), which was defined as the time spent with heart rate above 70% of the maximum predicted heart rate. We used descriptive statistics to summarize the data and Spearman correlation test to examine the bivariate relationships between sclerostin and other variables. We also performed multiple linear regression and logistic regression analyses to identify the independent predictors of sclerostin level, BMD, and AAC score, adjusting for potential confounders.
Results The study enrolled 20 hemodialysis patients with a mean age 64.4±11.0 years, with an equal male-to-female ratio, and the mean dialysis vintage was 5.93±2.25 years. The mean serum sclerostin level was 208.6±72.3 pmol/L. The mean BMD of spine and femur neck were 1.08±0.32 g/cm2 and 0.70±0.14 g/cm2, respectively, and the mean t-score for each site were -0.38±2.62 and -1.99±1.09, indicating a wide range of bone mass among the patients. The mean AAC score was 4.70±2.89, suggesting some degree of vascular calcification in this population. The mean daily step count was 4328±1233 and the mean percentage of physical activity with moderate intensity or higher (PA-MIH) was 8.4±5.3%, indicating that most of the patients had low physical activity levels. Sclerostin was positively correlated with male sex, weight, height, creatinine, spine BMD, daily step counts, and percentage of physical activity with moderate or higher intensity. Sclerostin was negatively correlated with Kt/V, osteocalcin, intact PTH levels, and calcitriol use. Logistic regression analysis showed that high serum sclerostin level was independently associated with male gender (Odds ratio (OR) 1.88, P=0.028), BMD (OR 2.87, P = 0.026), and daily step counts (OR 2.46, P = 0.039).
Conclusions Our study suggests that higher serum sclerostin level is linked to higher BMD and physical activity in hemodialysis patients. These findings may imply that sclerostin reflects the bone mass and mechanical loading of the skeleton in this population. However, the causal relationship and the clinical implications of these associations need further research. Our study also highlights the importance of physical activity assessment and promotion in dialysis patients, as it may have positive effects on their bone and cardiovascular health.

Keywords sclerostin, bone mineral density, physical activity, hemodialysis

C088

Severe abnormal hemogram in patients with end-stage renal disease on hemodialysis: A cross-sectional study in Taiwan

台灣末期腎臟病血液透析患者之異常血液相分析

王瑋[1], 吳品翰, 陳建源[2], 陳世宜[3], 黃瓊瑩[3], 林義智[4], 姜至剛[1,5], 陳永銘[1,3], 林水龍[1,6], 周鈺翔[1]

Wei Wang[1], Pin-Han Wu, Chien-Yuan Chen[2], Shih-I Chen[3], Chiung-Ying Huang[3], Yi-Chih Lin[4], Chih-Kang Chiang[1,5], Yung-Ming Chen[1,3], Shuei-Liong Lin[1,6], Yu-Hsiang Chou[1]

[1] 臺大醫院內科部腎臟科, [2] 臺大醫院內科部血液科, [3] 臺大醫院北護分院, [4] 臺大醫院金山分院, [5] 臺大醫院綜合診療部血液淨化科, [6] 臺大醫學院生理所

[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [2] Division of Hematology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [3] National Taiwan University Hospital Bei-Hu Branch, [4] National Taiwan University Hospital Bei-Hu Branch Jin-Shan Branch, [5]Hemodialysis Division, Department of Integrated Diagnostics and Therapeutics, National Taiwan University Hospital, Taipei, Taiwan, [6]Graduate Institute of Physiology, College of Medicine, National Taiwan University, Taipei, Taiwan

Background：

Anemia and changes in hematologic profile were common for patients with end-stage renal disease (ESRD) after entering hemodialysis. Identifying associated factors with abnormalities in hemogram is pivotal since they may be related to overall survival and hematologic disorders.

Methods：

A total of 478 patients with ESRD undergoing hemodialysis were enrolled from National Taiwan University Hospital, including Bei-Hu and Jinshan branch, in March, 2021. Severe abnormal hemogram in this study was defined as having at least two abnormal hemogram parameters, including anemia, leukopenia, thrombocytopenia, and macrocytosis. Multivariate analyses were conducted to identify factors associated with hemogram abnormalities.

Results：

The dialysis vintage, erythropoietin resistance index (ERI), and the percentage of liver cirrhosis were significantly higher in group of severe abnormal hemogram. Multivariate analyses demonstrated that severe abnormal hemogram was associated with higher ERI, heart failure, and liver cirrhosis. Anemia was associated with lower dialysis adequacy, hypoalbuminemia, and higher ERI. Leukopenia was associated with autoimmune disease and liver cirrhosis. Thrombocytopenia was associated with various clinical factors, while macrocytosis was associated with only liver cirrhosis.

Conclusions：

Severe abnormal hemogram in ESRD patients on hemodialysis was associated with higher ERI, heart failure, and liver cirrhosis. However, some other associated factors of specific abnormal hemogram lineages were also found and the mechanisms needed to be clarified in further studies.

Key words : Abnormal hemogram, hemodialysis, end-stage renal disease

C089

Using an electronic stethoscope artificial intelligence deep learning model to predict arteriovenous shunt dysfunction

使用電子聽診器人工智慧深度學習模型來預測動靜脈廔管功能障礙

Hsiu-Chin Mai[1], Jui-Hsin Chen[1], Chiu-Yueh Chen[1], Szu-Chia Chen[2,3]

麥秀琴[1], 陳瑞忻[1], 陳秋月[1], 陳思嘉[2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部[1] 高雄醫學大學附設醫院腎臟內科[2] 高雄市立小港醫院內科[3]

Background: Early detection of arteriovenous (AV) access dysfunction is important for preserving the patency of vascular access. This study aims to employ deep learning for the prediction of malfunctioning AV access that may necessitate further vascular management.

Method: Fifty-seven hemodialysis (HD) patients with arteriovenous fistula or arteriovenous graft use were enrolled, and AV shunt sounds were recorded by electronic stethoscope (AccurSound) from three different sites (arterial, venous, and medial) before HD sessions or before AV access intervention procedures. The audio signal was converted to Mel spectrograms using the Fourier transform by Airmod software and then pooled for analysis. Three deep learning models: (1) Convolutional Neural Network (CNN), (2) Convolutional Recurrent Neural Network (CRNN), and (3) Vision Transformers-Gate Recurrent Unit (ViT-GRU) were developed to predict the possibility of dysfunctional AV access.

Results: The Mel spectrogram-based deep learning model predict the presence of AV access dysfunction successfully. The CNN models outperformed other deep learning model in the test set, with the F1 score of 0.7463 and area under the receiver operating characteristic curve (AUROC) of 0.6429. The Vit-GRU model showed high performance in out-of-fold predictions, with F1 score of 0.7619 and AUROC of 0.7454, but low generalization ability in test set, with F1 score of 0.5106 and AUROC of 0.5143.

Conclusion: The CNN model based on Mel spectrograms may predict malfunctioning AV access which requires percutaneous transluminal procedures within 7 days. This deep learning technique may be utilized for screening for AV access dysfunction.

Key words: arteriovenous access dysfunction; electronic stethoscope; Mel-scaled spectrograms; deep learning model

C090

Association of arteriovenous access outcomes with circulating biomarker in hemodialysis patients

血液透析患者動靜脈廔管預後與循環生物標誌物的相關性

Jui-Hsin Chen[1], Hsiu-Chin Mai[1], Chiu-Yueh Chen[1], Szu-Chia Chen[2,3]

陳瑞忻[1], 麥秀琴[1], 陳秋月[1], 陳思嘉[2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部[1] 高雄醫學大學附設醫院腎臟內科[2] 高雄市立小港醫院內科[3]

Background: A functional arteriovenous (AV) access is crucial for a hemodialysis (HD) patient. AV access thrombosis leads to missed dialysis sessions and has been associated with mortality. This study investigates the relationship between circulating biomarkers and the occurrence of thrombosed AV access.

Method: The prospective cohort study enrolled 347 chronic hemodialysis patients followed from August 2016 to February 2023. Demographics, clinical variables, laboratory data, and circulating cytokines including Interleukin (IL)-1β, IL-6, IL-8, Tumor necrosis factor-α, Stem cell factor (SCF), and B cell activator factor (BAFF) were collected. Hazard ratios (HR) for AV access thrombosis event using Cox proportional hazards regression were reported.

Results: During the follow-up period, the incidence of AV access thrombosis was 22.2% (77 0f 347). Cox proportional hazards regression found that AV access type (AVF vs AVG, HR, 0.21 [95% CI, 0.12-0.38], $p < 0.001$), C-reactive protein (CRP) (HR, 1.10 [95% CI 1.06-1.15], $p < 0.001$) and log SCF (HR, 0.02 [95% CI 0.001-0.71], $p = 0.032$) were associated with increased risk for AV access thrombosis. However, when analyzed AV access outcome according to the type of AV access, log SCF was significantly lower only in AVF thrombosis (HR, 0.008 [95% CI, 0.0001-0.75], $p = 0.037$) but not in AVG, while older age was associated with a higher risk for AVG thrombosis (HR, 1.07 [95% CI, 1.01-1.13], $p = 0.026$) but not in AVF.

Conclusion: Patients undergoing hemodialysis with a higher CRP level have an increased risk for developing AVF or AVG thrombosis. Nevertheless, the lower SCF level is significantly correlated with thrombosis events only in patients who use AVF.

Key words: Hemodialysis; arteriovenous access thrombosis; biomarker; stem cell factor

C091

Is the nutritional status assessed by bioimpedance spectroscopy correlated with the history of coronary artery disease in hemodialysis patients?

以生物阻抗譜評估的營養狀況是否與血液透析患者的冠狀動脈疾病史有關？

Hung-Ping Chen, Paik-Seong Lim

陳宏賓 [1], 林柏松 [1]

Division of Renal Medicine, Tungs' Taichung Metroharbor Hospital

[1] 童綜合醫院腎臟科

Background: In hemodialysis patients, the presence of protein-energy wasting is associated with an increased risk of cardiovascular and overall mortality. Bioimpedance spectroscopy was reported to be a practical instrument to assess nutritional status in patients on hemodialysis. In this study, we utilized bioimpedance spectroscopy to analyze our hemodialysis patients, aiming to investigate whether malnutrition, as determined by bioimpedance spectroscopy, correlates with an increased risk of coronary artery disease.

Methods: This was an observational cross-sectional study conducted with 536 hemodialysis patient, with an average age of 66 ± 12 years, 52.4% of whom were male, and with an average body mass index of 24.7 ± 4.3 kg/m^2. These patients were recruited from two different healthcare facilities.Nutritional status was assessed using bioimpedance spectroscopy. We categorized the patients into two groups: those with and without protein-energy wasting based on established criteria. Subsequently, we further classified them as adequately or inadequately nourished using a bioimpedance spectroscopy flow chart designed to identify individuals requiring targeted nutritional interventions. We then compared the prevalence rates of coronary artery disease among these various groups.

Results: The prevalence of coronary artery disease among patients with adequate nutritional status, those needing nutritional monitoring, and those with insufficient nutritional status was 25.7%, 26.3%, and 26.0%, respectively. There was no statistically significant difference in the prevalence of coronary artery disease among these three groups of patients.

Conclusions: The nutritional status assessed by bioimpedance spectroscopy was not found to be correlated with the history of coronary artery disease in our hemodialysis patients.

Key words: End-stage renal disease, Bioimpedance spectroscopy, Nutritional status, Coronary artery disease

C092

Use root cause analysis techniques to improve abnormal events such as dialysis information system crashes and failure to upload instrument data

運用根本原因分析手法改善透析資訊系統當機及無法上傳儀器資料異常事件

Li-Ching Chen [1], Su-Tsai Huang[2], Chih-Chieh Shih[3] , Jun-Yao Liao[3]

陳麗菁 [1], 黃素猜 [2], 施志杰 [3], 廖俊堯 [3]

[1] Hemodialysis Room, Changhua Christian Hospital [2] Nursing Department, Changhua Christian Hospital [3] Department of Biomedical Engineering, Changhua Christian Hospital

[1]彰化基督教醫院血液透析室 [2]彰化基督教醫院護理部 [3]彰化基督教醫院醫工部

Background：

近年智慧醫療發展迅速，醫療資訊科技對病人安全維護有許多創新性應用，然而從中亦有與資訊相關的病人安全事件傳出，確保資料的正確性及維護醫院資訊系統和相關設備，是「病人安全」中的重要課題。根本原因分析為一回溯性失誤分析工具，以系統導向去分析醫療不良事件，探究錯誤發生的根本原因，進而提出具體可執行的行動計劃。

Methods：

自111年11月7日至12月17日共發生5件透析資訊系統當機及無法上傳儀器資料異常事件，經風險嚴重度評估(SAC)屬3級，利用異常事件決策樹(IDT)判斷屬系統問題，故運用根本原因分析(RCA)手法改善。先進行訪談、資料收集，藉由時間序列表、魚骨圖、原因樹等工具進一步分析並建立改善計畫，確立根本原因包括：(1)血液透析資訊VIP系統的VIC與院方web services連線過慢、(2)醫工部機房硬碟IOPS過載效能不足、(3)醫工部WEB系統未將所使用API Services造冊給資訊部，造成API無法連線、(4)醫工部系統管理員修補系統漏洞未告知透析室。針對原因進行血液透析資訊VIP系統重新建立新VM後將軟體重灌、醫工部造冊目前使用之Web API services給資訊部、硬碟升級提供伺服器可以高速運行，讓系統不會頻頻當機、與透析單位討論於臨床照護離峰時段處理，以預防資訊系統當機及無法上傳儀器資料異常事件再度發生。

Results：

對策措施改善後，自 112 年 1 月至 112 年 9 月止，發生資訊系統當機及無法上傳儀器資料異常件數 0 件，後續將此根本原因分析提報醫療科技與病人安全風險學習平台(ITPS)，並修訂 CW-5641-10_血液透析資訊系統 VIP 標準操作流程。

Conclusions：

根本原因分析法其目的在於確認根本原因預防再發生，代替責怪、懲罰的文化，由錯誤中學習尋找解決方案來建構系統概念。因此藉由 RCA 的手法並運用跨團隊合作方式，全面的檢討與改善，重新檢視修訂單位標準作業規範及執行細則，創造病人安全的環境。

Key words：

根本原因分析，透析資訊系統當機，血液透析室

C093

Uric acid is a significantly predictive factor for progression of atherosclerosis in hemodialysis patients

血液透析病患血中尿酸為進行性動脈粥狀硬化的一個重要預測因子

Kai-Ni Lee[1], Chien-An Chen[1], Jia-Rong Lin[1], Shang-Jie Liu[2]

李凱妮[1], 陳建安[1], 林佳蓉[1], 劉尚婕[2]

[1]Department of Nephrology, Tainan Sinlau Hospital, Tainan, Taiwan; [2] Institute of Nursing, College of Nursing, Kaohsiung Medical University, Kaohsiung, Taiwan

[1]台南新樓醫院腎臟科，台南，台灣; [2]高雄醫學大學護理學院護理系，高雄，台灣

Background: Hemodialysis patients are at the high risk of cardiovascular disease including stroke, ischemic heart disease, and peripheral artery disease. Cardiovascular disease is associated with atherosclerosis. Uric acid is a pro-oxidant inside the cell and induces endothelial dysfunction and associated with atherosclerosis. Patients with end stage renal disease are always with hyperuricemia due to decreasing excretion of uric acid. In this study, we evaluate the association between uric acid and atherosclerosis among hemdialusis patients in a 7-year follow-up.

Methods: This was a 7-year retrospective cohort study. Fifty-nine hemodialysis patients were enrolled. The level of atherosclerosis was measured by ankle-brachial pressure index (ABI). Baseline and changes in ABI after 7 years (ΔABI) were collected and compared with related clinical and biochemical parameters.

Results: this study included 59 patients that female was23 and male was 36. The mean age was about 56 year old. There were 19 patients with smoking and 11 patients with diabetes mellitus. The men hemodialysis duration was about 96 months. The univariate linear regression analysis showed that ΔbABI was significantly associated with 7-year averaged P, CaxP and uric acid ($r=-0.310$, $p=0.017$; $r=-0.280$, $p=0.032$; $r=-0.500$, $p<0.001$; respectively). The multivariate linear regression analysis showed that only 7-year averaged uric acid was significantly associated with ΔABI ($\beta=-0.500$, $p<0.001$) adjusted by age, DM, smoking and hemodialysis duration.

Conclusion: In the 7-year observation, uric acid plays a significant role in progression of atherosclerosis in hemoadialysis patients.

Key words: cardiovascular disease; ankle-brachial pressure index; hemodialysis

C094

The effect of exercise before hemodialysis on cardiopulmonary response
透析前運動對於心肺功能的影響

Ching-Chung Hsiao[1], Wei-Chiao Sun[1], Pei-Yi Fan[1], Ji-Tseng Fang[2], Shu-Chun Huang[3]
蕭景中[1], 孫偉喬[1], 范珮宜[1], 方基存[2], 黃書群[3]
[1.] Department of Nephrology, New Taipei Municipal Tucheng Hospital, [2.] Department of Nephrology, Chang Gung Memorial Hospital, Linkou, [3.] Department of Physical Medicine and Rehabilitation, New Taipei Municipal Tucheng Hospital.
[1.] 新北市立土城醫院腎臟科 [2.]林口長庚紀念醫院腎臟科 [3.]新北市立土城醫院復健科

Background：

Exercise therapy for patients undergoing maintenance hemodialysis (HD) delivered before dialysis makes supervised, standardized and whole-body training feasible while possessing high adherence. However, differences in cardiopulmonary response and muscle strength between pre-dialysis (pre-D) and non-dialysis (non-D) days have never been explored

Methods：

Twenty patients undergoing chronic HD were enrolled. Each participant visited twice for symptom-limited incremental cardiopulmonary exercise testing (CPET) at 1–2 h pre-D and non-D, and another twice for isokinetic testing. Blood pressure during HD following CPET was also compared with those during usual HD sessions

Results：

No adverse events occurred during any of the 80 exercise tests. In pre-D, the nadir of the ventilatory equivalent of CO2 was only slightly elevated, resting heart rate was lower, and peak systolic blood pressure was higher than in non-D. Peak V'O2 and peak torque of quadriceps showed no difference. The blood pressure profile during HD following CPET did not differ from those without prior exercise. Cardiopulmonary response and muscular strength at pre-D were comparable to those on non-D days. Additionally, exercise 1–2 h before HD did not affect change in blood pressure during HD

Conclusions：

This study established the safety and physiological profile of exercise at pre-D, providing new insights for exercise prescription.

Key words：

End stage renal disease; renal rehabilitation; muscle strength; exercise testing; dialysis

C095

Analysis and discussion of factors related to resource consumption caused by delayed hemodialysis in southern kidney disease patients

南部腎臟病患者延遲血液透析造成資源耗用相關因素分析與探討

Ku-Chung Wang[1], Te-Chuan Chen[2], Meng-HsuehWu[1], Ching-TanCheng[1], Yueh-Ting Lee[1], Shang-Chin Liao[1], Chlen-Te Lee[1]
王谷鐘[1], 陳德全[2], 吳孟學[1], 鄭晶丹[1], 李岳庭[1], 廖上智[1], 李建德[1]
Kaohsiung Municipal Feng Shan Hospital-Under the management of Chang Gung Medical Foundation、Division of Nephrology[1]
Division of Nephrology, Department of Medicine ,Kaohsiung Chang Gung Memorial[2]
高雄市立鳳山醫院-委託長庚醫療財團法人經營[1] 高雄長庚紀念醫院腎臟科[2]

Background：
本研究針對全球人口數持續成長，且人口結構高齡化，醫療照護服務的成本與效率的相關議題持續受到醫療單位關注。有鑑於末期腎臟病病患消極的接受治療，然而需接受透析治療的患者人數仍逐年提高，造成醫療支出大幅增加，與其如此，不如積極地尋求造成末期腎臟病的原因，故引發研究動機，來找出末期腎臟病病患延遲進入血液透析治療病人之特性、臨床特性、機構特性之長期趨勢，進而評估影響其醫療資源耗用與醫療療效之相關因素,期待能對於未來末期腎臟病病患醫療照護有所益助。

Methods：
本研究採以回溯縱貫性研究，利用2010年至2020年之全民健保資料庫、醫療機構檔及死亡檔、重大傷病醫療資源使用等次級資料庫分析，以進一步瞭解病患影響腎衰竭原因以避免造成永久性腎臟傷害，更可提供未來適當之透析前病患照護的指引參考，且盡快提供策略讓慢性腎臟病病患進入長期透析能得到良好的生活品質。並採用SPSS22軟體描述性統計及推論性統計(卡方、獨立樣本T檢定、複迴歸分析、Kaplan – Meier 存活分析、 Cox Analysis)，探討末期腎臟病病患延遲透析之長期趨勢，並評估人口學因子、共病症因子、醫院層級、時間特性對於其醫療資源耗用及醫療療效之影響。

Results：
透過研究分析顯示描述性統計結果延遲血液透析病人特性:2010-2020 年期間以 T2(2012-2017)年所佔人口數為 410 人最多；女性多於男性，年齡以 45-64 歲病人為主，共病症指標(CCI)以 2 分的病人居多；其中以醫學中心病人居多。 ESRD 病人延遲透析於醫療資源耗用方面研究結果比較延遲透析與非延遲透析醫療之療總費用及門診就醫次數，延遲透析病人在醫療總費用上以第一年為基準逐年比較，延遲透析病人在第二年至第三年均有明顯增加；相對於非延遲透析之病人在醫療總費用上第二年未明顯增加；第三年醫療費用明顯增加 P < .001，第四、五年醫療費用支出減少推論應該是病患病情穩定之故。分析延遲進入透析門診就醫次數結果，延遲透析病患在第二年門診就醫次數略明顯增加，第四年及第五年門診就醫次數明顯減少。157.8±0.11 次(P=0.002)、157.7±0.4 次(P< 0.001)；而非延遲透析之病患在門診就醫次數並未隨著透析時間有減少，但均不顯著。末期腎臟病病患延遲進入長期透析治療之人口學特性與死亡率增加有顯著相關方面，本研究 Cox 分析結果年齡、性別、嚴重共病症指數(CCI) 、末期腎臟病病患延遲透析年齡每增加 1 歲死亡風險增加 1.07 倍(HR=1.07，P＜0.001)；男性延遲血液透析死亡風險是女性的 1.40 倍(HR=1.408，P＜0.001)。

Conclusions：
本研究為國內首次針對末期腎臟病病患延遲透析長期趨勢之研究(2010-2020)，提供影響其醫療資源耗用及死亡存活率之相關因子，並透過不同的屬性之統計分析，雖然有健保研究資料庫之限制因素，但仍可作為後續研究之參考。

Key words：血液透析、生活品質、慢性腎臟病、存活率

C096

Access Outcomes of Periodic Outpatient Assessments in Patients with Hemodialysis

規則門診評估對血液透析病患慶管之效應

Tzu-Chen Lin[1,4], Cheng-Chieh Yen[2], Lu-Jung Yen[3], Chiang-Pei Huang[3], Tsung-Liang Ma[2], Chih-Yen Hsiao[2]

林慈珍[1,4], 顏正杰[2], 顏綠蓉[3], 黃瓊珮[3], 馬宗良[2], 蕭志彥[2]

Ditmanson Medical Foundation Chia-Yi Christian Hospital [1]Nurse Practitioner [2]Division of Nephrology, Department of Internal Medicine [3]Department of Nursing [4]Department of Nursing, Chung-Jen Junior College of Nursing, Health Sciences and Management

戴德森醫療財團法人嘉義基督教醫院 [1]專科護理師組 [2]內科部腎臟內科 [3]護理部 [4]崇仁醫護管理專科學校護理科

Background：

Hemodialysis (HD) is essential for end-stage renal disease patients. Arteriovenous accesses (AVAs), comprising fistulas and grafts, are preferred for long-term use. The efficacy of periodic outpatient AVA assessments is debated owing to patient differences and AVA complication definitions.

Methods：

Patients on HD were recruited when our specialized outpatient clinic launched. Follow-up ended at patient death, transplant, transfer, or Dec 31, 2022. The primary outcomes were the rate of AVA reconstruction and intra-graft stenting. The secondary outcome was the percutaneous angiography (PTA) rate for occluded AVAs (Figure 1).

Results：

We examined 43 patients with periodic outpatient assessments and 154 without. After matching demographics and lab data, patients with periodic assessments showed a slightly lower AVA reconstruction rate (0.18/100 patient months [pms] vs. 0.54/100 pms, $p = 0.53$). Among AVG users, those with periodic assessments had a slightly higher intra-graft stenting rate (0.4/100 pms vs. 0/100 pms, $p = 0.24$). Patients with periodic assessments had a significantly higher PTA rate (25.03/100 pms vs. 10/100 pms, $p < 0.01$, Table 1).

Conclusions：

Our study observed lower rates of AVA reconstruction, but increased rates of intra-graft stenting or PTA during periodic outpatient assessments.

Key words：

Arteriovenous access; Hemodialysis; Periodic outpatient assessments

C097

Investigating the Interplay of Depression, Anxiety, and Quality of Life in Patients with Hemodialysis: A Cross-Sectional Study

Jiu-Yun Tian[1], Tiang-Chen Chang[2], Tai-Ching Fu[3], Hsin-Yi Wu[4], Hsin-Ling Tai[5], Meei-Ju Wu[6], Jung-Fen Lee[7]
Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan

Background: End-stage kidney disease patients must regularly commute to the hospital for hemodialysis treatment. Depression and anxiety, which impact patients in terms of their quality of life, are common symptoms for patients undergoing hemodialysis.
Aim: To investigate the relationships among depression, anxiety, and quality of life in patients undergoing hemodialysis.
Methods: This study applied cross sectional research with a questionnaire survey. The enrollment period was between July 1, 2019 ~ September 30, 2023, and data were collected via a structured questionnaire from 104 hemodialysis patients. The scales applied in this study included the Hospital Anxiety and Depression Scale and the Kidney Disease Quality of Life Questionnaire. Date was analyzed using SPSS 22.0 software.
Results: The level of quality of life for hemodialysis patients was in the moderate range. The results of multiple regression analysis indicated that physical activity, depression, and anxiety were significant. Those variables, anxiety had the greatest impact on the patient's quality of life level, and the total explanatory power of the regression model was 28%.
Conclusions: This study determined that for hemodialysis patients, increased age, taking more medications, and sedentary behaviors led to more severe depression, which translated in turn to higher levels of anxiety. Among these factors, anxiety had the greatest impact on the patient's quality of life levels.
***Keywords**:* anxiety, depression, quality of life

C098

Clinical Application of Handheld Ultrasound in Hemodialysis Patients
手持式超音波於血液透析病人的臨床應用

Chia-Yen Lee, Chung-Ming Fu, Chiao-Jung Chen, Hui-Ju Kuo, Ching-I Yu, Wen-Chin Lee
李佳諺, 傅崇銘, 陳嬌蓉, 郭慧如, 俞靜儀, 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院 腎臟科

目的:
動靜脈廔管是血液透析病人的生命線，廔管的好壞不僅會影響透析時的順暢度，亦會影響穿刺上針的難易，更會影響透析效果。所以為確實掌握血液透析病人的動靜脈廔管的狀況，可借用科技產品手持式超音波予以協助監控。因其優點是非侵入性的影像檢查利器，可清晰顯示廔管血管的深度與分布、血液流速、血管直徑，並幫助評估廔管的穿刺點。又有攜帶便利，不需插電即能使用的好處，且少了連接探頭的線路，在操作不用擔心線路會纏繞到病人的肢體、可減少染汙無菌面並減少病人受檢查時的不適。

方法:
成立廔管跨科聯合照護團隊，成員包括腎臟科、心臟血管內科、心臟血管外科等三科別的醫師和血液透析治療組長、治療副組長、治療師。
執行方式:縱向聯繫流程由血液透析病人的照護治療師來啟動，當評估血液透析病人需要廔管血管超音波協助鑑別時，將個案提出由腎臟科醫師評估確認轉介原因後收案。其評估項目為廔管的血流量不足、穿刺上針困難、靜脈壓高、手臂疼痛、定期追蹤、疑高心輸出量、首次使用廔管前評估及其他(若透析病人有需要時，例如臨床懷疑副甲狀腺增生導致次發性副甲狀腺亢進時，亦可將手持式超音波擴大應用於副甲狀腺超音波掃描)。
橫向溝通則由團隊開立血管超音波檢查單安排檢查日期、時間，再由腎臟科醫師進行手持式廔管血管超音波檢查，繪製血管圖。最後由治療副組長進行無縫接軌的後續處置和列管追蹤。並藉由通訊軟體群組進行資訊分享討論。定期招開檢討會議和案例分享。

結果:
團隊運作於 2023 年 4 月開始統計到 2023 年 8 月底，共收案執行人數為 59 人，執行人次為 63 人次。執行血管種類:自體動靜脈廔管 52 人、人工動靜脈廔管 3 人、即穿型人工血管 4 人。
在執行原因裡廔管血流量不足有 23 人、穿刺上針困難有 18 人、廔管靜脈壓高有 13 人、廔管手臂疼痛有 4 人、廔管追蹤有 3 人、首次使用廔管前評估有 2 人。
經由血管超音波檢查後轉介血管內氣球擴張術(PTA)人數為 39 人(由心臟血管內科執行人數有 32 人、由心臟血管外科執行人數有 7 人)占總 PTA 人數的 25.66%。經由血管超音波檢查後成功幫助治療師更換新的穿刺位置有 20 人。擴大手持式超音波應用於副甲狀腺超音波掃描收案執行共 6 人。

結論:
經由跨科聯合照護團隊的運作，不論縱向或橫向的工作執行上日漸熟練。針對血液透析病人利用手持式超音波監測廔管功能，執行效果顯著並減少了廔管相關的急症。

關鍵字: 動靜脈廔管、手持式超音波、血液透析

C099

Utilizing cross-team diversity strategies to enhance the safety and quality of dialysis water

運用跨團隊多元策略改善透析用水的安全及品質

Yu-Chien Liu[1],We-iting Wang[1],Ting-Ting Tasi[1], Pei-Shan Tasi[1], Tzu-Chi Shih[1], Te-Hui Kuo[2], Chin-Chung Tseng[2]

劉玉倩[1], 王偉婷[1], 蔡婷婷[1], 蔡佩珊[1], 石子琦[1], 陳珍緯[1], 郭德輝[2], 曾進忠[2]

Department of Nursing[1], Division of Nephrology[2], National Cheng-Kung University Hospital, College of Medicine.

護理部[1],腎臟科[2],國立成功大學醫學院附設醫院

背景:透析流速標準設定在500cc/min，每次透析4小時中，約需要120L~200L的水，每周總用水量約超過150噸，所以透析用水的處理是非常重要的，透析水質的監測及檢測也是不可或缺的一環。成大醫院透析室地理位置於住院大樓3樓及9樓，分別各有獨立RO系統。9樓RO系統可供應15口使用點，3樓有兩套A及B系統，分別供應3樓透析室及二、三樓層加護病房使用，總共可供應 210口使用點。因應新冠肺炎透析病人隔離時的透析需求，共有6台移動式RO機，每月採水總杯數共約50~60杯。在成大醫院，透析用水菌落數的採檢由護理師操作，與感控醫檢師相配合完成每月水質監測。護理人員臨床護理業務繁忙加上人力需求缺乏的情況下，每月需挪移出人力執行採水業務，往往會造成人員調度的困境及臨床工作的負荷。

事件描述:於2022年4月10日，護理人員進行例行性水質採檢時，由感控醫檢師的培養報告中顯示，機房內B系統供應的RO使用點菌落數異常升高，超出CDC規定的行動標準值50cfu/ml(圖一)，除了依照標準作業流程外(圖二)，同步報告單位主管、工務室相關人員及感管中心，並緊急商研RO系統的二次管消。也立即回朔前一天透析病人生命徵象外、同時監測當天及追蹤當班當次所有透析病人的生命徵象、受影響區域及未受影響區域病人當月及前一個月抽血白血球數值(圖三)，皆無異常情況。研擬召開跨團隊會議並成立院層級「血液透析室RO管理小組」。

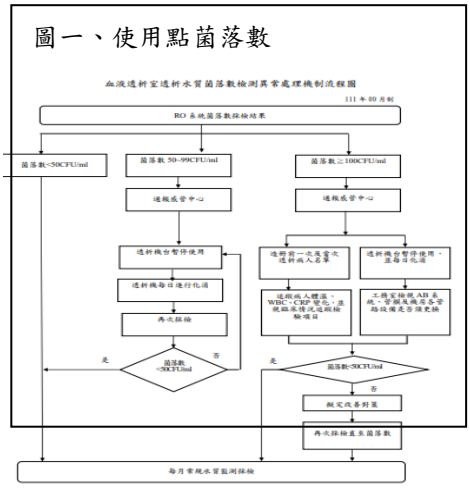
結果:「血液透析室RO管理小組」包括腎臟科、護理部、工務室、感染管制中心及病理部。由跨科部共同檢視相關作業標準並進行檢討改善；每三個月召開跨團隊會議、討論透析用水的安全及監測細則、修改標準作業書、增加採水作業點等，以更客觀角度監測水質安全。每月採水作業由一名感管醫檢師及二名透析室護理師共同完成，另一名感管醫檢師協助菌落數的分析，工務室規則及密切地進行必要的管路消毒及管膜的替換，共同維護透析病人透析水質的安全及保障。

結論: 透析用水的專業領域觸及工務室、感管中心及醫檢師。跨團隊的專業及多元策略，不僅提升醫療品質及病人安全，更可減少不必要的醫療資源及人事成本耗費。

採水口	菌落數值
RO 組機-2 Tank	29
RO 組機-2 供應 3F 超過後 RO 水	17
RO 組機-2 供應 3FUV 燈入 RO 水槽前	26
RO 組機-2 供應 2F 超過後 RO 水	11
RO 組機-2 供應 2FUV 燈入 RO 水槽前	50
D2 in	56
C1 in	20
C3 in	36
C5 in	24
E8R Use	21

圖二、透析水質菌落數檢測異常處理數值

圖一、使用點菌落數



WBC of CDE and non-CDE group of patients in 202203~202204

Patient group	CDE	nonCDE	Comparing CDE and nonCDE P-value*
Number of patients	68	85	
202204 WBC ($x10^3$)	6.26±4.31	5.89±4.00	0.262
202203 WBC ($x10^3$)	6.05±4.85	5.82±3.54	0.499
Comparing 202204 and 202203, P-value**	0.135	0.717	

*t-test; **paired t-test

機　　圖三、病人 WBC

關鍵字: 跨團隊、透析用水、菌落數

C100

Integrating vascular access surveillance with clinical monitoring for stenosis prediction

整合血管通路定期追蹤合併臨床監控來預測血管通路狹窄

Chung-Kuan Wu [1,2], Chia-Hsun Lin [2,3]
吳重寬 [1,2]，林佳勳 [2,3]
[1] 新光吳火獅紀念醫院腎臟內科 [2] 輔仁大學醫學院 [3] 新光吳火獅紀念醫院心血管外科

Background: To assess the feasibility of integrating 3-month vascular access blood flow (Qa) surveillance with routine clinical monitoring for predicting vascular access stenosis in chronic hemodialysis patients.

Methods: In this retrospective study, chronic dialysis patients with arteriovenous fistula(AVF) or arteriovenous graft (AVG) were included, and all patients received quarterly Qa surveillance in 2017. The results of Qa surveillance were confirmed by thorough physical examination. Predictive performance of Qa surveillance models in detecting stenosis in patients with AVF or AVG was evaluated.

Results: Of 397 included patients, 336 had AVF and 61 had AVG. In 2017; 106 percutaneous transluminal angioplasty (PTA) procedures were performed in patients with AVF, and 63 PTA procedures were conducted in patients with AVG. The results revealed that similar predictive performance of surveillance models using absolute Qa threshold of < 500 or < 400 mL/min, in predicting stenosis patients with AVF. Qa surveillance models for patients with AVF had significantly higher accuracy than those for patients with AVG. Furthermore, the relative threshold, defined as Qa < 1000 mL/min and a 25% decline in Qa, did not affect predictive performance of Qa surveillance models.

Conclusion: Qa surveillance models using threshold of < 400 and < 600 mL/min, followed by thorough physical examination, had accuracy of 91.54% and 72.15% in predicting stenosis patients with AVF and AVG, respectively. These two Qa surveillance models may be integrated with routine clinical monitoring to improve early detection and treatment of stenosis at hemodialysis settings.

Key word: access blood flow surveillance, arteriovenous fistula, arteriovenous graft, clinical monitoring

關鍵字:血管通路流量定期追蹤、自體動靜脈瘻管、人工動靜脈瘻管、臨床監控

C101

A collaborative model between dialysis clinics and a hospital center improves the quality of vascular access care and intervention for hemodialysis patients

透析診所與醫院間的合作模式改善血液透析患者的血管通路照護與介入治療品質

Chung-Kuan Wu [1,2,3], Yu-Wei Fang [1,3], Chia-Hsun Lin [3,4]
吳重寬 [1,2,3]，方昱偉 [1,3]，林佳勳 [3,4]
[1] 新光吳火獅紀念醫院腎臟內科 [2] 新光吳火獅紀念醫院透析血管通路管理中心 [3] 輔仁大學醫學院 [4] 新光吳火獅紀念醫院心血管外科

Background: This study reports the outcomes of a collaborative program between dialysis clinics and a referral hospital, which consisted of clinical monitoring and supplementary routine surveillance, for improving the quality of vascular access care.

Methods: This retrospective observational study was performed at five dialysis clinics as part of a 2-year collaborative program (2019–2020) in conjunction with a hospital-based dialysis access management center. A total of 392 hemodialysis patients (arteriovenous fistula [AVF], n = 339 and arteriovenous graft [AVG], n = 53) were included. Outcome measures included the prognosis of vascular access, clinic satisfaction, and referral rate to the hospital.

Results: Increased vascular access flow was observed and critical flow events decreased from the first to the second year (AVF: 18.3% vs. 12.7%, $p < 0.001$; AVG: 26.2% vs. 20.1%, $p = 0.30$). There were fewer percutaneous transluminal angioplasty events in the AVG group (0.77 per person-year vs. 0.51 per person-year, $p = 0.005$). New AVF or AVG creation events also remained low. All dialysis clinics were satisfied with the program. The overall referral rate from the participating clinics increased (65.7% vs. 72.0%) during the study period independently of the physical distance between the dialysis clinic and the hospital.

Conclusion: The collaboration between dialysis clinics and a referral hospital for improving the quality of vascular access care was successful in this study, and the model can be used by other clinics and hospitals looking to improve care coordination in dialysis patients.

Key word: arteriovenous shunt, graft occlusion, renal dialysis, access flow, vascular access patency

關鍵字:動靜脈瘻管、人工瘻管阻塞、腎臟透析、血管通路流量、血管通路通暢度

C102

Online OCM may be a reliable approach for measurement of adequacy of intermittent hemodialysis in acute kidney injury

Yi-Hsi Lee, Ruei-Syuan Bai, Shih-Han Kao, Paik-Seong Lim
李怡錫，白睿軒，高詩涵，林柏松
童綜合醫院

Background:
Assessment of adequacy of intermittent hemodialysis (IHD) is based upon urea kinetic models for calculation of single pool Kt/Vurea (Kt/V), with 1.2 accepted as minimum adequate clearance. Online conductivity monitoring (OCM) using sodium flux as a surrogate for urea allows for the repeated non-invasive measurement of Kt/V on each HD treatment. In patients suffering from acute renal injury (AKI), adequacy of IHD was assessed using Kt/V require volume of distribution of urea, which is highly variable in AKI. Therefore, simpler methods are needed to assess adequacy of IHD in AKI. In this study we assessed correlation of online urea clearance (OCM) with urea reduction ratio (URR) and blood based Kt/V and to determine if OCM could be a simpler means to assess the delivered dose of IHD.

Methods :
This cross-sectional study recruited 15 patients who received IHD in intensive care units. A pre and post-dialyzer measurement of the conductivity is performed by two mutually independent temperature-compensated conductivity cells equipped with Fresenius 4008 S® dialysis machines. Blood based KT/V and urea reduction were measured by a single-pool calculation using immediate post-treatment sampling. Values of calculated Kt/V and simultaneously obtained online Kt/V were compared.

Results:
There was a statistically no significant difference between calculated Kt/V and online Kt/V. The mean blood based calculated Kt/V was 1.04 ± 0.65, and mean online Kt/V 0.87± 0.38 (p = NS). In addition, there was significant correlation between calculated blood based Kt/V, URR and online Kt/V.

Conclusions:
Online conductivity monitoring (OCM) results adequately estimates dialysis efficiency compared to calculated blood based Kt/V Online OCM may thus provide a simplified and practical mean of assessing adequacy of IHD in patients with AKI.

C103

Assessing CAD Complexity and Mortality Risk in ESKD Patients Undergoing PCI

陳倩[1], 林志慶[2], 黎思源[3]
台北榮總腎臟科

Background：
Coronary artery disease (CAD) poses a substantial clinical challenge in the management of dialysis patients, particularly those with end-stage renal disease (ESRD) undergoing either hemodialysis or peritoneal dialysis. The heightened risk of CAD in this population stems from a complex interplay of both cardiovascular risk factors and distinctive factors associated with kidney disease.

Methods：
We embarked on a retrospective medical record review study. Our primary objectives include the analysis of the SYNTAX Score, a validated tool for assessing CAD complexity, and the examination of 30-day mortality rates within a cohort of 2000 ESKD patients at our medical center between 2010 and 2023. Our research pursuits encompass risk factor analysis, predictive modeling, and an in-depth exploration of longitudinal outcomes among ESKD patients who have undergone percutaneous coronary intervention (PCI).

Results：
Within our cohort, approximately one in ten ESKD patients underwent PCI intervention. In comparison to patients with preserved kidney function or those with chronic kidney disease (CKD) before initiating dialysis, ESKD patients exhibited significantly elevated SYNTAX Scores and a higher rate of primary PCI failure. Moreover, our findings revealed a markedly increased risk of 30-day mortality among ESKD patients who had undergone PCI.

Conclusions：
Our study underscores the formidable challenges posed by CAD in the ESKD population, emphasizing the need for tailored approaches to CAD risk assessment and management in this unique patient group. The heightened SYNTAX Scores and increased 30-day mortality risk among ESKD patients who received PCI demand focused attention on optimizing CAD care in dialysis patients. Future research should explore strategies to improve risk prediction models, refine therapeutic interventions, and ultimately enhance the prognosis and quality of life for individuals navigating the intricate intersection of CAD and end-stage renal disease.

Key words：
CAD, ESKD, PCI

C104

Association of Cardiac Biomarkers of Heart Failure and Iron status in Hemodialysis Patients

血液透析患者心臟衰竭及鐵營養狀況與心肌生化標記的關係

Ming Ying Wu, Chan Hsu Chen, Tsai-Kun Wu, Paik Seong Lim
Division of Renal Medicine, Tungs' Taichung Metroharbour Hospital, Taichung, Taiwan

Background

CKD is an independent risk factor for heart failure. Iron dysmetabolism potentially contributes to heart failure, but this relationship has not been well characterized in CKD. Our aim is to investigate the association between iron status and markers of heart injury such as cardiac troponin-I (hs-cTnI), a marker of cardiomyocytes injury and N-terminal prohormone of B-type natriuretic peptide (NT-proBNP). Besides, we further explored the relationship between cardiac troponin and body composition of these patients

Methods and Patients

In this cross-sectional analysis of 292 hemodialysis patients, we measured serum iron status biomarkers indicating iron storage (ferritin), iron transport (transferrin saturation) and iron demand (soluble transferrin receptor). Impaired iron status was defined as ferritin <100 ng/mL or transferrin saturation <20%. Siemens Atellica IM high-Sensitivity (hs-cTnI) assay performed.

Results

Hemodialysis patients had markedly elevated serum cardiac hs-troponin-I levels compared with age-matched normal controls. There was no association of serum iron markers and hs-TnI levels in our HD patients. Serum NT-proBNP and beta-2 microglobulin significantly correlated with serum hs cTnI levels ($p<0.001$ and $p<0.028$ respectively). In addition, we found that serum albumin, lean tissue mass index, percent lean tissue mass and body cell mass were inversely correlated to serum hs-TnI levels.

Conclusion

There was no association of serum iron markers and hs-TnI levels. On the other hand, rerum NT-proBNP and beta-2 microglobulin significantly correlated with serum hs cTnI levels.

C105

Impact of national hepatitis C virus (HCV) elimination policies and actions on HCV micro-elimination in hemodialysis population

Ming-Yan Jiang[1,2], Yi-Chan Lee[3], Tsung-Hsueh Lu[2]

[1] Renal Division, Department of Internal Medicine, Chi Mei Medical Center

[2] Department of Public Health, College of Medicine, National Cheng Kung University

[3] Institute of Health Policy and Management, College of Public Health, National Taiwan University

Background

Despite efforts to eliminate hepatitis C virus (HCV), many patients diagnosed with HCV infection remain untreated. We aim to evaluate the impact of HCV elimination policies and actions in the direct-acting antiviral (DAA) era on HCV micro-elimination in hemodialysis population in Taiwan.

Methods

We identified 4,783 HCV-infected hemodialysis patients from Taiwan National Health Insurance Research Database (NHIRD) between 2015 and 2021. Hemodialysis was defined by claim data code, and HCV infection was defined by a positive HCV RNA test. Treatment initiation was defined as at least 7 days of DAA prescription and was identified by the order code for DAA medications. We calculated annual treatment initiation rate from 2017 to 2021 as the number of new treatment initiations divided by the number of existing untreated HCV-infected patients in that year. Cumulative treatment initiation rate was calculated as cumulative number of treatment initiations divided by the total number of HCV-infected hemodialysis patients.

Results

Between 2017 and 2021, 3,511 (73.4%) out of 4,783 hemodialysis patients with viremic HCV received DAA therapy. We observed no differences in treatment initiation rates between sexes, but older people were less likely to initiate treatment. Additionally, while treatment initiation rate did not differ between dialysis unit-affiliated care center levels, we observed lower treatment initiation rates in dialysis facilities located in metropolitan areas. Before 2018, the annual treatment initiation rate is low, with 3.0% and 10.2% of HCV-infected hemodialysis patients receiving DAA treatment in 2017 and 2018, respectively. The annual treatment initiation rate scaled up to nearly 50% in 2019 and continued to rise in 2020. However, annual treatment initiation rate declined in 2021, with only nearly one-third of hemodialysis patients with viremic HCV receiving DAA therapy. Overall, the cumulative treatment initiation rate before 2018 was only 10% although DAA was first approved in 2015 and reimbursed by Taiwan's National Health Insurance in 2017 in a limited number of patients. With the lifting of treatment restrictions, the cumulative treatment initiation rate scaled up to nearly 50% in 2019 and rose to 73.4% in 2021.

Conclusions

With the implementation of a series of national HCV elimination policies and actions, the treatment initiation rates scaled up to nearly 50% in 2019 in Taiwan. However, as of 2021, more than a quarter of HCV viremic hemodialysis patients remain untreated. Strategies to improve treatment rates are needed to achieve the goal of HCV micro-elimination in hemodialysis facilities in Taiwan.

Key words: hepatitis C virus (HCV), micro-elimination, hemodialysis

C106

Prevalence of Peripheral Artery Disease and its Risk Factors in Patients Undergoing Hemodialysis

血液透析病人週邊動脈疾病盛行率及危險因子分析

Wan-Chuan Tsai, Yen-Ling Chiu, Hon-Yen Wu, Ju-Yeh Yang, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Yu-Sen Peng, Shih-Ping Hsu

蔡萬全 邱彥霖 吳泓彥 楊如燁 徐愷翔 白玫芬 董奎廷 彭渝森 徐世平

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: Peripheral artery disease (PAD) is common and contributes to an increased risk of morbidity and mortality in patients with end-stage kidney disease (ESKD). Early detection of PAD is important but it remains underdiagnosed and undertreated in dialysis population. The aim of the study was to investigate the prevalence of PAD and its risk factors in patients undergoing hemodialysis.

Methods: In a quality improvement program, a hospital-based survey of PAD was conducted in patients with ESKD who underwent maintenance hemodialysis therapy. A total of 288 patients received ankle-brachial index (ABI) measurements during hemodialysis therapy. PAD was defined by ABI value less than or equal to 0.9. Demographic, clinical, and laboratory parameters were collected. Multivariate logistic regression analyses were performed to assess risk factors related to PAD.

Results: Mean age of the study participants was 67 ± 10 years, 183 patients (64%) had diabetes, and 60 patients (21%) had heart failure. Among the participants, 36% met the PAD criteria, and only 2% had ABI value ≥ 1.3. In univariate analysis, factors associated with PAD were older age, shorter vintage, history of heart failure, left ventricular hypertrophy, stroke, diabetes mellitus, poorer Karnofsky performance scale, antithrombotic agent use, use of arteriovenous fistula, lower blood pressure (BP) level, larger cardiothoracic ratio, higher white blood cell count, and higher glucose level. Multivariate logistic regression analyses showed that patients with history of heart failure (odds ratio [OR] 3.0, 95% CI 1.4-6.3, P<0.01), stroke (OR 2.5, 95% CI 1.1-6.0, P=0.03), diabetes mellitus (OR 3.6, 95% CI 1.7-7.6, P<0.01) or poorer Karnofsky performance scale (OR 3.5, 95% CI 1.8-6.9, P<0.01) had an increased risk, and those with higher pre-dialysis diastolic BP (OR 0.7, 95% CI 0.6-0.9, P<0.01) had a lowered risk for PAD.

Conclusion: PAD is common in hemodialysis patients, and those with heart failure, stroke, diabetes mellitus or poorer functional status are more likely to have PAD. In contrast, those with higher diastolic BP are less likely to have PAD. Detection of PAD by means of ABI measurements during hemodialysis therapy is a simple and effective method to overcome underdiagnosis of PAD in this population.

關鍵字：踝肱指數、血液透析、週邊動脈疾病、盛行率、危險因子。

Key words: ankle-brachial index; hemodialysis; peripheral artery disease; prevalence; risk factors.

C107

Precision smart medical system integrates digital hemodialysis system management and application:Experience from a Medical Center

精準智慧醫療系統整合數位化血液透析系統管理與運用:某醫學中心經驗分享

Chia-Ling Tu[1], Rou-Yu Sung[1], Hsin-Ling Tai[2], Chiung-Yu Shih[3], Jung-Fen Lee[4]

涂嘉玲[1] 宋柔郁[1] 戴辛翎[2] 施瓊玉[3] 李榮芬[4]

[1]Taipei Veterans General Hospital Nurse, [2]Head Nurse, [3] Assistant Head Nurse, [4]NursingSupervisor

臺北榮民總醫院[1]護理師,[2]護理長,[3]副護理長,[4]督導長

Background：

With the continuous advancement of medical technology,we have entered a new era of precision smart medical systems,including the management and application of digital hemodialysis systems.Research in this field aims to enhance the efficiency and safety of hemodialysis treatments to improve patients' quality of life.This study explores the integration of digital hemodialysis system management and application to achieve a high-precision smart medical system.

Methods：

We create daily and weekly schedules, connect with inpatient laboratory data, body weight, and vital signs, allowing healthcare personnel to have a clear understanding of the patient's condition within a single system without the need to switch pages or constantly enter login credentials. We use MongoDB database to store data and leverage popular technologies such as HTML, NodeJS, Socket, etc., to seamlessly integrate and implement the interface between physiological data and dialysis machines. We also integrate with the Hospital Information System (HIS) server-side, updating records within the NIS, including electronic signature integration.

Results：

Our results augment the quality of healthcare administered during hemodialysis and mitigate the risk of human errors. This enhancement is achieved by minimizing paper transcription errors, enabling automated recording through streamlined data selection, and obviating the necessity to navigate multiple web pages and input passwords concurrently, thereby diminishing workload. Furthermore, it facilitates the real-time receipt of updated medical orders and test reports.

Conclusions：

By leveraging smart healthcare technology, we have successfully developed a high-precision intelligent healthcare system. This research showcases the transformative potential of integrating advanced technology into healthcare processes, leading to improved efficiency and accuracy in the context of hemodialysis, ultimately enhancing patient care. This innovation not only streamlines administrative tasks but also contributes to improving patient outcomes and safety.

Key words：

Hemodialysis、Precision smart medical system

C108

Implementing Screening Questionnaires and a Fish Bone Diagram-Based Program to Enhance the Ability of Hemodialysis Dry Body Weight Education in Hemodialysis Nurses

Jenn Yeu Wang[1, 2, 3, 4,5]; Yu Ting Tsai[1,2]; Chun Ju Chien[1,2]; Shiau jing Lin[1,2]
王震宇[1, 2, 3, 4, 5], 蔡鈺婷[1,2], 簡君如[1, 2], 林曉菁[1, 2]
[1.]Taipei City Hospital, Zhongxiao campus
[2.]University of Taipei
[3.]National Yang Ming Chiao Tung University
[4.]Taipei Medical University
[5.]Fu Jen University
[1.] 台北市立醫院忠孝院區 [2.] 台北大學 [3.] 國立陽明交通大學 [4.] 台北醫學大學 [5.] 輔仁大學

Background：
Dry body weight evaluation to detect high and low hydration status is paramount in daily hemodialysis practice. Our aim is to implement screening questionnaires and fish bone diagram-based program to improve the ability of dry body weight education of hemodialysis nurses.
Methods：
This study began with screening questionnaires of educational test about dry body weight education. Subsequently, teams composed of nurse faculty were evaluated for three domains of dry body weight evaluation, such as hemodialysis nurse's knowledge and education skills on dry body weight, body weight assessment methods and body weight assessment tools. Fish bone diagram was implemented with improvement of knowledge and skills of dry body weight evaluation of nurse faculty, methods of dry body weight evaluation, machine for dry body weight evaluation, tools of dry body weight evaluation, environment of dry body weight evaluation, and process of dry body weight evaluation.
Results：
The screening questionnaires revealed the scores of ability of dry body weight education tools and methods are low. Fish bone diagram was completed and presented to improve the ability of dry body weight education of hemodialysis nurses with dry body evaluation education sheet, poster and everscam education software. In addition, suggestions for improving the ability of dry body weight education include inclusion of nutrional staff involvement, post- dialysis cardiac echo for inferior vena diameter, DEXA for body composition evaluation, and selection of topics of food salt and water content, techniques and environment of dry body weight evaluation with bioimpedance, upper arm anthropometry.
Conclusions：
Accurate evaluation of dry body weight by clinical evaluation, methods and tools not only can prevent hemodialysis patients from deterioration of cardiopulmonary function and the chance of emergency dialysis due to high hydration status but also prevent patients from hospitalization due to shock and thrombotic complications due to low hydration status, and therefore reduce their medical costs and improve patient satisfaction and trust in the hospital.

Key words：
Dry body weight, Hemodialysis, fish bone diagram, questionnaires

C109

Valvular Heart Disease in Patients with End-Stage Renal Disease: Prevalence, Clinical Manifestations, and Prognosis

末期腎臟病患者之瓣膜性心臟疾病盛行率、臨床特徵及相關預後探討

Wan-Ching Lee[1] Ying-Hwa Chen[2, 3] Chih-Ching Lin[1, 3]

李宛靜[1]，陳嬰華[2, 3]，林志慶[1, 3]

[1] Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan; [2] Division of Cardiology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan; [3] School of Medicine, National Yang Ming Chiao Tung University, Taipei, Taiwan

[1]台北榮民總醫院內科部腎臟科及[2]心臟內科，[3]國立陽明交通大學醫學系

Background：

With the aging population, there has been a rising trend in the prevalence of valvular heart disease (VHD) worldwide. Chronic kidney disease (CKD) is now widely recognized as a significant risk factor for mortality in patients with VHD. The American College of Cardiology has reported that up to 30% of VHD patients have CKD, while the KDIGO guidelines indicate that 14% of patients on long-term dialysis also suffer from VHD. Furthermore, among hemodialysis (HD) patients, severe aortic stenosis (AS) have a significantly poorer prognosis.

Methods：

We conducted a retrospective analysis of 100 cases of HD patients at a single center between 2016 and 2023. Clinical, laboratory data and heart echo were collected and reviewed. We categorized patients into groups based on different types of VHD. Continuous and categorical variables were compared using Mann-Whitney U test and Pearson's chi-squared test. Overall survival was presented with Kaplan-Meier method and using log-rank test to compare between groups.

Results：

In our cohort, the gender distribution was balanced, with approximately half of the patients over 65 years old. The primary results of the first heart echocardiogram in these patients revealed that 74% of them had left-sided VHD, with 6%, 42%, 0%, and 70% having aortic stenosis (AS), aortic regurgitation (AR), mitral stenosis (MS), and mitral regurgitation (MR), respectively. The overall mortality rate for all patients was 42%, with a notably high mortality rate of 66.7% observed in patients with AS, which was significantly different from those without AS.

Conclusions：

Our study has demonstrated a higher prevalence of VHD among Taiwanese HD patients compared to previous large-scale studies. Furthermore, our findings reaffirm the conclusion that individuals with AS have a significantly elevated risk of mortality.

Key words：

End-stage renal disease; Hemodialysis; Valvular heart disease; Aortic stenosis

C110

The effects of management on improving intradialytic hypotension among patients with renal failure: A Systemic Review

改善腎衰竭患者血液透析中低血壓之處置成效探討-系統性文獻回顧

Hsiao-Ping Chang[1], RN, Hua-Shan Wu[2], Ph.D, Huan-Sheng Chen[3], MD
Tseng Han Chi Hospital[1], Asia University[2], An Hsin Clinic[3]
張小平[1], 吳樺姍[2], 洪思宏[3]
曾漢棋綜合醫院[1], 亞洲大學[2], 曾漢棋綜合醫院[3]

Background:

透析中低血壓為血液透析治療最常見之合併症，造成透析劑量不足等不良結果，了解透析中低血壓的有效處置，有助於及時改善病人不適症狀，減少對透析治療的影響，進而改善治療結果及生活品質；針對腎衰竭患者改善血液透析中低血壓發生率多元處置之成效探討，進行實證研究文獻之分析與統整，並提出綜合性結論報告，可了解透析中低血壓的有效處置，有助於及時改善病人不適症狀，減少對透析治療的影響，進而改善治療結果及生活品質。

Methods:

依系統性文獻回顧之步驟，使用 intradialytic hypotension, treatment/intervention/management, patients with renal failure 關鍵字，搜尋 Cochrane Library、PubMed、MEDLINE Ultimate、CINAHL Ultimate 英文電子資料庫，與台灣碩博士論文系統資源、Airiti Library 華藝線上圖書館中文資料庫，排除不符研究主題與重複之文獻，採用 CASP 進行文獻品質評估，納入八篇探討透析中低血壓處置之研究，進行系統性回顧；文獻搜尋時間至 2023 年 3 月 31 日為止。

Results:

統整八篇研究結果顯示五項處置可達改善透析中低血壓成效，包括：口服補充 L-carnitine 4200 毫克/每週，且用藥時間 12 週以上；使用壓力彈性襪或間歇性氣動腿部加壓裝置於下肢加壓 20-45 mmHg 促進血液回流；使用穴位灸貼於二側 K11(湧泉穴)與 CV4(關元穴)；或透析中輸注 Mannitol 25 克/小時，皆可減少透析中血壓下降或低血壓發生。

Conclusions:

五篇實證研究顯示具成效之介入處置，可作為醫護人員處理透析中低血壓事件發生時之參考。

Key words:

透析中低血壓、治療/介入/處置、腎衰竭病人

C111

Implementing a Multidimensional Integrated Care Model for Kidney Disease to Achieve Sustainable Development Goals

執行多面向整合性的腎臟病照護模式以落實永續發展目標

Ching-I Yu, Shu-Kuan Kuo, Ya-Pei Yu, Chien-Hsiu Liu, Chiao-Jung Chen, Ting-Yu Chiou, Wen-Chin Lee

俞靜儀 郭淑冠 游雅珮 劉建秀 陳嬌蓉 邱鼎育 李文欽

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital

高雄長庚醫院內科部 腎臟科

Background：

2030 年聯合國永續發展議程，內容包含 17 項永續發展目標（sustainable development goals, SDGs）與其下 169 項指標，其涵蓋：經濟成長、人、地球、和平、夥伴關係等五個面向，期望結合政府機構與民眾的力量，使地球能永續發展（United Nations, 2015）。以人的意涵, 強調社會發展，使所有人能平等及有尊嚴地處於健康狀態並發揮潛能。永續發展目標三:人類健康與福祉，確保所有年齡層健康的生活,涵蓋(1) 生命周期健康（孕/產婦、新生兒、兒童及老人）； (2)傳染性與非傳染性疾病及其危險因子（如物質濫用、化學危害與污染）; (3)全民健康覆蓋；(4)健全健康照護體系。研究指出：當醫療的可觸及性愈廣，慢性病合併及高血壓、中風死亡率則愈低；透過社區、以人為中心的照護提升是實踐永續發展目標。

Methods：

1. 腎臟科血液透析室在新冠疫情期間成立透析室疫苗快打部隊，鼓勵高危險族群透析病人在透析到院時接受 COVID-19 疫苗注射，提升疾病防禦力。落實永續發展目標 3.3 對抗傳染疾病。2. 腎臟科慢性腎臟病衛教團隊主動連結社區衛生機構，辦理健康保健講座，強化民眾健康識能程度，內容涵蓋落實落實永續發展目標 3、6 與 11。3. 申請長庚醫院公益活動經費，推展偏鄉醫療選擇平權活動，落實永續發展目標 11。4. 腎臟科血液透析室舉辦透析腎友技藝分享，提升腎友賦能信心，促進腎友心理健康與福祉，落實永續發展目標 3.4。

Results：

1. 2021/6-2022/1 共協助 742 位透析病人完成第三計疫苗施打，施打率達 84.5%。
2. 結合仁武鄉衛生所、糖尿病協會辦理六場腎臟保健衛教講座，服務 250 名社區民眾。
3. 腎臟科申請偏鄉公益活動，分別在屏東瑪家鄉、來義鄉、杉林鄉及甲仙鄉，宣導腎臟保健及透析治療模式的選擇，讓偏鄉民眾有醫療平等權利及疾病盡早發現，服務民眾約 300 人。
4. 邀請腎友國際知名剪紙大師及手作坊老師與民眾作品互動，參加民眾熱烈。

Conclusions：

本文主要探討如何以永續發展目標（SDGs）的理念，促使醫院、公共機構和私營部門建立合作機會，積極參與健康促進活動。具體而言，透過實踐 SDGs 的概念和策略，我們致力於實現民眾、醫療體系和國家經濟的永續三贏，從而創造更為持久的共好局面。

Key words：

慢性腎臟病、健康與福祉、永續發展目標

C112

Factors Associated with Repeated Percutaneous Balloon Angioplasty in Hemodialysis Patients with Dysfunction of Arteriovenous Fistula

血液透析病人廔管失能需重複經皮氣球血管擴張術相關因素探討

Chi-Ping Yeh, Ching-I Yu, Kuo Shu-Kuan, Chiao-Jung Chen, Chung-Ming Fu, Wen-Chin Lee
葉季萍 俞靜儀 郭淑冠 陳嬌蓉 傅崇銘 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院內科部 腎臟科

Background：
透析廔管是血液透析患者的生命線。自體動脈靜脈廔管（AVF）仍然是血液透析最首選的血管通路，其特點是感染風險低，住院次數少，生活品質更好，患者預期存活率較高。統計某醫學中心近 3 年因廔管失能轉介進行動靜脈廔管的經皮氣球血管擴張術(percutaneous transluminal angioplasty, PTA)109 年 PTA 人次 243(2.15%)、110 年 315(2.79%)，111 年 316(2.64%)，2023 年至今已達 245(3.14%)人，非因照護品質越來越差，而是藉由醫療團隊早介入處置，增加 PTA 成功率並減少病人的疼痛感。

Methods：
統計近 2 年 PTA 的病人透析年資、年齡、PTA 次數、瘻管型態、進行 PTA 處置原因、處置科別及檢驗室報告，Independ T-Test、ANOVA 及 Logistic 預測分析進行相關性分析。

Results：

一、統計 111 年至今透析病人進行 PTA 266 人，男、女性各為 133 人（50%）病人平均年齡 65.9±11.3 歲，平均透析年資 8.5±7.9。執行處置 483 人次，平均 PTA 介入處置次數 1.7±1.2 次，處置一次有 166 人(62.4%)、二次 45 人(16.9%)、三次以上佔 55 人(20.8%)。廔管型式以自體動脈靜脈廔管（AVF）74.8 最多，人工血管佔 21.8%、長期性導管暫 3.4%。執行 PTA 原因以阻塞為主 39.7%，其次狹窄 28.2%、血流量不足 23.4、靜脈高壓 6.3%。處理科別以心臟血管內科佔 41.7 居多，其次是放射科 31.6%、心臟外科 25.6%。二、ANOVA 相關分析:PTA 次數與廔管型式（F:6.98， p 值<0.005）、Pearson 相關分析:介入 PTA 處置的原因與處置科別（r:0.18， p 值<0.005），皆達顯著相關。Logistic 回歸分析顯示，廔管型式是重複 PTA 之預測因子（r:0.16，p 值= 0.07)。三、將 PTA 次數分二組(一次及處置 2 次以上)以獨立樣本 t-test 分析顯示，檢驗數據白血球(T:1.96，p 值= 0.05)及血磷值(T:2.45，p 值= 0.01)有顯著差異。

Conclusions：
廔管型式及失能原因是廔管重複 PTA 的主要因素相關，依透析廔管照護指引藉由跨團隊合作、選擇適當的廔管、廔管成熟度評估及定期超音波監測評估機制是避免廔管失能關鍵因子。

Key words：
液透析病人 廔管失能 經皮氣球血管擴張術

C113

Health literacy, self-efficacy, and health outcomes of patients undergoing hemodialysis: Mediating role of self- management

血液透析病人健康識能、自我效能對健康結果之影響：自我管理的中介效果

Shu-Hua HSU[1], RN; Yu-Li LIN[2], MD; Ying TSAO[3], PhD

徐淑華[1] 林于立[2] 曹英[3]

Division of Nephrology, Hualien Tzu Chi Hospital[12]

Department of Nursing, Tzu Chi University [3]

佛教慈濟醫療財團法人花蓮慈濟醫院腎臟內科[12] 慈濟大學護理學系[3]

研究目的：

全球末期腎臟疾病（ESRD）之盛行率居高不下，病人首選的治療方式是血液透析(HD)；透析病人因疾病和治療產生的併發症，進而需面臨生理、心理及社會等壓力與衝擊，照護上若能充分掌握病人的個人特性，瞭解其健康識能、自我效能和自我管理的狀況，分析變項對病人身心健康狀態的關係，應能為病人提供未來具個別化及適切性的照護措施。

研究方法：

本研究採橫斷性相關性研究設計，於東部某醫學中心，對接受門診血液透析治療（含）三個月以上 200 位病人，進行基本資料及四份結構性量表的調查；研究工具包括：健康識能（BHLS）、自我效能（PKDSMS）、自我管理（HDSMI）、及身心健康狀態（SF-12v2）。

研究結果：

於人口學及疾病屬性上：男性居多、平均年齡六十歲以上、無工作者及月收入低於兩萬者居多、共病以高血壓、糖尿病、心臟疾病為前三名。這些基本變項中除了葷素之飲食型態、自備或外食之飲食習慣、不同宗教信仰、或慶管重建等之外，其他變項於不同組別間在四份量表（BHLS; PKDSMS; HDSMI; SF-12v2）的得分具有差異，以高學歷、有工作、月收入較高、自主照顧、慶管採自體血管、無重複住院或跌倒事件發生者，相較於其他組別得分，有較高的平均值。而本研究對象之血紅素（Hb）與白蛋白（Albumin）等反映貧血與營養狀況的生化數據，與其身心健康狀態（SF-12v2）呈顯著正相關；至於，四份量表的得分關係顯示：健康識能（BHLS）、自我效能（PKDSMS）、自我管理（HDSMI）與身心健康狀態（SF-12v2）等變項的兩兩關係，呈顯著正相關，另外，健康識能（BHLS）與自我效能（PKDSMS）經中介變項自我管理（HDSMI）對其身心健康狀態（SF-12v2）產生間接且顯著效果。

結論與討論：

本研究發現: 共病是血液透析病人普遍存在的問題。在本研究量表中，健康識能（BHLS）屬於認知層面、自我效能（PKDSMS）屬於信念層面、自我管理（HDSMI）則是執行層面；換言之，有良好的認知或信念，若沒有落實作為，仍會降低病患的整體身心健康狀況，因此，臨床護理人員需定期監測病患的生理指數及自我管理程度，能隨時提供支持與引導，以促進自我照顧能力與健康行為。

關鍵字：血液透析、健康識能、自我效能、自我管理、健康結果

hemodialysis; health literacy; self-efficacy; self-management; health outcomes

C114

Improving the management of medical supplies by using Lean methods
運用精實手法改善醫衛材管理

TAN-YUN HSU [1], YA-FANG WU [2], NA-CHI SU [3]
許玥云 [1], 王榆楎 [2], 蘇娜琦 [3]
Buddhist Dalin Tzu Chi Hospital
佛教大林慈濟醫院

Background：
醫療衛材是執行醫療業務活動的基礎，管理成效影響病人及醫療人員工作安全、醫療品質與成本、也牽涉醫療服務的順暢性。
因此，除了提高醫療環境的安全性和醫療品質外，如何有效利用醫療用品以及如何利用精實管理方法提高其管理效率是至關重要的議題。
本單位於 2020 年 8 月檢視庫房，發現醫材有過期異常品 73 項，缺失率 69.5%，即時發現後未使用於病人身上。若未杜絕錯誤，必將影響病人就醫安全。單位的空間有護理站、準備室、治療區、庫房、藥水間及洗腎機備用區域；狹長型的空間設計造成工作人員的走動距離長且費時，且因醫材多處擺放且品項重複，導致取用耗時，影響病人治療時效性。
Methods：
小組成員運用精實手法擬訂對策：(一)重整醫材放置空間，以目視化標示先進先出，（二）醫材以顏色分類管理，取物時一目瞭然，(三)改善硬體設計，符合人體工學，避免人員傷害，(四)制訂盤點制度，有效控管庫存，(五)舉辦課程，提升精實概念。
Results：
經由精實手法與六標準差思維，單位自 2020 年 8 月至 2022 年 12 月，醫材缺失率降低 40%，每班護理活動耗用時間降低 50.8%、改善動線後的走動距離減少 51.6%，同仁對單位的環境滿意度提升 30%，另增加 4-5 坪空間改造為被服間，而降低單位被服清洗費 432,000 元/年。
Conclusions：
藉此專案，提升了就醫環境的安全性，優化了醫護品質。
Key words：
精實手法、醫衛材管理、病人安全

C115

Using Information Technology to Improve the Error Rate of Outpatient Examination Procedures in Hemodialysis Room

運用資訊科技改善血液透析室門診採檢流程錯誤率

Huai-Hsuan Chang[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Yeh-Chen[1], Chia-Wen Wu[1], Ie-Ching Hu[1], Chun-Yi Hung[1], Yu-Tzu Chang[2]

張懷萱[1], 邱郁雯[1], 林怡秀[1], 陳燁[1], 吳佳雯[1], 侯玉琴[1], 洪君怡[1], 張育誌[2]

Nursing Department[1], Division of Nephrology[2] National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan

國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

Background：

因血液透析門診檢驗系統僅有備管功能，加上門診透析病人無配置手圈，故其餘檢驗採檢步驟(醫囑核對、檢體採檢、檢體傳送)須以人工辨識完成。統計發現本單位 2021 年檢驗異常發生率為 0.46%，遠高於當年度全院門診檢驗異常發生率 0.12%，分析原因與條碼列印機數量不足、未將檢驗科別分類、無手圈、系統無新醫囑提示功能及未建置醫囑套裝機制有關

Methods：

依據問題進行對策擬定及對策實施，與資訊工程部門建立跨團隊合作，建置門診檢驗條碼辨識採檢系統於住院醫療資訊系統中、設立每月檢驗項目建套裝醫囑、於血液透析系統建置醫囑提示功能及待執行醫囑自動匯入交班系統，並建置各科別檢驗項目辨識功能，大幅降低人為失誤；為提供病人辨識資訊化，設置每位病人專屬條碼，且為降低臨床護理師人為誤植率，增設單位條碼列印機數量，使單位各區護理師從改善前需步行 8-9 公尺到條碼列印機到改善後僅需 5-6 公尺，不僅提供安全檢驗環境，更降低不必要護理時數，達到精實醫療；設計門診病人識別證，識別證內容包含姓名、病歷號、透析時段、血型及病歷號條碼，以符合條碼採檢之辨識之需求。

Results：

執行成效後，未確實核對醫囑原改善前 15 件，改善後降為 1 件；未確實交班由改善前 2 件，改善後降為 0 件；醫囑不完整率由改善前 2 件，改善後降為 0 件；血液透析室門診檢驗異常發生率由改善前 0.46%降為 0.06%，目標達成率為 118%，改善幅度高達 86.9%，顯示跨部門協調後有效改善採檢流程。

Conclusions：

透過跨部門改善檢驗步驟資訊化及增設設備改善血液透析室門診檢驗流程錯誤率，以降低人為疏失、提升檢體採集正確率及減少醫療耗材成本，進而有效提升照護品質及減少護理人員工作負荷。

Key words：

資訊科技、血液透析、採檢流程

C116

Low serum selenoprotein P level is associated with aortic stiffness measuring by carotid-femoral pulse wave velocity in maintenance hemodialysis patients
低的血清硒蛋白質P濃度跟血液透析患者以中心脈波傳導速率測量中樞動脈硬度有關

Yu-Chi Chang [1], Chiu-Huang Kuo [1, 2], Hung-Hsiang Liou[3], Bang-Gee Hsu[1, 2]
張宇祺[1]，郭秋煌[1, 2]，劉宏祥[3]，徐邦治[1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1]花蓮佛教慈濟醫院腎臟內科, [2]花蓮慈濟大學醫學系, [3]新北市新仁醫院

Background:
Selenoprotein P (SePP) is the major constituent of serum selenium, and functions as selenium transport protein from liver to kidney and several other organs. Low selenium concentrations are associated with inflammation, chronic kidney disease, and heart failure. Aortic stiffness predicts cardiovascular disease and is associated with aging-associated vascular diseases. This study aimed to evaluate the relationship between serum SePP levels and carotid-femoral pulse wave velocity (cfPWV) in chronic hemodialysis (HD) patients.
Methods:
A total of 138 patients with HD were enrolled in this study. cfPWV was measured using the SphygmoCor system. Patients with carotid–femoral pulse wave velocity (cfPWV) >10 m/s were defined as the aortic stiffness group. Serum SePP concentrations by using commercial enzyme-linked immunosorbent assay.
Results:
56 HD patients (40.6%) had aortic stiffness and higher percentages of diabetes ($p = 0.034$), hypertension ($p = 0.006$), were of older age ($p = 0.037$) and had higher systolic blood pressure ($p = 0.005$), serum glucose level ($p = 0.021$), C-reactive protein (CRP, $p = 0.021$), and lower serum SePP levels ($p = 0.001$) compared to control group. After adjusting for factors significantly associated with aortic stiffness by multivariate logistic regression analysis, serum SePP (odds ratio [OR]: 0.676, 95% confidence interval [CI]: 0.535–0.853, $p = 0.001$), age (OR: 1.038, 95% CI: 1.000–1.074, $p = 0.036$), and serum CRP levels (OR: 2.102, 95% CI: 1.010–4.376, $p = 0.047$) were independently associated with aortic stiffness in patients with chronic HD. After multivariable forward stepwise linear regression analysis also noted that serum log-transformed SePP level (log-SePP, $\beta = –0.420$, adjusted R^2 change = 0.185, $p < 0.001$) was negatively associated with log-cfPWV values in HD patients.
Conclusions:
Serum SePP level is an independent marker of aortic stiffness and is negatively associated with cfPWV values in patients with chronic HD.
Key words:
Selenoprotein P, Hemodialysis, Aortic stiffness, Carotid-femoral pulse wave velocity

C117

Increase Critical Laboratory Value Reporting Efficacy in Hemodialysis Patients by Electronic Informatization

資訊化運用提升門診血液透析病人危急值即時通報效能

郭淑冠[1] 陳玉娟[1] 俞靜儀[1] 陳彥蓉[2] 李文欽[1] 李建德[1]
高雄長庚紀念醫院　內科部腎臟科[1] 檢驗醫學部[2]

目的

透析病人之檢驗危急值及重要異常即時通知在臨床決策及後續醫療處置非常重要，研究顯示所有發生危急值透析病人尤以發生高血鉀危急值(≧6.5 meq/L)者，死亡率高達 30.7%，完善的危急值通報系統建立不僅能促進醫療人員間團隊合作及有效溝通，更能減少通報錯誤發生。本透析室結合檢驗醫學科建構危急值通報系統資訊化，確保血液透析病人檢驗結果之危急值於通知後可被完整的收到，且能迅速運用於病人後續的醫療處置，提升透析照護品質。

方法

門診血液透析病人每月接受例行性抽血檢查，危急值項目包含白血球 (<1.0 or >50×10^3/μL)、血紅素(Hb <5.0 g/dL)、葡萄糖(<50 or >600 mg/dL)、鈣(<6.5 or >14.5 mg/dL)、鈉(≦100 or ≧160 mEq/L)、鉀(≦2.5 or ≧6.5 mEq/L)。異常達危急值時檢驗科以電話通知透析室，人員手寫登錄造成通報錯誤無法即時給予病人處置，本專案透析室結合檢驗醫學科建構危急值通報資訊化，出現危急值時，檢驗醫學科以電腦自動傳送訊息至透析室之電腦呈現「收取通知」視窗提醒透析室接收。同時以手機或長庚即時通 (Team+Pro)簡訊通知開單醫師。透析治療師收取通知後，將發生危急值病人名單登錄「危急值名單」，並立即處置如下：(1)正在透析中-告知醫師依醫囑執行處置。(2)已透析完畢離開本院-電話關懷並記錄於病人交班事項，隔次透析時依醫囑執行處置。所有危急值病人皆經治療師制定護理目標及執行護理計劃並聯合醫師、營養師、藥師跨科以瞭解病人此次發生危急值原因，且由透析室品管組收案追蹤，病人連續三個月檢驗報告低於危急值標準才結案。我們蒐集 2022 年 1-12 月檢驗總件數、發生危急值總件數，分析年齡、性別、透析年資、疾病共病、危急值發生率、高血鉀危急值發生率、通報錯誤率及危急值回覆率(<30 分鐘)等相關資料並與過去兩年做比較。

結果

整年度檢驗總件數 10596 件，平均年齡 64.9±11.7 歲，男性占 46.5%；平均透析年資 11.2±7.8 年，合併症: 糖尿病 32.4%、高血壓 44.4%、心血管疾病 44.4%。發生危急值總件數 121 件(1.14%)，各危急值如下：低血紅素 1 件 0.83 %)、高葡萄糖 5 件(4.13%)、低葡萄糖 6 件(4.96%)、低血鈣 4 件(3.31%)、高血鈣 5 件(4.13%)、高血鉀 100 件(82.64%)，無白血球及鈉異常之危急值個案。過去危急值發生率：2020 年 1.53%、2021 年 1.43%；高血鉀危急值發生率：2020 年 1.29%、2021 年 1.17%。分析透析室結合檢驗醫學科建構危急值通報電腦資訊化前後結果顯示：通報錯誤率由 15.7%下降至 0%、危急值回覆率(<30 分鐘)由 78.95%提升至 100%。

結論

利用資訊化系統整合危急值電腦資訊化回報追蹤，即時給予透析病人處置，促進醫療人員間團隊合作及有效溝通，避免通報錯誤發生，以達到提升透析醫療品質及維護病人安全。

關鍵詞
血液透析、危急值、資訊化

C118

Physiological Effects of Exercising in Hemodialysis Patients: Systematic Review

以系統性文獻回顧探討運動對血液透析病人生理影響

HC Tseng[1], CY Tu[2] ,YH Chen[3] ,HL,Tai[4*]

曾纕棋[1], 涂佳玉[2], 陳以馨[3], 戴辛翎[4*]

[1,2,3,4] Department of Nursing, National Taipei University of Nursing and Health,

[4] Department of Nursing, Taipei Veterans General Hospital

[1,2,3,4] 國立台北護理健康大學護理系, [4] 臺北榮總護理部

Background：

Taiwan was as high as 86,840 people in 2019, and the dialysis population in Taiwan is increasing yearly. In addition to the dialysis population getting younger, the middle-aged and elderly dialysis populations increase yearly. The research has shown that hemodialysis patient's Physiological motor function has a positive relationship. However, the systematic literature reviews have been insufficient to make definite conclusions regarding the effectiveness of this intervention.

Methods：

A systematic literature review method was used to search relevant domestic and foreign databases published after September 2018, including Airiti Libray, CINAHL, PubMed, and other databases. Keywords include “hemodialysis”, “exercise”, “Physiological effects” and “Systematic review”. There were a total of 186 search results, after selecting those that met the criteria and excluding duplicates. Finally, a total of 3 systematic reviews of exercise intervention were selected.

Results：

The study consisted of 20 trials and involved 677 participants. Out of the 15 randomized controlled trials, conducting a comprehensive analysis was not feasible due to differences in intervention measures and results. Nonetheless, diverse forms of exercise, mainly aerobic exercise, were found to be effective compared to the control group. Aerobic exercise was shown to improve VO_2 peak, walking ability, and health-related quality of life. Furthermore, it can alleviate symptoms of restless legs syndrome, muscle cramps, and fatigue, and enhance urea clearance index (MD = 0.16, 95% CI: 0.10, 0.21) and regulate blood pressure. The meta-analysis revealed that the combination of aerobic exercise and resistance training can improve depressive symptoms (MD = -7.57; 95% CI: -8.25 to -6.89), mental health (MD = 7.54; 95% CI: 2.74, 12.35), and social functioning (MD = 9.98, 95% CI: 1.52, 18.44).

Conclusions：

The hospital's medical staff recommends suitable and efficient workout routines for patients undergoing hemodialysis. They also offer instruction to enable patients to continue performing these exercises independently after being discharged. This approach proves to be helpful to patients both physically and emotionally. According to a systematic review, aerobic exercises are particularly beneficial for patients receiving hemodialysis. This form of exercise can enhance different symptoms associated with hemodialysis. When combined with resistance training, it can also help with urea clearance rate, blood pressure, and VO_2 peak. Besides, it can positively affect patients' mental health and social functioning, thereby improving their overall quality of life. However, further research is necessary to determine the impacts of various exercise training on a more diverse group of hemodialysis patients.

Key words：

Hemodialysis;Exercise;Physiological Effects;Systematic Review

C119

Utilizing Healthcare Quality Strategies to Establish a Hepatitis C-Free Dialysis Center

善用醫品策略，打造零C肝的透析室

Ya-Ting Chen[1], Hui-Fang Huang[1], Hui-Xia Hu[1], Jun-Ren Lai[1], Bo-Rong Wu[1], Yuan-Hong Guo[2], Wen-Chin Lee[1]

陳雅婷[1], 黃慧芳[1], 胡惠霞[1], 賴俊仁[1], 吳柏融[1], 郭垣宏[2], 李文欽[1]

[1]Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital, [2]Division of Gastroenterology and Hepatology Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital

[1]高雄長庚醫院腎臟科, [2]高雄長庚醫院胃腸肝膽科

Background：

呼應全球性公衛政策，世界衛生組織於2016年宣示在2030年前消除具公共衛生威脅性的病毒性肝炎，台灣提出更具雄心的目標，要在2025年消滅C型肝炎;根據國際腎臟醫學會的全球資料，透析病人的C肝盛行率約為7.5%，比一般人高出7倍多，台灣腎臟醫學會數據顯示，全國約8萬名血液透析患者中，約有5%至15%感染C型肝炎，為落實以病人為中心之醫療照護，達到最佳透析醫療品質，即早停止C肝病毒對腎臟乃至於全身器官的傷害，降低肝臟疾病及其肝外疾病之風險，並減少肝癌的發生，有助於整體醫療費用的降低,對醫護人員也可以減少因照護C型肝炎病患所產生的感染風險,並有助於提升病人的生活品質。

Methods：

藉由醫品手法，腦力激盪後以特性要因圖歸納問題原因，PDCA手法進行改善，對策一:C肝小學堂（知識提升技能）學習多元化，納入專科性在職教育課程,舉辦課室C型肝炎教育訓練，增加ｍｏｏｄｌｅ線上教學系統,改善透析治療師對C型肝炎的治療認知,對策二:C肝特攻隊（即時學習），成立愛肝腎利關懷小組，專人專責關懷追蹤治療情形，並將衛教內容標準化，建立衛教口訣方便記憶,對策三:C肝快就醫（簡化流程），建置跨科別快速轉診就醫模式，縮短就醫看診時間,對策四:C肝好心肝，以簡式健康量表篩檢，針對病人因副作用或其他因素導致的情緒困惱，由身心科跨科別，啟動關懷，專業輔導。

Results：

透析病人C型肝炎治癒率由改善前32.7%提升至100%，透析病人生活品質滿意度也由改善前62%提升至94.1%。

Conclusions：

任何時間都是治療的好時機，而身為第一線照顧腎友們的腎臟科醫護人員，對於轉介這些腎友到肝膽科門診評估與接受C型肝炎的就醫治療更是責無旁貸，打造無C型肝炎的透析室，增加床位與人力的運用，經由此次專案，更可將此平行展開推廣至各科門診、其他院區，甚至於社區醫療。

Key words：

C型肝炎、血液透析。

C120

Psychological Effects of Listening to Music During Dialysis on Hemodialysis Patients

透析期間聽音樂對於血液透析病人的心理影響

TL Tsai[1], YS Huang[2], WL Huang[3], YT Chang[4], KH Zheng[5],HL Tai[6*]
蔡采玲[1], 黃羿瑄[2], 黃雯琳[3], 張晏慈[4], 鄭可暄[5], 戴辛翎[6*]

[1,2,3,4,5,6]Department of Nursing, National Taipei University of Nursing and Health,

[6] Department of Nursing, Taipei Veterans General Hospital

[1,2,3,4,5,6] 國立台北護理健康大學護理系, [6] 臺北榮總護理部

Background：

Hemodialysis patients, especially in Taiwan's growing patient population, face significant physical and psychological stressors, including depression and anxiety. Beyond the immediate medical challenges, these conditions deeply affect their daily lives and societal interactions. This study explores the therapeutic potential of music intervention, overseen by trained professionals, as a nonpharmacological means to improve their psychological well-being and overall quality of life.

Methods：

This research delves into the efficacy of music therapy in augmenting the psychological well-being of renal dialysis patients. A comprehensive review of literature evaluates the differential impacts of music therapy on patients' psychological state, employing a range of psychological assessment tools. The study consolidates its findings through meta-analytic techniques.

Results：

Contemporary research spanning the last half-decade elucidates that music intervention during hemodialysis can considerably mitigate both physical and mental discomfort. On a physiological plane, it can maintain stable vital signs and diminish pain scores. From a psychological perspective, significant reductions in anxiety and depression levels were noted ($p < 0.05$; $p = 0.003$). Certain studies advocate for 4 to 6 sessions of music intervention to achieve optimal therapeutic outcomes, highlighting that sessions lasting under 20 minutes are particularly potent in countering anxiety compared to those extending beyond 30 minutes.

Conclusions：

The therapeutic implications of music intervention for hemodialysis patients are multifaceted, offering improvements in areas like anxiety, depression, fatigue, sleep quality, pain, muscle cramps, heart rate, and blood pressure. From a nursing perspective, incorporating music therapy into patient care regimens can holistically address the psychophysical needs of hemodialysis patients, promoting overall well-being.

Key words：

Hemodialysis,Music Intervention,Therapeutic Effect,Psychological Well-Being

C121

Provide Strategies Related to the Correct Testing Process in Outpatient Hemodialysis Room to Reduce the Incidence of Abnormal Testing

提供門診血液透析室正確檢驗流程之相關策略改善檢驗異常發生率

Yu-Wen Chiu[1], Yeh-Chen[1], Yi-Hsiu Lin[1], Huai-Hsuan Chang[1], Chia-Wen Wu[1], Ie-Ching Hu[1], Chun-Yi Hung[1], Yu-Tzu Chang[2]

邱郁雯[1], 陳燁[1], 林怡秀[1], 張懷萱[1], 吳佳雯[1], 侯玉琴[1], 洪君怡[1], 張育誌[2]

Nursing Department1, Division of Nephrology2 National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan

國立成功大學醫學院附設醫院 護理部[1] 內科部腎臟科[2]

Background：

醫學檢驗為疾病診斷之基礎，亦是維護病人安全之根本，統計血液透析室 2021 年度檢驗異常發生事件共計 27 件，檢驗發生率為 0.46%，高於全院門診檢驗異常發生率 0.12%，為提升病人臨床檢驗品質成立專案小組進行改善。基於檢驗採檢應為零錯誤，將分析出的問題點進行全數改善，包含：未確實核對醫囑、檢驗採檢作法不一致、醫囑不完整及未確實交班。

Methods：

依據問題進行對策擬定及對策實施，與單位護理長與品管組長討論後，制定「檢驗採檢作業流程考核表」，並修訂單位護理師年度技術考核計畫，將「檢驗採檢作業流程」之考核項目訂於每年考核項目中，且為培養同仁良好習慣，依據檢體採檢標準流程標進行每月臨床監測，以統計單位內發生缺失之人數；進行常規抽血單及臨時抽血單進行整合統一放置，及原護理工作車無檢體架，大量檢體時導致工作車桌面凌亂且檢體滑落漏送之疑慮，與前瞻醫療器材科技中心工程師進行相關策略討論後以 3D 列印製作符合工作車大小之檢體架，以改善護理人員大量採檢時之順暢度。

Results：

執行成效後，未確實核對醫囑原改善前 15 件，改善後降為 1 件；檢驗採檢作法不一致由改善前 2 件，改善後降為 0 件；血液透析室門診檢驗異常發生率由改善前 0.46%降為 0.06%，目標達成率為 118%，改善幅度高達 86.9%，顯示提供改善策略後有效減低異常發生率。

Conclusions：

血液透析室為大量血液檢驗檢查之單位，在檢驗流程相關策略實施改善下，增加透析室門診護理人員檢驗採檢之順暢度，並可藉由常規稽核制度機制，檢視臨床檢驗作業流程由無缺失，進行檢討及改善措施，以提升問題解決之能力。

Key words：

血液透析、檢驗流程策略、檢驗異常發生率

C122

Systematic Review: Effects of Sertraline on Preventing Hypotension in Hemodialysis Patients

系統性回顧：Sertraline 藥物對預防血液透析患者低血壓的成效

QY Zhang [1], YH Huang[2], KS Chen[3], EY Chen [4],HL Tai[5*]

張芊怡 [1], 黃于瑄 [2], 陳可珊 [3], 陳恩盈 [4], 戴辛翎 [5*]

[1,2,3,4,5]Department of Nursing, National Taipei University of Nursing and Health,

[5]Department of Nursing, Taipei Veterans General Hospital

[1,2,3,4,5] 國立台北護理健康大學護理系, [5] 臺北榮總護理部

Background：

As chronic kidney disease progresses to terminal nephropathy, patients often turn to renal replacement treatments such as hemodialysis. While hemodialysis is crucial for these patients, it introduces several complications. Foremost among them is intradialytic hypotension (IDH), presenting in 25%-50% of the procedures and leading to symptoms like dizziness, muscle spasms, and nausea. Over time, these symptoms can escalate to severe cardiovascular events.

Methods：

We sourced publications from 2019-2023 in The Cochrane Library, EBSCO, and PubMed databases. Three studies, comprising 1 RCT and 2 non-RCTs, which met our inclusion criteria, were investigated for sertraline's efficacy in mitigating hypotension in renal failure patients undergoing hemodialysis.

Results：

Among the scrutinized studies, Razeghi et al. presented compelling evidence that sertraline could reduce hypotensive episodes by a notable 43% compared to the placebo group. Furthermore, the research by Yalcin et al. highlighted the role of sertraline in increasing both systolic and diastolic blood pressures during hemodialysis. This study also drew attention to a marked reduction in treatment interventions when sertraline was administered. However, other research studies yielded no significant contrasts. From a nursing perspective, the potential for sertraline to reduce the frequency of hypotensive episodes is significant, as it could decrease the number of interventions needed during hemodialysis sessions, thereby streamlining patient care and reducing discomfort.

Conclusions：

IDH occurs in a staggering 15-50% of hemodialysis sessions, often demanding intervention or even early termination of the dialysis procedure. Our exploration into sertraline's potential for preventing IDH produced mixed results. While sertraline's antidepressant attributes could be instrumental in lessening dialysis discomfort, its direct impact on blood pressure remains contested. Dialysis-induced blood pressure fluctuations are influenced by myriad factors, ranging from the specifics of the hemodialysis procedure to the patient's underlying physiological conditions. From a caregiving standpoint, this emphasizes the importance of comprehensive patient education on fluid management and self-disease management. This holistic approach to patient care can help reduce the occurrence of IDH and ensure patients with renal failure maintain a better quality of life.

Key words：Renal Insufficiency, Sertraline, Renal Dialysis, Hypotension.

C123

Enhancing the Accuracy of Blood Collection in the Hemodialysis Unit

提升血液透析室採集檢體之正確性

Miao-Ling, Hsieh[1], Shu-Fen, Wu[2]

謝妙玲 [1], 吳淑芬 [2]

Hemodialysis Room of Xiaogang Hospital

小港醫院血液透析室

Background：

依院內病人安全異常事件通報統計，3 年間單位護理人員採集血液檢體錯誤有 5 件，引發本小組改善動機，以現行檢體採集流程，分析每一道流程之問題，重新修訂透析室檢體採集標準流程，期盼提升單位檢體採檢正確性。

Methods：

分析血液採檢現況流程表及執行護理人員採集檢體調查表。以特性要因圖確立問題，利用決策矩陣分析表擬定對策，分計畫，執行和評值三個階段進行血液採檢正確性之改善。

Results：

依據制訂的正確採集檢體作業標準，實際觀察 28 位護理同仁檢體採集作業，正確率由原本的 68.3%提升至 88.8%、同仁收集檢體流程 12 人正確率由 74.8%提升至 89.8%。

Conclusions：

檢體採集在病人安全和醫療品質方面至關重要。近年間透析室因抽血報告錯誤而引發異常通報。小組因而進行問題分析，制定新標準流程，提高檢體採集的正確率，守護病人安全提升醫療品質

Key words：

檢體採集, 流程分析, 醫療品質, 病人安全

C124

Enhancing Resilience in Dialysis Patients: Can Mindfulness Meditation Serve as a Therapeutic Adjunct?

增強透析病人的韌力：正念冥想可以作為輔助治療嗎？

YJ Cheng[1], XC Chen[2], AY Lin[3], JX Chiu[4], HL Tai[5*]
鄭雅柔[1], 陳湘淳[2], 林安怡[3], 邱竟瑄[4], 戴辛翎[5]
[1,2,3,4,5] Department of Nursing, National Taipei University of Nursing and Health,
[5] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5] 國立台北護理健康大學護理系, [5] 臺北榮總護理部

Background：
Hemodialysis patients face multifaceted challenges that can impact their quality of life. While mindfulness meditation has been acknowledged for its benefits in mental well-being, its role as an intervention for these patients is not extensively studied. This research aims to explore the effects of mindfulness meditation on enhancing resilience in dialysis patients.
Methods：
Using evidence-based nursing techniques, relevant literature from 2019 to 2023 was retrieved from databases including PubMed, CINAHL, and The Cochrane Library. By employing keywords such as "dialysis," "hemodialysis," "resilience," "quality of life," "mental health," "mindfulness," and "meditation," pertinent research studies, specifically two RCTs, were systematically identified and integrated to discern nursing interventions beneficial for patients.
Results：
The systematic review revealed significant positive psychological outcomes in dialysis patients practicing mindfulness. Specifically, post-meditation interventions showed marked improvements in well-being metrics such as the facial expression scale and the Perceived Stress Scale (PSS) ($p=0.0027$ and $p=<0.001$ respectively). Additionally, patients reported an enhanced quality of life related to their kidney disease, as indicated by improved scores on the KDQOL assessment, with significant differences in the disease's impact ($p=0.0001$) and symptoms ($p=0.01461$). These findings accentuate the substantial benefits of mindfulness meditation in alleviating the multifaceted challenges, both mental and physical, faced by renal patients, subsequently bolstering their resilience and overall quality of life.
Conclusions：
The data strongly validate our hypothesis, indicating that mindfulness meditation offers a therapeutic advantage in mitigating psychological distress in dialysis patients. As a holistic approach, healthcare professionals can equip patients with mindfulness techniques to alleviate stress, refine emotional regulation, and enhance life satisfaction. This practice not only cultivates mindfulness attributes but also fortifies patient resilience. Nonetheless, further research is warranted to explore the extensive impacts of mindfulness meditation on broader untested outcomes in dialysis patients, ensuring comprehensive data collection and subsequent evaluation for this promising intervention.
Key words：
Renal Dialysis, Psychological Resilience, Mindfulness Meditation, Quality of Life.

C125

Improving quality of life in dialysis patients with chronic hepatitis C infection
改善門診血液透析治療C型肝炎病患的生活品質

Pei-Jung Wu[1], Ching-Yi Yu[1], Lung-Chih Li[1], Wen-Chin Lee[1]
吳佩蓉, 俞靜儀, 李隆志, 李文欽
[1]Division of Nephrology, department of medicine, Kaohsiung Chang Gung Memorial Hospital
[1] 高雄長庚醫院內科部腎臟科

Background：
C 型肝炎病毒感染是全球重要的公衛問題，根據台灣腎臟醫學會統計數據顯示，全國血液透析患者中，約有 5%至 15%感染 C 型肝炎，C 型肝炎若控制不佳，則容易演變成為肝硬化，嚴重影響到血液透析治療病患的生活品質。本研究想要擬定相關策略積極介入，以改善門診血液透析 C 肝病患的生活品質。

Methods：
本研究的對象為於本院接受門診透析治療的 C 肝病患，找出例行抽血出現肝功能指數異常(ALT:>36U/L)的病患，針對這些病患，我們擬定相關策略積極介入，策略如下：
策略 1 -愛肝充電站：針對這些透析治療 C 型肝炎病患，我們會舉辦 1 對 1 的衛教活動，讓這些病患可以認識 C 型肝炎的傳染途徑、症狀，同時對 C 型肝炎治療有正確的觀念，透過前後測驗，了解這些病患對 C 型肝炎認知的正確率。
策略 2-愛肝急先鋒：建立跨科別肝膽科醫師與透析 C 肝治療團隊，優化透析治療 C 型肝炎病患至肝膽科門診就醫流程，從協助病患腸胃科門診掛號，提醒看診日期，乃至追蹤病患服藥情形及後續抽血報告，並調查這些病患順利至肝膽科門診就診的就醫率。
策略 3-愛肝好心肝：透過滿意度問卷調查，關懷這些透析治療的 C 肝病患，治療前後生活品質的情形，並針對生活品質不滿意的部分，啟動跨科別團隊介入，包含諮詢心理師、營養師、復健師、社工師等，協助病患照護，改善整體生活品質。

Results：
本研究執行的時間為 2022 年 02 月 08 日至 2022 年 09 月 30 日，總共收集了 30 位肝指數異常(ALT:>36U/L)的透析治療 C 肝病患，經過衛教之後，這些透析病人對 C 型肝炎治療的認知正確率由 53.3%提升至 94.7%，經過優化肝膽科就醫流程之後，這些病患至肝膽科門診就醫率也由 56%提升至 100%，同時，透析 C 肝病患因疾病對生活品質的滿意度調查，一開始不滿意度有 62%，經過就醫治療之後，透析病患生活品質的滿意度則提升至 94.1%。

Conclusions：
現在 C 肝藥物治療的成功率已非常高，應該要多鼓勵透析治療 C 肝的病患儘早接受治療，透過積極的介入，可提高病患對 C 肝治療的認知正確率，同時提升病患至肝膽科門診的就醫率，並大幅改善病患生活品質的滿意度。

Key words：
透析病患、C 型肝炎、生活品質。

C126

Reducing Tunneled-cuff Dialysis Catheter Infection Rates in Hemodialysis Patients through Multifaceted Strategies

運用多元策略降低血液透析病患長期性導管感染率

丁凡棋, 張明芳, 黃桂卿, 吳寶華, 郭淑冠, 俞靜儀, 賴育城, 李文欽
高雄長庚紀念醫院 內科部腎臟科

Background

長期性透析導管感染所引發的併發症，不僅增加醫療開支，同時也對長期依賴透析導管的患者生命構成重大威脅，提高管路安全性並積極實施感染控制措施，對這類患者的護理需求至為關鍵。根據本單位導管小組監測，我們發現長期性透析導管感染率有上升的趨勢，因此我們著手重新探討原因，以降低這種感染的發生率。

Methods

經由檢視確立問題導因，由於透析治療師在長期性透析導管換藥的無菌技術方面存在不確實情況、以及單位未要求長期性透析導管患者使用抗生素藥膏，因此我們制訂以下四項改善措施：

一、確保遵守長期性透析導管照護技術標準規範。

二、舉辦長期性透析導管教育訓練課程，並定期評估技術規範的執行情況。

三、建議那些曾經發生導管感染和皮膚併發症的長期性透析導管患者，在換藥時使用抗生素膏。

四、加強對長期性透析導管患者的衛教，特別是關於保持敷料處的乾燥與清潔。

Results

在 2022 年 8 月到 2023 年 6 月期間，我們的單位共有 113 位長期性透析導管病人，在改善措施介入後，結果顯示血液透析病人的長期性導管感染率有了顯著改善，具體而言，2022 年 8 月至 11 月從 0.64‰下降至 0.32‰，而 2022 年 12 月至 2023 年 3 月的感染率更從 0.32‰降至 0.07‰，之後在 2023 年 4 月至 2023 年 6 月期間保持穩定，維持在 0.07‰。此外，透析治療師執行技術規範的準確率也從 78.8%提升至 98%。這些成果顯著有效地減少了長期性透析導管病人的感染率，提升了患者的安全，進一步提高了整體血液透析病人護理品質。

Conclusion

透過多元策略的介入和改進，我們成功地降低了長期性透析導管感染率，同時也提高了治療師在長期性透析導管護理方面的專業知識。這有助於確保照護過程始終以病人為中心，減少病人因感染而需要多次進行長期性透析導管置換，從而進一步提升照護品質。

關鍵字：血液透析、長期性透析導管、感染

C127

Efficacy of Low-Temperature Dialysis in Preventing Intradialytic Hypotension among Acute and Chronic Renal Failure Patients

低溫透析於急慢性腎衰竭病人，預防血液透析中低血壓之成效

Zhi-Yi Zhu[1], Tsai-Yu Liao[2], Mei-Ling Li[3] , Yu-Chia Cheng4 , Hsin-Ling Tai [5*]
朱芷儀 [1], 廖采榆 [2], 李媄羚 [3], 鄭又嘉 [4], 戴辛翎 [5*]
[1,2,3,4,5] Department of Nursing, National Taipei University of Nursing and Health,
[5] Department of Nursing, Taipei Veterans General Hospital
[1,2,3,4,5] 國立台北護理健康大學護理系, [5] 臺北榮總護理部

Background：
Intradialytic hypotension (IDH) stands as a prevalent complication during hemodialysis, positioning as a catalyst for cardiovascular morbidity and mortality. A growing body of evidence suggests that the occurrence of IDH could be mitigated using cooler dialysate.

Methods：
Databases, including Embase and PubMed, were scoured until October 8, 2023. Our research umbrella covered all prospective controlled trials and systematic review studies.

Results：
In studies assessing cooler dialysate's impact on hemodialysis, the first study highlighted a notable over 40% decrease in hypotension incidence, dropping from 3.3±2.8 to 2.0±2.2 ($P < 0.001$). For patients with IDH, there was a 44% reduction, from 4.6±2.4 to 2.5±3.2 ($P<0.001$). A second investigation indicated that, at an isothermal dialysate temperature of 37°C, hypotensive events doubled in comparison to a cooler 35°C dialysate setting: 1.49 ± 1.12 versus 0.72 ± 0.69 events respectively, yielding an incidence rate ratio of 2.06 ($p \leq 0.0001$). However, a third study introduced some reservations. While the data from 8 diverse studies with 153 participants suggested potential advantages of hypothermic dialysate (rate ratio: 0.52, 95% CI: 0.34 to 0.80), there was also an increased discomfort reported, as evidenced in 4 other studies involving 161 participants, with a discomfort rate of 8.31 (95% CI: 1.86 to 37.12). Despite the promising findings from the first two studies, the third emphasizes the need for a comprehensive assessment due to the potential discomfort associated with cooler dialysate.

Conclusions：
This systematic review and meta-analysis underscore that hypothermic hemodialysis can markedly curtail the IDH risk in chronic kidney disease and acute kidney injury patients. A noteworthy mention from the third study is the potential trade-off with patient discomfort. Interestingly, the first study accentuates that personalized hypothermic dialysis tailored to each patient's basal body temperature not only diminishes hypotension risk but also trims down vasopressor usage. The second study posits that merely lowering the dialysate temperature could preempt hemodynamic disruptions during PIRRT, sidelining the necessity for sodium or ultrafiltration profiling. Conclusively, cooler dialysate tempers the IDH threat in dialysis patients, stabilizes vital parameters, and minimizes the dependence on vasopressors. Furthermore, proactive nursing practices like frequent blood pressure monitoring during dialysis can reaffirm patient clinical conditions.

Key words：
Cooler dialysate, Hemodialysis, Intradialytic hypotension, Chronic kidney disease, Acute kidney injury

C128

Reduce the incidence of abnormal specimens in the hemodialysis room

降低血液透析室檢體異常發生率

Ie-Ching Hu[1], Yu-Wen Chiu [1], Huai-Hsuan Chang [1], Yeh-Chen [1], Yi-Hsiu Lin [1],
Wu chia wen[1], Hung Chun-Yi [1], Chen-Wei Chen [1], Te-Hui Kuo[2]
侯玉琴 [1], 邱郁雯 [1], 張懷萱 [1], 陳燁 [1], 林怡秀 [1], 吳佳雯 [1], 洪君怡 [1], 陳珍緯 [1], 郭德輝 [2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital, College of Medicine, Tainan, Taiwan
國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

Background：
門診血液透析病人，除常規透析、飲食控制外，有賴抽血 採檢數據做為客觀判斷透析品質，及臨床醫療資料 收集的重要來源，根據本院 2021 年統計平均檢體異常發生率 0.46%，分別項目為:檢體採檢做法不一致 2 件、醫囑不完整 2 件。主要原因為:未列入新人教育訓練計畫、門診透析室檢驗流程與院內 SOP 不符、未制定醫囑開立作業標準。經單位討論後雖發生件數不多，但攸關病人安全，臨床施行有改善空間，故進行改善，以降低檢體異常發生。

Methods：
運用 PDCA 進行對策改善，找出造成檢體採檢做法不一致、醫囑不完整原因:
1.未制定醫囑作業標準
2.門診透析室檢驗流程與本院作業標準不符合
3.未列入新人教育訓練計畫

Results：
1.檢驗採檢作法不一致:由改善前 2 件，改善後 0 件
2.醫囑不完整:由改善前 2 件，改善後 0 件
3.檢驗異常發生率:由改善前 0.46%，改善後 0.06%

Conclusions：
藉由 PDCA 策略有改善單位現存問題，讓護理師依據 SOP 正確執行並水平展開，實際於臨床施行，除有效改善異常之外，也提升照護品質。

Key words：
abnormal specimens、hemodialysis

C129

Reducing the incidence of hemodialysis tubeing slippage rate

降低血液透析管路滑脫率之改善專案

Ru-Jiun Tsai[1], Yi-Wen Wang[1], Chia-Hsin Liu[1]

蔡如鈞[1], 王怡文[1], 劉嘉新[1]

Tri-Service General Hospital Nephrology[1]

三軍總醫院腎臟內科[1]

Background:

血液透析管路滑脫是危險性較高的異常事件，可能立即造成血液大量流失，造成病人生命徵象不穩定，甚至導致死亡等極重度傷害。統計單位 2021 年至 2022 年第一季血液透析管路滑脫異常事件，2021 年第一季為 0.12‰、第二、三季為 0.13‰、第四季為 0.36‰，2022 年第一季更驟升至 0.48‰，顯示本單位管路照護品質不穩定。透析中管路滑脫，嚴重時會發生低血容積休克，加重病情且延長病人住院天數，導致病人及家屬不滿，質疑醫療團隊之專業性，引發醫療糾紛，除了增加醫療成本，更打擊護理人員工作士氣，故引起執行此專案之動機。期望以病人照護需求為中心，增加透析管路照護完整性，提升血液透析透析照護品質，並增進病人安全。

Methods:

小組成員收集並分析綜合現況，依設備、制度、護理人員，整理歸納造成透析管路滑脫之特性要因圖，並依現況分析結果，擬定改善方案:修改約束方式標準流程、約束帶繫上鈴鐺警示、製作約束告示牌；改良透明防護罩及使用滲血偵測器、研發鼠蹊部覆蓋輔助工具、拍攝暫時性靜脈導管黏貼式照片；舉辦管路安全在職教育、制定管路照護稽核制度。

Results:

護理師血液透析管路滑脫認知正確率由 69.5%提升至 95.6%，血液透析管路滑脫率由 0.48‰降至 0.12‰，顯著改善。

Conclusions:

管路滑脫是透析室病人安全監測指標之一，單位舉辦在職教育提升護理人員認知、改善約束及正確執行管路照護標準，並創新改良透明防護罩..等策略，有助於提升透析管路安全。

Key words:

血液透析、管路滑脫

C130

TRM model for integrated care of hemodialysis patients with COVID-19
團隊資源管理(TRM)模式於血液透析病人 COVID-19 整合性照護

Sheng-Fang Hsiao[1], Yu-Ying Huang[1], Hui-Ling Lai[1], Jui-Shan Tsai[1], Sung-Yi Chun[1], Hung-Ju Lai[1], Mei-Chuan Kuo[2]

蕭聖芳[1], 黃玉瑩[1], 賴惠玲[1], 蔡瑞珊[1], 宋藝君[1], 賴虹如[1], 郭美娟[2]

[1]Department of Nursing, [2]Department of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[1] 高雄醫學大學附設中和紀念醫院護理部 [2] 高雄醫學大學附設中和紀念醫院腎臟內科

背景：COVID-19 疫情下的透析，因應全院門診、住院及急重症血液透析之確診病人，可能面臨專責病房透析護理人力不足、缺乏 RO 製造設備、透析排程無法掌握確診病人動態、感控動線困難安排等困境，因此如何在險峻的疫情下超前佈署先做好準備並維持透析安全和照護品質，考驗著團隊間應變能力與默契。

方法：本照護模式運用醫療團隊資源管理(TRM)，有效運用人員、設備、資訊等可用資源，建立效益及品質兼具之 COVID-19 透析照護流程。透過 TRM 模組介入改善策略為：一、領導：1.與相關主管如主任、醫秘、感控室、督導共識討論。2.設置獨立"行動"專責區。3.每日確認排程，機動安排支援人力、動線，降低護理師工時。4.規畫住院與門診確診病人併行之照護流程。5.調整血液透析機管路以適合透析作業。二、相助：1.與專責病房護理長溝通，改將住院確診病人輸送至專責區。2.規劃專責動線(警衛)。3.專責透析護理師採雙人組彼此協助防護裝備，透析前準備裝機，RO 製造機功能水壓確認及透析後清消作業。4.行動專責區垃圾清運及環境清消(環保室)。5.修改透析機管路(醫工)。三、守望：感控室協助行動專責區域透析感控規劃及監督。四、溝通：1.利用照護系統便利貼進行內部交班。2.雲端跨團隊透析病歷進行外部交班。

結果：截至 112 年 5 月共照護 280 位確診血液透析患者，近 1100 人次，服務人次為本院其他體系加總之 1.5 倍。透析護理師於行動專責區成立後，平均每日工時 7.5-9 小時，可周休 2 日，未再出現工時超過 12 小時之情況。專責透析護理師採雙人互助合作能有效完成專責區的照護作業，減少護理同仁疫情焦慮。另設置獨立行動專責區，提供病人舒適安全的透析空間，獲得病人正向回饋。111 年 10 月本院受邀擔任演講全國透析感染控制學會標竿學習經驗分享。

結論：本單位運用 TRM 模組實施改善 COVID-19 疫情透析下照護流程，期望透由本院血液透析室防疫應變措施及經驗分享參考。當有下一波疫情來臨時，即刻發揮 TRM 精神透過團隊合作與有效溝通，運用人力、物力、資訊做到最好的管理，減少醫療疏失，提升醫療品質。

關鍵字：血液透析、COVID-19、TRM

C131

Reduce the incidence of hyperphosphatemia in hemodialysis patients
降低血液透析病人高血磷發生率

Mei-Yi Wei[1], Chiung-Hua Ho[1], Kai-Ling Yang[2], I-Wen Ting[2]
魏美怡[1], 何瓊華[1], 楊凱玲[2], 丁羿文[2]
[1]Chung-Ying Clinic, [2]Department of Nephrology, China Medical University Hospital
[1] 中英診所
[2] 中國醫藥大學附設醫院腎臟系

計劃背景

血液透析病人對飲食原則認知不足是造成高血磷重要因素，導致透析品質下降，長期影響引發合併症發生增加心血管疾病死亡風險，活動動機:我們以回溯法統計 2021 年 12 月~2022 年 02 月 115 位血液透析病人，結果發現血磷值高於 6.0mg/dl 的平均發生率為 33.3%。長期高血磷為透析會引發合併症及增加心血管疾病死亡風險，本單位希望藉由提升臨床衛教品質，改變病人自我照顧態度，降低高血磷發生率，提升病人生活品質。

執行方式

護理人員藉由飲食評估，了解病人日常飲食狀況進一步分析導致高磷原因，我們以腎臟醫學會品質監測標準，即透析病人高血磷值比率須低於總透析人數 20.0%做為參考，以系統圖分析出造成病人高血磷主要原因，分別為:1.病人高磷飲食認知不足造成高血磷發生率、2.護理師衛教成效不佳造成高血磷發生率、3.病人磷結合劑服用方法錯誤造成高血磷發生率。我們根據這三項原因進行對策改善:1.針對高血磷病人，於常規衛教後 2 周對食品認知再評值、2.醫師和營養師定期舉辦護理人員在職教育、3.製作高磷飲食臨床衛教本及海報、4.使用 APP 分析磷/蛋白質比資料庫、5.針對高血磷病人，利用識別證當小藥夾內放鈣片服用口訣及提醒卡，並於改善後進行成效分析。

成果評估

2021 年 12 月~2022 年 02 月高血磷發生率為 33.3%，2022 年 03 月實施改善對策持續至 2023 年 09 月，透析病人高血磷的發生率降至 19.6%，達到腎臟醫學會品質監測目標值 20%以下，成效良好。結果顯示，提高病人低磷飲食判別程度，提供護理人員多元衛教輔助工具，增加護理人員專業知能，提升病人透析治療及衛教遵從性能降低高血磷發生率。

結論

整合醫療團隊資源，護理人員加強專業知識，建立標準化達到衛教一致的標準，加強病人對高血磷所造成的風險認知，改變自我照顧的能力，以持續不斷提升透析病人透析照護及生活品質為努力目標。

關鍵字:血液透析、高血磷

C132

Standardization of Hemodialysis Acess Creation by Intuprofessional Collaboratine Practice with Shared Decision Making

利用跨團隊照護結合醫病共享決策為輔介入透析管路建置標準化

黃慧玲[1] 司雅玲[2] 陳秋惠[3]

臺大醫院新竹分院 血液透析室

目的

透析患者永久性瘻管列為醫療品質及病患安全工作目標之一，隨著透析年齡降低，併多重慢性病，顯見提供良好的永久性透析管路相對重要。

方法

實施對象為本院新收入透析患者，收案期間為 111 年 1 月–112 年 12 月，新收入病患共 90 人，其中轉出 4 人、死亡 3 人、轉入 4 人，18 位因心臟疾病、年長、等待換腎，瘻管無法建置等等因素放置雙腔靜脈導管。瘻管建置病人共有 61 位，透析近超過 3 個月以上，甚至 6 個月以上才安排瘻管手術。針對本研究利用跨團隊方式結合醫病共享決策為輔，來協助提供永續醫療讓瘻管建置流程化，使病患得到完整照護，醫療端有所照護依據。

結果

分析病人端認為醫護會安排建置管路(31 位)、透析的知識不足(11 位)、流程不清楚(9 位)、和無法接受透析的事實(10 位)。本院分析後針對新收案病患提供醫護共同討論治療與照護資訊作業流程。

醫護端提出沒有作業流程、沒有規定、沒被教育過瘻管建置時機，與沒有主要溝通者(54 位)。經跨團隊討論後，制定新收案病患瘻管建置查檢表、標準作業流程，讓透析管路立早建置並連續性的照護，讓護理端照護有所準則。

結論

良好的醫療架構、作業流程與溝通聯絡管道在病人端接受更完整的瘻管衛教和醫病共享決策為輔下，病患更能在期望下接受完整的透析療程，使的病患醫療有連貫性。相對的醫護端更能提供完整性的透析照護品質和對新收案患者有相對的追蹤，並建立瘻管跨團隊的合作，達成醫病共好的關係。

關鍵詞

醫病共享決策　跨團隊領域　透析瘻管

C133

Using system diagram to improve quality of water for hemodialysis

運用系統圖分析提升血液透析用水品質

Pei-Shan Tsai[1], Ting-Ting Tsai[1], Chen-Wei Chen[1], Ie-Ching Hu[1], Feng-Tai Zhang[2], Te Hui Ku[3]

蔡佩珊 [1], 蔡婷婷 [1], 陳珍瑋 [1], 侯玉琴 [1], 張豐泰 [2], 郭德輝 [3]

[1] Nursing Department of National Cheng Kung University Hospital, Tainan, Taiwan

[2] Engineering Affairs Office of National Cheng Kung University Hospital, Tainan, Taiwan

[3]Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan

國立成功大學醫學院附設醫院護理部 [1], 工務室 [2], 內科部腎臟科 [3]

前言:

透析病人為維持生命需常規接受洗腎，若透析用水含有細菌及內毒素，而進入血液透析病人體內，可能引發感染、敗血症，導致住院率增加、醫療成本支出提升，嚴重甚至造成病人死亡，因此血液透析用水品質監測至關重要。RO 透析用水處理系統分別為 A 系統、B 系統、9F 系統，為每月必採檢項目，RO 室外循環管線全院共 204 處採檢處，分為 3 季輪續採檢，每月由 RO 小組其中兩名護理師採檢，檢測報告依據 AAMI 標準來判別，針對去年透析水菌落數高於 AAMI 行動標準，故運用系統圖分析檢討。

方法

透過系統圖分析原因、擬定措施，包含人力調整、修正採檢流程、制定消毒查核表單及設備異常查檢表。經系統圖分析後劃分 3 個因素，個人因素:每人平均兩個月負責採檢一次，對採水步驟會不熟悉，流程因素:採檢時排放水流大小不一、排水時間未規定明確及採檢連接管僅消毒前、後端部分，消毒時間約兩分鐘，工務室更換 B 系統之 B 套 RO 膜管後，未先檢驗菌落數，就立即使用，制度因素:平均每月八十處採水點，由兩名護理師執行採檢作業，在六小時內完成送檢，故擬定措施包含教育訓練:1.製作新加入人員考核表、2.將採水步驟印出紙本單張，放置採水置物櫃，以便採水時翻閱。相關作業標準: 1.與感管中心共同修訂 RO 系統採檢及菌落數異常處理作業標準，將排水速度、時間量化、2.修訂 SOP 增加 RO 膜管出水口採水點、3.原採檢消毒液為優點及酒精，改為 75%酒精浸泡採檢接管 30 分鐘、4.修訂 SOP 規範更換 RO 系統設備後需檢驗及格，才可使用設備。政策: 由院長指示成立「RO 管理小組」，決議增加醫檢師人力共同採檢。

結果

有鑑於更換 RO 膜管汙染水質造成人力、物力、時間耗損，故 111 年 12 月由院方成立血液透析室 RO 管理小組，跨團隊含腎臟科、護理部、感染管制中心、病理部及工務室等部門，制定 RO 系統異常緊報處理查檢表、修訂採水作業標準流程及定期稽核、採檢人員考核訓練表，112 年 1 月至 10 月 RO 水質檢測皆在安全範圍內。

結論

本院有兩套 RO 系統，平時採輪替造水供應透析室用水，當設備故障或水質異常時，可保有另一套 RO 系統正常供應。此次發生透析用水安全疑慮，經單位第一時間通報感染管制中心後，立即啟動 RO 管理小組，招集跨團隊成員參與會議，分析問題原因後，由透析室提供採檢流程，並請感染管制中心檢視流程，在人力不足方面，由醫檢師加入分擔部分採水處，在外包廠商設備汰換作業增設稽核管理制度，平時管路保養維護方面，由工務室每日檢視 RO 系統運作、每年重金屬及內毒素檢測，每月由護理師及醫檢師檢測菌落數，藉由水質監測及管理，確保透析用水品質符合要求。

C134

The incidence of thyroid cancer among patients receiving hemodialysis with secondary hyperparathyroidism post parathyroidectomy in Taipei Cathy General Hospital

台北國泰醫院洗腎病患副甲狀腺功能亢進症經副甲狀腺切除術合併甲狀腺癌之發生率

Chun-Lin Fu, Andrew Chou, Ming-Tso Yan, Shiang-Hua Feng, Chwei-shiun Yang
傅俊霖, 周子巽, 顏銘佐, 馮祥華, 楊垂勳
Taipei Cathay General Hospital
台北國泰醫院

Background:
The coexistence of thyroid cancer and hyperparathyroidism was observed in clinical practice, and it is a clinical diagnostic and management challenges. According to previous studies, primary or secondary hyperparathyroidism seems to be associated with thyroid cancer. The aim of the study is to investigate the incidence of thyroid cancer among patients who receives maintenance hemodialysis with secondary hyperparathyroidism in Taipei CGH HD room.
Methods:
We collected data of patients who underwent parathyroidectomy. In past ten years from year 2012 to 2022 at Taipei CGH. From electronic database and medical records, we obtained information including whether patients ever diagnosed with thyroid cancer, whether patients receive hemodialysis, operation date of parathyroidectomy, the pathology report, laboratory including renal function, PTH, calcium and phosphate level.
Results:
Total 188 patients with hyperparathyroidism were enrolled in the study, who had received parathyroidectomy in past ten years. Among these patients, 120 patients (63.8%) have received regular maintenance hemodialysis, in whom 10 patients was diagnosed with thyroid cancer and secondary hyperparathyroidism. The incidence rate was 8.3% of thyroid cancer among patients with secondary hyperthyroidism. 4 out of 68 patients without hemodialysis, favor primary hyperparathyroidism, had thyroid cancer, the incidence was 5.9%.
Conclusion:
Previous studies showed there is incidence ranging 3.3 to 15% diagnosed with thyroid cancer among patients with hyperthyroidism. In this study, we observed that thyroid cancer coexisted with secondary hyperparathyroidism, incidence rate was 8.3%. Clinicians should be aware of the association between hyperthyroidism and thyroid cancer while taking care of patients, especially in patients who received hemodialysis.
Keyword: secondary hyperparathyroidism, thyroid cancer, hemodialysis, parathyroidectomy

C135

The effectiveness of using far-infrared radiation and in-bed cycling exercise to improve the symptoms of restless leg syndrome in hemodialysis patients

運用遠紅外線照射及床上腳踏車運動改善血液透析患者不寧腿症候群症狀之成效

Pin-Hsiu Chen, Chia-Yi(Joy) Chiao, Huey-Liang Kuo, Gu Jia-Chi Huang, Ying-Fang Zhang, Kai-Ling Yang

陳品秀[1]*, 喬佳宜[2], 郭慧亮[3], 黃家琪[4], 張穎方[5], 楊凱玲[6]

[1] 中國醫藥大學附設醫院腎臟科血液透析室護理師 [2] 中山醫學大學護理學系副教授

[3] 中國醫藥大學附設醫院腎臟系

Background 計畫背景

在臨床上約有 6.6-62%之血液透析患者遭受麻刺、蟲爬、酸癢、酸脹、或搔癢等下肢深部不適感之不寧腿症候群症狀困擾，進而影響其睡眠品質及生活品質。因此，協助不寧腿症候群患者改善因症狀所帶來的困擾是刻不容緩的。此外，本研究亦探討 RLS 之 HD 患者，藉由遠紅外線照射小腿與床上踩腳踏車之腿部伸展運動，對於改善憂鬱、不寧腿症候群嚴重程度、睡眠品質、及生活品質的關係。

Methods執行方法

本研究為類實驗型研究，將於中部某部醫學中心血液透析室進行個案的招募及資料收集。對本研究有興趣之研究對象將隨機分派至實驗 A 組、實驗 B 組、以及對照組等三組，每組各 6 人。分配於實驗 A 組之受測者於血液透析期間進行每週 3 次，為期 12 週的床上腳踏車運動 30 分鐘介入措施外加照射遠紅外線 30 分鐘。分配於實驗 B 組之受測者於血液透析期間進行每週 3 次，為期 12 週施以每週 3 次的床上腳踏車運動 30 分鐘。分配於對照組之受測者於血液透析期間進行每週 3 次，為期 12 週，接受一般常規透析照護。資料於收案執行介入措施前進行第一次之基準資料收集，並於執行介入措施後之第三個月進行後續追蹤資料之收集。

Result執行成果

本研究結果顯示，在實驗 A 組執行遠紅外線照射小腿加床上踩腳踏車之腿部伸展運動介入措施後，研究個案之睡眠品質(t=3.43，P=.019)和生活品質(t=-3.43，P=.019)呈現明顯差異。在實驗 B 組執行床上踩腳踏車之腿部伸展運動介入措施後，研究個案之不寧腿嚴重程度(t=3.76，P=.013)和憂鬱症狀(t=2.88，P=.035)呈現明顯差異。進一步比較三組間之差異發現僅在生活品質方面呈現顯著不同(H=7.45，P=.024)。

Conclusions 結論

本研究結果可協助 RLS 之 HD 患者，藉由遠紅外線照射小腿與腿部規律伸展運動降低憂鬱與不寧腿症候群之嚴重程度，並進而提升其睡眠品質及生活品質。

關鍵字：不寧腿症候群、血液透析、遠紅外線照射

C136

Improve the handwashing compliance rate in hemodialysis rooms nursing staff
提升血液透析室護理人員洗手遵從率

Hsiang-Mei Chen[1], Ching-Wei Wang[1], Yueh-Feng Tsai[1], Ting-Yi Wang[1], Li-Chiung Yang[1], Li-Hsueh Huang[1]
陳香每[1*] 王景薇[1] 蔡岳峰[1] 王婷翊[1] 楊麗瓊[1] 黃麗雪[1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1] 台南新樓醫院 洗腎中心

目標：
疾管局指出血液透析病人是易受感染的高危險族群之一，細菌容易藉由醫護人員的手傳播給病人，所以手部衛生在感染控制上是極重要的一環。110 年下半年度本單位護理人員洗手遵從性稽核時，稽核 30 件，只有 9 件合格，達成率 30%，故將提升血液透析室護理人員洗手遵從率列為年度計畫中。

方法：
一、發現問題：110 年 10 月洗手外部稽核發現：1 接觸病人前 10 件，3 件達成；2 執行清潔/無菌操作技術前 1 件，0 件達成；3 接觸病人後 8 件，3 件達成；4 接觸病人週遭環境後 11 件，3 件達成，總稽核 30 件，達成率只有 30%。
二、確認問題(1101201-1101231)：1、同仁對洗手認知不足。2、單位洗手稽核表年代久遠，未適時更新。3、單位監測機制不完善。
三、改善措施執行（1110101-1110331)：1、加強洗手認知：1-1 於洗手台與床尾張貼洗手標語，加強宣導。1-2 每病床床尾、每區治療車及換藥車皆放置乾法手液，加強便利、可近性。1-3 列明洗手五時機資料於公布欄、製作洗手 5 時機影片於各區護理站電腦，提供同仁隨時觀看。2、修定標準化稽核表及技術評核。3、加強監測之機制：3-1 感控組員於會議時，接受稽核前訓練，以達稽核標準一致。3-2 不定時由感控組員進行評核。3-3 每 3 個月內部監測洗手。3-4 每 6 個月由感控室執行外稽。3-5 公告稽核結果以進行改善。

結果：
111 年 4-12 月洗手評核結果如下：1、單位監測達成率 93.4%。2、內部稽核洗手遵從性達成率（6 月 96.67%、9 月 100%、12 月 100%)。3、感控室人員予外部稽核（4 月）總稽核 30 件，有 1 件未達成，達成率 96.67%；(10 月）稽核達成率 100%；以上措施有效提升洗手遵從性。

結論：
臨床護理人員常因工作忙碌、著急把事情做完而忽略洗手的重要性，透過強化宣導洗手之認知、標語圖片的提示、影片宣導及定期洗手內外稽核監測，養成護理人員洗手習慣，藉由手部衛生的落實感染控制，提升照護品質。
關鍵字：血液透析、手部衛生、感染控制

C137

Reduction of Arteriovenous Shunt Obstruction Rates in Hemodialysis Patients
降低血液透析病人動靜脈瘻管阻塞率

陳采儀[1], 蔣美慧[1], 張璨今[1], 林月花[1], 楊凱玲[2], 林詩怡[2]
Tsai-Yi Chen[1], Mei-Hui Chiang[1], Li-Chin Chang[1], Yueh-Hwa Lin[1], Kai-Ling Yang[2], Shin-Yi Lin[2]
[1] Hemodialysis Unit of Huihe Hospital
[2]Department of Nephrology, China Medical University Hospital
[1] 惠和醫院血液透析室
[2] 中國醫藥大學附設醫院腎臟系

計畫背景

動靜脈瘻管是血液透析病人接受透析治療的主要血管通路且被視為病人的第二條生命線。動靜脈瘻管阻塞不僅耗用醫療人力、物力等資源，更影響病人治療品質，本單位藉由分析動靜脈瘻管阻塞原因，進行檢討即改善，降低動靜脈瘻管阻塞發生率，提升透析照護品質。

執行方式

動靜脈瘻管阻塞為本單位護理照護品質監測項目之一，動靜瘻管阻塞發生率閾值為 0.82%。採回溯性統計 2021 年 9 月至 2022 年 2 月動靜脈瘻管阻塞發生率為 1.65%。資料收集期間利用各項查檢表收集資料，分析瘻管阻塞原因為:透析中低血壓、靜脈壓上升、動脈血流不足等。擬定改善對策分別為：教導病人如何預防低血壓、水分控制、設計瘻管穿刺輪序表，制定靜脈壓異常登記表、轉介流程、加強病人對動靜脈瘻管自我照護之認知，並於改善對策實施後進行成效分析。

成果評估

2021 年 9 月至 2022 年 2 月動靜脈瘻管阻塞率為 1.65%，2022 年 7 月實施改善對策至 2023 年 8 月，改善後動靜脈瘻管阻塞率降為 0.79%，成效良好。結果顯示，預防動靜脈瘻管阻塞時，應注意血管通路的血流量，穿刺前先以聽診器評估瘻管血流方向及震動的情形，確定正確位置後再進行穿刺，避免瘻管重複穿刺造成血管狹窄及阻塞。建立護理人員衛教指導標準化流程，善用衛教輔助工具，使護理人員有所遵循，進而提升照護品質。

結論

臨床雖然無法完全避免病人動靜脈瘻管阻塞情況，透過持續性的衛教宣導，加強病人(家屬)對疾病的認知，提升自我照顧的能力，了解如何降低動靜脈瘻管的傷害及維護動靜脈瘻管功能的重要性，減少阻塞發生，藉由醫療團隊照護，持續監測才能確保病人動靜脈瘻管阻塞率下降，提升透析照護品質。

關鍵字:動靜脈瘻管、血液透析、阻塞率

C138

Developing entrustable professional activities（EPAs） for training new nursing staff in hemodialysis units

發展可信賴專業活動（EPAs）運用於血液透析室的新進護理人員培訓

Ching-Yueh Hsu, Hsiang-Yu Hsiao, Yu-Ying Huang
許瀞月[1]，蕭湘玉[1]，黃玉瑩[1]
Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University
[1.]高雄醫學大學附設中和紀念醫院護理部

Background:
「可信賴的專業活動」(Entrustable professional activities, EPAs) 是臨床醫療實務工作訓練的創新評估框架，作為勝任醫療任務的能力培養，因應護理面臨全球性的人力不足，我們期待能不斷精進更符合臨床工作實務的培訓，使新進護理人員能順利適應職場工作並培育符合期待的專業能力。EPA 教學評量模式受到臨床護理教育重視的主要原因：(1)確保病人安全與照護品質的重視；(2)以學習者由抽象轉化為具體可觀察、可測量的評量模式；(3)打破訓練時間藩籬、重視所能展現的勝任能力。血液透析護理屬於進階護理專業領域，教育訓練前提首重「需求的評估」，建構 EPAs 可針對專業的核心能力，透過明確、簡短任務描述及信賴監督等級，導入臨床工作中的學習，不但能提供課程教育者、臨床指導者及學習者，使用一致的標準，按個人的學習弱點給予回饋指導，使他們能夠在發展過程中設定目標並幫助自我監控進度，強化及提升護理人員專業素養與技能。
Methods:
發展 EPAs 過程第一階段，由受過 EPAs 訓練之臨床教師及透析室護理長，組織發展小組以專家會議方式，依據透析專業之特性，根據 Olle ten Cate 教授提出的 EPA 七大面向之架構下，導入學習關鍵性指標，重複多次的討論，建構出符合透析室 EPAs 的臨床實務相關主題，再由瞭解 EPAs 內涵及建構過程之 EPAs 專家，針對內容初稿，逐一檢視語意的清晰度及各面向歸類的合適度給予修訂意見。第二階段為驗證 EPAs 採用單位問卷調查，請具指導新進護理人員資歷之臨床教師，針對任務的常見性、重要性及危險性進行內容的評分，取高分的項目作為透析室三個月新進護理師的 EPAs 主題。
Results:
最後選定兩項血液透析室可信賴專業活動(EPAs)主題為：(1)血液透析照護：評估學員是否勝任透析治療之照護能力，包括病人辨識、確認及判定血液透析病人資料、操作血液透析機器、透析中常見合併症及異常處理；(2)透析血管通路照護：評估學員是否具備對於不同透析血管通路的評估及衛教能力，包括動靜脈廔管及雙腔靜脈導管的功能評估及消毒，動靜脈廔管穿刺及固定、衛教動靜脈廔管及雙腔靜脈導管自我照護。為讓臨床教師準確理解和成功實施 EPAs，因此舉辦在職教育訓練，了解 EPAs 的使用及清楚如何評估學習者以達到共識，進而能掌握與執行以能力為導向的評量與回饋模式。
Conclusions:
隨著時代進步，護理教育也與時俱進，跳脫過去的思維模式，強調以能力為導向，看到學員達到我們期待他能完成的能力，「放手獨立」是每個指導者對學習者的期待，進而讓病人的照護品質最佳化。

Keywords:
可信賴專業活動、新進人員、臨床護理教育

C139

Study on the clinical differences between hemodialysis early cannulation graft and traditional graft

血液透析即穿式人工血管與傳統人工血管臨床差異性研究

Yu-Fen Ting, Shang-Chih Liao, Hsu-Ting Yen, Ching-Tan Cheng, Yueh-Ting Lee
丁郁芬,廖上智,顏旭霆,鄭晶丹,李岳庭
Kaohsiung Municipal Feng Shan Hospital-Under the Management of Chang Gung Medical Foundation（Hemodialysis room、Cardiovasular Surgery）
高雄市立鳳山醫院（委託長庚醫療財團法人經營）血液透析室,心臟血管外科

前言

血液透析病人必須有良好的血管通路，有一部分病人因本身血管條件不良使用人工血管。傳統人工血管無法立即上針且血管阻塞的機率大於自體血管。新型即穿式人工血管術後有立即上針的優點，對於急需透析的病人，提供除隧道式導管以外另一項選擇。本研究探討本院血液透析病人，使用即穿式人工血管與傳統人工血管臨床上之差異。

方法

本單位 2023 年 9 月共有 276 位血液透析病人，有 26 位病人採用傳統式的人工血管，2020 年 12 月起，陸續有 5 位病人採用即穿式人工血管（early cannulation graft），同一時期另有 10 位病人採用傳統式人工血管（traditiona graft），兩組病人就初始通暢率（primary patency rate）、初始輔助通暢率（primary assited patency rate）、感染率、及血腫做比較。

結果

即穿式病人有 2 位男性，3 位糖尿病。傳統式病人有 2 位男性，糖尿病 3 位，兩組皆無心血管或周邊血管疾病。平均年齡即穿式為 71±3.794 歲，傳統式為 72.7±32.646 歲。3 個月、6 個月、12 個月初始通暢率在即穿式及傳統式分別為 100%（5/5），100%（3/3），50%（1/2）及 60%（6/10），44%（4/9），38%（3/8）。3 個月、6 個月、12 個月初始輔助通暢率在即穿式皆為 100%，在傳統式分別為 70%(7/10)，78%(7/9)，及 75%(6/8)。兩組追蹤時間及第一次執行血管擴張術時間，即穿式為 4 到 33 個月，及 10 個月，傳統式為 1 到 33 個月及 1 個月（最長到 19 個月）。兩組皆無感染或血腫發生，但傳統式有 3 人在 2 個月內人工血管頻繁性阻塞，改為 Hichman 導管。

討論

整體而言，本院的觀察式研究，即穿式人工血管的通暢率優於傳統人工血管，可能與人工血管材質及上針方式要求有關，值得進一步探討。即穿式人工血管使用的即時性及便利性，確能解決病人急需透析的問題，在其他研究也發現與隧道式導管比較，感染率及阻塞率也明顯減少。

關鍵字:血液透析、即穿刺人工血管、Early cannulation graft

C140

Applying evidence based methods to explore the effectiveness of hemodialysis taping styles in preventing puncture needle dislodgement

以實證手法探討血液透析穿刺針固定方式對預防穿刺針滑脫之成效

Yu-Hsiu Wang, Tzu-Yen Hsu, Hsiu-Chu Chang, Jui-Hsin Chen
王玉秀, 許紫燕, 張琇祝, 陳瑞忻
Department of Nursing, Kaohsiung Municipal Siaogang Hospital
高雄市立小港醫院（委託高雄醫學大學經營）護理部

Background：

血液透析管路系統的密合度非常重要，在血液幫浦持續運轉下，任何一個管路連接點鬆脫都會造成病人血液的流失、引發血路的感染，也可能因為空氣栓塞或失血性休克等致命性的嚴重傷害。臨床上不乏出現跡近錯失(near miss)的透析管路事件，如固定紙膠脫落、穿刺針外滑…等，雖然沒有發生傷害，卻暗示著有改善的空間，於台灣病人安全通報系中，血液透析管路滑脫案件多因人為疏忽、管路固定技術不當及臨床訓練不足所致，故藉由實證手法進行改善對策來預防穿刺針滑脫事件的發生，進而提昇病人就醫安全及醫療品質。

Methods：

使用血液透析/Hemodialysis、固定方式/Taping Styles、穿刺針移位/Needle dislodgement 等中英文關鍵字，搜尋中、英文 5 個資料庫，以布林邏輯組合關鍵字及不使用 Filters 篩選，納入 2 篇類實驗性研究進行評讀，運用 JBI Critical Appraisal Checklist for Quasi-Experimental Studies 進行文獻評析，結果顯示 V 型及 U 型黏貼固定方式，在抵抗外在拉扯及預防移位的效果較佳。試行 V 型固定，因黏貼困難高，須花較多時間拆解，費時且增加成本，最後改良 U 型固定，適用於穿刺針蝶翼無法服貼皮膚、假性血管瘤及會更換姿位病人；而配合度佳且穿刺針蝶翼可服貼皮膚病人，仍沿用傳統橫式固定。

Results：

藉由實證改善穿刺針固定方式，但是，失誤是綜合多個因素接連發生錯誤後的結果，因而擴及透析管路固定的全面反思，藉由規範管路黏貼方式、舉辦護理人員管路安全工作坊及創新手掌型約束帶等，建立管路照護標準，經改善措施執行實施後，於 2021 年 10 月 1 日至 2023 年 9 月 30 日未發生血液透析管路滑脫事件。

Conclusions：

守護病人安全的護理工作背負著極大壓力，然而預防勝於治療，運用實證護理手法，縮小知識與實踐差距，經由護理人員建立管路安全認知與照護標準，進而衛教病人或照護者，提高其管路安全認知，在護理人員忙碌之餘，開啟護理端及病人端安全之鑰，從而掌握每個層面的把關，落實病人管路安全。

Key words：

實證、血液透析、固定方式、穿刺針移位

C141

Underestimated peripheral arterial disease in hemodialysis patients: a single center cases analysis

血液透析患者易被忽略的周邊動脈阻塞疾病:單一中心病例分析

Yu-Wen Huang, MS[1], Chih-Chien Sung, PhD[1], Chien-Chou Chen, MD, MS[1,2]

黃玉玟[1], 宋志建[1], 陳建州[1,2]

[1]Division of Nephrology, Tri-Service General Hospital

[2]Division of Nephrology, Tri-Service General Hospital Songshan branch

[1]三軍總醫院腎臟內科 [2]三軍總醫院松山分院腎臟內科

Background：

Peripheral arterial disease (PAD) is common in hemodialysis (HD) patients. It's a major cause of acute limb ischemia and a risk factor for cardiovascular-related deaths in hospitalized patients. Screening for PAD using the Edinburgh questionnaire in HD patients can be challenging due to reduced physical activity, and vascular calcification can lead to false-negative results in the ankle-brachial index (ABI). Therefore, early diagnosis and treatment can be improved by identifying risk factors in different hemodialysis patient subgroups and conducting early lower limb vascular imaging.

Methods：

This study retrospectively examined newly diagnosed cases of PAD through lower limb vascular imaging in adult HD patients at a single medical center from July 1st, 2020, to June 30th, 2023. We analyzed differences in age, gender, duration of hemodialysis, presenting symptoms, proportion of hyperlipidemia, proportion of renal bone disease, and ABI between patients with diabetes and those without diabetes before the confirmed diagnosis of PAD.

Results：

Among the172 HD patients, the incidence of PAD was 11.8% (9/76) in the diabetes group and 2.1% (2/96) in the non-diabetes group. Among the diabetic patients diagnosed with PAD, 88.9% (8/9) had already been diagnosed with coronary artery disease (CAD). In contrast, both non-diabetic cases diagnosed with PAD had known CAD. Diabetic patients diagnosed with PAD had longer dialysis vintage (8.83 vs 7.26 , p=1.0), a lower proportion of rest pain in the lower limbs(33% vs 50%, p=0.39), a higher proportion of non-healing wounds(77.8% vs 50%, p=0.295), higher chance of intradialytic hypotension(66.7% vs 50%, p=0.39) , and a higher ankle-brachial index compared to non-diabetic patients(0.99 vs 0.65, p=0.503)

Conclusions：

The presentation of PAD in chronic hemodialysis patients is often atypical, and the clinical characteristics differ even more between diabetic and non-diabetic populations. Early scheduling of lower limb vascular imaging for high-risk groups can aid in the early diagnosis and treatment of the disease.

Key words：

Hemodialysis, PAD, Diabetes

C142

Risk of hyperkalemia and its associated prognosis when Transition from Peritoneal Dialysis to Hemodialysis: A Single-Center Retrospective Study
從腹膜透析轉換到血液透析時高鉀血症的風險及其相關預後：單一中心回顧性研究

Ang Lu, MD[1], Chien-Chou Chen, MD[1,2], Shun-Neng Hsu, PhD[1]
盧昂 [1], 陳建州 [1,2], 許舜能 [1]
[1]Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
[2]Department of Internal Medicine, Tri-Service General Hospital Songshan Branch, National Defense Medical Center, Taipei, Taiwan
[1] 國防醫學院三軍總醫院內科部腎臟科
[2] 國防醫學院三軍總醫院松山分院內科部

Background：
Peritoneal Dialysis (PD) serves as a standard modality for renal replacement therapy and is distinguished by its capacity to preserve residual renal function, maintain vascular access, exhibit superior hemodynamic tolerance, and mitigate the socioeconomic burden associated with end-stage renal disease (ESRD) treatment. However, the transition from PD to hemodialysis (HD) is often inevitable, and little is known about the outcomes during this short-term period, specifically regarding factors that may contribute to increased mortality. This study aims to investigate short-term outcomes, focusing on hyperkalemia-associated adverse events.
Methods：
Patients with incident PD between 2016 and 2022 who subsequently transitioned to HD were included in a single renal registry. These individuals were categorized into two groups: the HyperK group, those with hyperkalemia (> 5.5 mmol/L), and the non-HyperK group, those without - for the initial 180 days. Mortality and time-to-event data were traced until the study's closing date. Analytical methods were employed to gain comprehensive insights into the participant characteristics, biochemical parameters, and patient outcomes.
Results：
A total of 49 participants were enrolled, with 16 in the HyperK group and 33 in the non-HyperK group. A significant divergence in time-to-death events ($p < 0.001$) was observed between the HyperK and non-HyperK cohorts. The HyperK group exhibited earlier instances of death events. In contrast, the non-HyperK group had a more gradual decrease in survival probability.
Conclusions：
The transition from PD to HD poses increased short-term risks, particularly concerning hyperkalemia and mortality. These findings emphasize the need for vigilant monitoring and robust management strategies to mitigate these risks during this critical transition period.
Key words：
hemodialysis, peritoneal dialysis, hyperkalemia

C143

The Learning Effectiveness of Innovative 3D-Printed Teaching Aids on Emergency Responses Ability Use among Hemodialysis Patients

運用 3D 列印創新教具於血液透析病人緊急應變逃生能力訓練之學習成效

Chia-Wen Wu[1], Chia-Yi Lin[1], Yu-Chun Tsai[1], Pei-Shan Tsai[1], Chen-Wei Chen[1],Te-Hui Kuo[2]
吳佳雯[1], 林佳誼[1], 蔡俞君[1], 蔡佩珊[1], 陳珍緯[1], 郭德輝[2]

[1]Department of Nursing,[2]Nephrology Center, National Cheng Kung University Hospital, Tainan, Taiwan

[1]國立成功大學醫學院附設醫院護理部, [2]腎臟科

Background：

近年醫療場所火災發生頻傳，重大傷亡時有所聞，本院血液透析門診病人量平均每月為 1909 人次，醫療儀器多達 60 台以上，屬於火災高風險單位。因此平時熟悉防火逃生訓練，才能快速疏散透析中的病人，此時需病人、家屬與看護共同配合協助，才能爭取更多的撤離時間，降低傷亡程度。本活動目的為利用創意教學來增強記憶，提升門診血液透析病人緊急應變逃生能力。

Methods：

經過團隊研討，與醫院前瞻醫療器材科技中心合作，運用 3D 列印技術，精確製作仿真度極高的肢體模型，同時運用緊急逃生口訣「夾、夾、開」策略製作警示標語和衛教影片，以增加病人的記憶深度。透過 3D 列印教具的個別化教學實踐，我們期望能夠深化學員對動作程序的記憶和技能熟練度，以達到最佳的學習效果。

Results：

經由訪談及問卷調查，回饋相較於舊有紙本及口頭衛教，實際動手操作更容易理解及記憶，經由病人實際操作反饋執行困難點，團隊再加以修正，不僅互動性高，透過反覆多次操作面對緊急認知測試也較不容易緊張，可以藉由平時訓練記憶爭取更多撤離時間。創新教具介入前後，病人操作正確率從 18%增加為 86%，平均操作時間從 73 秒降為 29 秒，活動滿意度達更高達 4.95 分(Likert Scale 五分法)，顯示此訓練可推廣運用於臨床教學活動。

Conclusions：

運用 3D 擬真、高度精準的肢體模型搭配口訣的緊急應變能力訓練，適合各種年齡層及外籍看護操作，且 3D 列印模具材質輕巧易攜帶，適合拿至各病床旁衛教病人及家屬，同時具備堅固不易損壞的特性，建議可推廣至其他單位(如 ICU)、分院，甚至其他透析診所及醫院，一同爭取逃生黃金時間。

Key words：

血液透析、3D 列印教具、緊急應變逃生

C144

Care Bundles to prevent tube catheter dislodgement in hemodialysis patients

強化組合式照護預防血液透析病人管路滑脫

Mei-Yen Chung [1], Ie-Ching Hu [1], Chen-Wei Chen [1], Te-Hui Kuo[2]

鍾美燕 [1], 侯玉琴 [1], 陳珍緯 [1], 郭德輝 [2]

[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan

國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

Background：

病人執行血液透析時須仰賴動靜脈瘻管連接透析迴路管由透析機台每分鐘抽出 200ml-350ml 血液，進行毒素及水份移除後再返血回體內，因此透析過程順利需有健全的動靜脈瘻管及固定安全的透析迴路管，本單位在 2 月間發生一起左手透析靜脈穿刺針滑脫異常事件，導致病人低血壓、血液流失近 200 毫升，發生原因為，瘻管周圍因皮膚搔癢而擦拭乳液，使得黏貼膠帶時不易固定，當下只因病人以右手搔癢皮膚時不慎移動透析管路導致穿刺針外滑，因此血液透析機偵測到靜脈壓力下降發出警報，而主護按壓靜音消除警報聲後未發現穿刺針外滑，讓透析機台持續運轉，導致病人因低血容休克危害到病人性命安全。針對此起血液透析管路滑脫，單位制定改善措施以強化病人透析照護品質。

Methods：

本單位依據台灣「腎臟醫學會及台灣腎臟護理學會血液透析評量作業評量標準」修訂「血液透析病人透析過程照護整合作業標準」、制定「透析機台臨床常見警報處理機制表單」、增設「血液透析預防管路滑脫走動式監測評值表」，利用每週交接班會議及病房會議加強宣導教育同仁需落實各項作業標準流程，對於皮膚乾燥塗抹乳液病人也一致衛教於透析前需減少乳液量擦拭，皮膚消毒時需清除乾淨，並請陪伴者留意透析中勿因抓癢而拉扯到管路。

Results：

截至 9 月底稽核護理師預防管路滑脫走動式監測 96 人次，監測結果「通過」達 100%，血液透析室未再發生管路滑脫事件。

Conclusions：

依據醫策會「111-112 年度醫療品質及病人安全」工作目標訂定提升管路安全，作業規範中提到，應制定管路異常事件預防和處理機制，並強化人員應變能力，有鑑於本單位由瘻管透析比率高達 86%， 除了針對流程面檢討改善、加強衛教宣導外，也加強稽核與落實制度日常化，並培養同仁的靈敏度，對於透過透析機台偵測異常發生警訊時須檢視警訊事件提示做妥善處理，避免相同事件再發生，以有效提升血液透析安全品質並建立良善的護病關係。

Key words：

血液透析、管路滑脫 、組合式照護

C145

The effect of melatonin on the sleep status in hemodialysis patients
血液透析病人使用褪黑激素對睡眠狀況的影響

邱美玲[1]，洪國欽[2]

[1]敏盛綜合醫院 血液透析室專科護理師,[2]敏盛綜合醫院 腎臟內科主任

背景：褪黑激素存在於松果體，晚上合成及分泌，與日夜週期有關，具有調節生理時鐘的功能。透析病人當中有高比例睡眠狀況不佳的問題，睡眠狀況不佳與憂鬱、疲憊均具有相關性。

方法：採類實驗研究設計，在 2022-2023 年間於，於某教學醫院血液透析室，採用匹茲堡睡眠品質量表評分，實驗組前測(n=27)未服用褪黑激素前，實驗組後測(n=27)增加褪黑激素(Ramelteon 8 mg / day)使用持續半年後，對照組(n=34)維持原本的藥物治療，對照組前測及對照組後測間隔半年，根據前後測問卷結果，使用(paired test)進行統計分析。**結果：**增加褪黑激素(Ramelteon 8 mg / day)治療持續半年之後，實驗組 PSQT (pre = 10.41 /post =9.81) ，睡眠質量(pre = 1.63 /post =1.22) ，入睡時間(pre = 2.22 /post =1.89)，睡眠時間(pre = 1.63 /post =1.81)，睡眠效率(pre = 1.22 /post =1.85)，睡眠障礙(pre = 1.11 /post =0.81)，催眠藥物(pre = 1.96 /post =2.15)，日間功能障礙(pre = 0.55 /post =0.07)。對照組 PSQT (pre = 10.62/post =11.44) ，睡眠質量(pre = 1.85/post =1.82) ，入睡時間(pre = 2.24/post =2.26)，睡眠時間(pre = 1.79/post =2.09)，睡眠效率(pre = 1.47 /post =1.79)，睡眠障礙(pre = 1.15 /post =1.17)，催眠藥物(pre = 1.12 /post =1.35)，日間功能障礙(pre = 1.00 /post =0.94)。

結論：褪黑激素的影響對透析病人之睡眠狀況，可以提升病人的睡眠質量(P=0.037)，可以增加睡眠效率(P=0.029)，減少睡眠障礙(P=0.049)及減少日間功能障礙(P=0.004)。

關鍵詞：褪黑激素、透析病人、睡眠狀況

C146

Improve vascular access occlusion rate via interventional treatment of dialysis hypotension in elderly hemodialysis patients

高齡血液透析患者經由血液透析低血壓的介入處置改善血管通路阻塞率

Wan Ting Chiu, Hui-Chung Tsai, Leong Foong Fah, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen

邱宛婷, 蔡蕙鍾, 梁鴻華, 俞靜儀, 李文欽, 陳靖博

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan, R.O.C.

高雄長庚紀念醫院 內科部 腎臟科

Background：

文獻研究報告指出血液透析中低血壓會導致血栓形成、造成透析血管通路失能無法進行血液透析。低血壓也會影響各個重要器官灌流，讓器官處於缺血缺氧狀態，容易引發透析相關的併發症。本研究探討藉由團隊介入減少透析低血壓的發生率，進而改善血管通路阻塞率。

Methods：

本研究納入本院門診發生透析中低血壓的**高齡透析長者**(>65 歲)(112 年 1 月至 9 月)，以病歷回朔記錄查閱分析結果進行改善。導入對策有：(1)設立跨科高齡透析長者照護關懷團隊，修訂標準化防治透析低血壓處置流程及衛教規範 (2) 設置血液透析處方提醒單、詳列病人透析方式、藥水或特殊注意事項 (3)建立與家屬溝通聯繫的橋樑，依衛教手冊內容以一對一方式執行床邊衛教，強化及提醒病人身體水分過多之合併症。教育水分(或鈉)含量控制原則及技巧的策略有 ①資訊化 QR code 提供多元衛教輔具及影片分享 ②海報製作並宣導監測透析後目標體重的重要 ③ 定期舉辦腎友座談會加深雙方溝通以提升透析低血壓照護認知 ④增列: 簡化外籍居服員語言交班單為單位衛教單張。

Results：

分析高頻率長者血液透析中低血壓的相關因子結果顯示：水分控制不佳, 58.3% ; 糖尿病,53.1% ;輪椅代步,51.6 % ; 心血管疾病, 36.5%; 家屬輪流照顧,21.9%; 透析前後用餐,17.7%; 體重增加> 5%, 15.6%; 透析前服用降壓藥,12.5%; 外籍居服員為主要照顧者, 12.5%。查核主要照護治療師每週更新交班清單監測評估透析後目標體重正確性由改善前 69.5%提昇至 98%，醫護人員與家屬間聯繫的聯絡簿交班完整率由 75.1%提高至 98%，評值透析治療師交班正確率由改善前 82.6%提升到 98.8%，透析治療師透析低血壓居家照護衛教完整率由 77.9%提高至 99%。

統計品質指標發現，高齡長者血液透析血管通路阻塞率由 21.1%下降為 8.9 %，需透過氣球擴張術、支架置放術或滴注血栓溶解劑之高齡透析長者，由改善前 19 人、改善後 8 人。

Conclusion:

強化個別化防治血液透析低血壓的醫療介入處置，可以減少血管通路阻塞率。

Keywords:

血液透析、高齡長者、低血壓

C147

Using team resources to optimize the awareness rate of dialysis hypotension care in elderly hemodialysis patients

運用團隊資源優化高齡長者血液透析低血壓照護認知率

Yu-Fen Yang, Hui-Chung Tsai, Chiao-Jung Chen, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen
楊育棻, 蔡蕙鍾, 陳嬌蓉, 俞靜儀, 李文欽, 陳靖博
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang, Gung Memorial Hospital, Taiwan, R.O.C.
高雄長庚紀念醫院 內科部 腎臟科

Background：
文獻報告指出早期預防血液透析中低血壓比發生後應對更有效。本研究報告如何強化單位團隊合作以提升高齡長者及家屬對血液透析低血壓照護認知的正確率，進而減少血液透析低血壓發生率。

Methods：
專案小組設計「血液透析病人及主要照護者對透析中低血壓照護的認知評估表」採專家效度評定對低血壓高齡長者進行認知問卷分析。導入對策：(1)協助腎友及家屬下載喝水 APP，計算每日水份攝取量(2) 跨科高齡長者照護團隊會同營養師共同建置衛教輔助工具（含三國外語圖示） (3)定期舉行腎友聯誼會並編列高齡長者健康吃加強高齡長者對水分控制認知，實施策略有 ①由醫師、營養師與病人及家屬面對面 Q&A，介紹有關水分控制、飲食原則及精確測量乾體重的重要性 ②邀請水分控制良好腎友分享飲食與水分控制的技巧 ③ 企劃『煥彩腎活-藝文滿室』手作體驗活動，鼓勵高齡長者及家屬參加活動，可轉移對疾病注意力以減少對水分渴求與攝取 ④成立高齡長者 Line 群組，藉由即時互動由輪值小幫手協助回答問題。

Results：
本研究族群，血液透析中低血壓高頻率長者的現況，家屬為主要照顧者有 50%，家屬輪流照顧佔 21.9%，家屬與外籍居服員共同照護佔 15.6%，外籍居服員為主要照顧者佔 12.5%。認知評估表結果發現飲食認知僅 61.2%，藥物相關問答為 63.8%，疾病及症狀認知為 64.7%，平均正確率為 63.2%，顯示照護認知嚴重不足。改善後查核主要照護者血液透析低血壓照護認知正確性由改善前 61.9%提升到 90.6%；評值高齡長者血液透析低血壓照護認知正確率，由改善前由 63.2%提昇至 92%。
統計品質指標發現，高齡長者血液透析低血壓發生率由改善前 30.9 % 降為 12.2 %；透析不適症狀發生率由 20 %下降為 8.2 %。評值透析治療師透析低血壓居家照護衛教完整率由 77.9%提高至 99%，病人及家屬滿意度也由 67%提昇為 99%。

Conclusion:
運用團隊資源優化策略經由提高高齡長者血液透析照護認知率，可以改善血液透析低血壓的發生率。

Keywords:
血液透析、高齡長者、低血壓

C148

The Relationships Between Nutrition, Fatigue and Quality of Life in Patients Under Chronic Hemodialysis

血液透析病人營養、疲憊、生活品質之相關性探討

Chin-Ling Chiang [1,2], Wen-Chuan Lin [2], Chia-Ter Chao [3]

姜金伶 [1,2], 林文絹 [2], 趙家德 [3]

[1] National Taiwan University Hospital Bei-Hu Branch, Department of Nursing , Hemodialysis Center [2] National Taipei University of Nursing and Health Sciences, Department of Nursing [3] National Taiwan University Hospital, Nephrology

[1] 國立台灣大學醫學院附設醫院北護分院護理部血液透析中心 [2] 國立台北護理健康大學護理研究所 [3] 國立台灣大學醫學院附設醫院腎臟內科

研究動機：

台灣末期腎臟病的發生率與盛行率高，2017年統計台灣透析患者總數約8萬餘人，其中九成病人使用血液透析治療。血液透析治療病人須配合飲食限制影響營養，有相關的症狀困擾可能衝擊生活品質，本研究探討血液透析病人症狀困擾中盛行率最高的疲憊、營養與生活品質的現況與影響因素，以期協助病人增進生活品質。

研究方法：

本研究採橫斷式研究設計，方便取樣自北部某地區醫院之門診血液透析病人，收集期間自 2019 年 10 月 15 日至 2020 年 11 月 20 日，以結構式問卷一對一訪談進行資料收集共進行 145 份問卷訪談，完成 141 份問卷(97%)。問卷內容包括個案基本資料、生化檢驗值、簡易營養評估量表(MNA)、血液透析病患疲憊量表、腎臟疾病生活品質量表等(KDQOL)。資料以 SPSS 22.0 版進行統計分析。

研究結果：

本研究 141 位參與者，平均年齡為 64.62 ± 14.94 歲，以男性居多(56.7%)，血液透析年資平均為 6.70 ± 5.33 年，合併 2 種慢性病者最多(36.2%)，血紅素(Hb)平均值為 11.17 ± 1.33 g/dL，白蛋白(Albumin)平均值為 4.06 ± 0.29 g/dL，肌酸酐(Creatinine)平均值為 9.93 ± 2.22 mg/dL，有接近 44%病人存在著營養不良風險與營養不良，71.9%病人有疲憊感受，疲憊程度與合併慢性病數量呈正相關，與生活品質之症狀/問題、腎臟病的日常生活影響、心理範疇、生理範疇、腎臟疾病負荷各層面呈顯著性負相關，營養總分與疲憊程度呈現負相關(r = - .282，p< .01)；與生活品質之各層面呈正相關，即合併慢性病數量愈多，疲憊程度愈高，營養得分愈低，生活品質愈差。抽血檢驗 Creatinine 值與營養評估總分呈顯著性正相關(r = .408，p< .001)，與疲憊總分呈顯著負相關(r = - .250，p< .01)，即 Creatinine 值愈低、營養狀態愈差，疲憊程度愈高。本研究結果發現疲憊為影響血液透析病人生活品質最重要的預測因子。

結論：

本研究增進對血液透析病人疲憊、營養與生活品質的瞭解，建議關注病人疲憊問題，即早介入與處理，並以營養量表定期評估病人的營養狀態，以改善病人的營養，進而提升生活品質。

關鍵字：血液透析、營養、疲憊、生活品質

C149

Using diversified strategies to reduce the incidence of dialysis hypotension among the elderly hemodialysis patients

以多元化策略降低高齡長者血液透析低血壓發生率

Baw-Ru Lu, Hui-Chung Tsai, Chien-Hua Chiu, Ching-I Yu, Wen-Chin Lee, Jin-Bor Chen

盧寶如, 蔡蕙鍾, 邱千華, 俞靜儀, 李文欽, 陳靖博

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan, R.O.C.

高雄長庚紀念醫院 內科部 腎臟科

Background：

高齡血液透析長者通常有較多合併症，較易發生透析中低血壓，若未能及早發現血壓下降的情形或處理的方法不當，容易造成病患跌倒，休克或動靜脈瘻管血流喪失等危險。本研究探討團隊多元化策略對於改善血液透析低血壓的成效。

Methods：

本研究團隊包含腎臟科、中醫內科及血液透析室等單位成員，門診**高齡血液透析長者(>65 歲)**依現況風險因子嚴重度分級，導入個別化照護。導入對策有 ①量身訂做高齡長者透析選單、依風險嚴重度分級介入個別化照護及輔助療法（會診中醫藥輔助、針灸、或穴位敷貼） ②建立與家屬溝通聯繫的橋樑、修訂主護制度及血液透析處方提醒單 ③老有所依-利用手機雲端及時同步和家屬及病患互動溝通及時協助及衛教增加衛教之完整性 ④更新輪椅式磅體重標準衛教影片分享並海報製作，以監測透析後目標體重設置 ⑤資訊化 QR code 修訂衛教輔助工具並翻譯成英、印、越三國衛教圖表提供外籍居服員參考⑥定期舉辦腎友座談會加深雙方溝通。

Results：

本研究單位門診血液透析病人 52.0%是高齡長者(>65 歲)，這些長者有 30.9%（1728 人次）於透析治療過程發生低血壓。高齡長者使用輪椅代步者有 51.6 %，家屬輪流照顧者有 21.9 %。經由多元化策略導入，病人及家屬對透析前秤重方法及重要性認知正確率由改善前 58.9%提昇至 98.8%。查核病人及家屬透析前後使用健保卡連線秤體重執行率，由改善前 61.9%提升至 90%，改善後達 97%。

統計品質指標發現，高齡長者透析低血壓發生率由改善前 30.9 % 降為 12.2 %；透析不適症狀發生率由 20 %下降為 8.2 %。其中以『協助輪椅代步者落實插卡秤體重影片以圖片步驟方式說明呈現』滿意度最高，達 98.9%。依此結果，單位將優化的透析低血壓照護衛教標準規範納入標準作業書以確保成效持續維持。

Conclusion:

透過專案的導入，有效提升門診血液透析高齡長者低血壓照護品質及衛教處置成效，進而降低血液透析低血壓發生率。

Keywords:

血液透析、高齡長者、低血壓

C150

Ten years of experience about therapeutic plasmapheresis in National Taiwan University Hospital (NTUH)

Yu-Jie Lin[1], Tai-Shuan Lai[1], Szu-Yu Pa[2], Yu-Hsiang Chou[3], Tao-Min Huang[4]
Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

Background
Therapeutic plasmapheresis (TPE), which commonly included plasma exchange (PE) and double filtration plasmapheresis (DFPP), had been used as an effective therapy for multiple specific disease; however, limited data are available in Taiwan. We aimed to present our experience in National Taiwan University Hospital (NTUH) in the past decade.
Methods
Data was extracted from NTUH hemodialysis system (HDS), and electronic medical record (EMR). Patients who received PE/DFPP therapy in our hospital between July 2014 and April 2023 were recruited. The diagnosis was made by clinical diagnosis as well as the therapeutic indication recorded on HDS. If the results were inconsistent, we further confirmed it through the electronic medical records. Baseline characteristics were also included, such as age, gender, treatment frequency and comorbidities.
Results
The total number of treatments in DFPP were 591 times and in PE were 291 times. The distribution of Age was similar between two groups, but male patients were predominant in PE group (63.1% vs. 36.9%). Gastroenterology disease, and neurology disease both accounted for the majority of PE (54%) and DFPP (49.4%) group, respectively. The most common disease treated by PE were liver failure with hepatitis B virus (HBV) flared up (19.6%), and for DFPP, the most common disease was myasthenia gravis (11.5%).
Conclusion
We presented the experience of DFPP and PE group in one single medical center. Further analysis of risk factors and treatment response were warranted.

Key words
Plasmaphoresis, plasma exchange

C151

Reduce the Overall Vascular Access Infection Rate in Hemodialysis Patient
降低血液透析病人血管通路總感染密度

Nai-Chi Kuo[1], Hsin-Yu Liao[1], Yu-Chuan Hsiao,[1]Ching-Yi Chen[1], Ya-Ping Chang[1]
郭乃綺[1] 廖欣瑜[1] 蕭玉專[1] 陳靜怡[1] 張雅萍[1]
[1]Douliou Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation Department of Nursing
[1]佛教斗六慈濟醫院護理單位血液透析

Background：
通暢且功能良好的血管通路是血液透析腎友維繫治療最重要的生命通路，然血管通路感染也是造成透析病人菌血症常見原因之一，其致死率、復發率及遠處轉移率皆會迫使血管通路面臨清創或重建之傷害，因此預防感染為透析護理相當重要之品質指標。分析本單位自 110-111 年共 29,975 透析人次，瘻管因感染轉介心臟血管外科共 5 位，總感染密度 0.16‰。
Methods：
透過資料收集、風險評估等品管手法發掘問題，介入改善措施避免再次感染，針對透析瘻管評估及穿刺流程進行風險分析，高風險步驟設置稽核表進行稽核，護理人員對於瘻管穿刺流程完整率 60%，未符合項次為無菌技術操作未落實、使用優碘溶液消毒等待時間不足、透析病人穿刺部位清潔未確實為主。透過文獻查閱擬訂相關對策:無菌技術進行不定期隨機稽核、新增計時器放置於消毒溶液旁，制定計時器使用時機、稽核計時器使用執行率、進行皮膚清潔檢視及視覺回饋。
Results：
經由專案實施改善後，護理人員瘻管穿刺流程完整率由 60%提升至 100%，112 年總感染密度 0‰，未有血管通路面臨清創或重建個案，表示介入措施的成效顯著。
Conclusions：
血管通路是腎友第二生命，而護理人員角色為照護者也是瘻管功能評估的重要執行者，活動過程中使用相關品管手法分析具體疏失之行為，根據作業流程之檢視及相關對策之實施，確實能改善瘻管總感染密度，降低病人住院率及面臨清創或重建之傷害。
Key words：
血管通路感染、血液透析治療

C152

Arrythmia As A Risk Factor of Non-tunneled Central Venous Catheter Failure

Kao-An Leu[1], Hsueh-Ping Peng[2], Chung-Kuan Wu[3,4,5]
呂高安[1], 彭雪萍[2], 吳重寬[3,4,5]
[1]國泰綜合醫院腎臟內科 [2]新光吳火獅紀念醫院護理部 [3]新光吳火獅紀念醫院腎臟內科 [4]新光醫院透析血管通路管理中心 [5]輔仁大學醫學院

Background: Non-tunneled central venous catheters (NT-CVCs) are commonly used for emergent renal replacement therapy (RRT) worldwide. NT-CVC failure is not uncommon among patients receiving emergent RRT, yet there has been limited discussion about the factors that affect the function of NT-CVC. This study aimed to investigate the risk factors associated with NT-CVC failure.

Methods: This study included 303 patients who underwent NT-CVC insertion for RRT at Shin Kong Wu Ho-Su Memorial Hospital between March 1, 2019, and February 28, 2020. The patients were divided into two groups: those who received NT-CVC insertion only once (single-inserted group, n=256) and those who underwent two or more NT-CVC insertions (repeated-inserted group, n=47). We analyzed baseline characteristics, site of insertion, duration of indwelling, and reasons for NT-CVC removal between these two groups. Additionally, we compared these variables between the first-time NT-CVC insertion and subsequent NT-CVC insertions within the repeated-inserted group. Binary logistic regression analysis was conducted to identify the risk factors associated with repeated-inserted NT-CVCs.

Results: Patients in the repeated-inserted NT-CVC group had a significantly higher proportion of arrhythmia, use of antiplatelets/anticoagulants, and longer indwelling durations. Within the repeated-inserted NT-CVC group, the reasons for removal differed between the first-time insertion and subsequent insertions. Patients with arrhythmia had an adjusted odds ratio (aOR) of 2.028 (95% confidence interval [CI], 1.037-3.964) for repeated-inserted NT-CVC, while patients with infection during hospitalization had an aOR of 2.874 (95% CI, 0.848-9.740) for repeated-inserted NT-CVC. Medications such as antiplatelets and anticoagulants were significantly associated with a higher risk of repeated NT-CVC insertion, likely due to patient characteristics rather than the drugs themselves.

Conclusion: Arrhythmia was identified as a significant risk factor for repeated-inserted NT-CVC, and infection may possibly influence the need for repeated-inserted NT-CVCs.

Key words: non-tunnel central venous catheter**,** hemodialysis, arrhythmia, infection

C153

Application of Population Medicine in High Risk Hemodialysis Patients Associated with Improved Outcomes

Tung-Lin Tsai [1], Chih-Chin Kao[1], Fang-Te Chao [1]
[1] Division of Nephrology, Department of Internal Medicine, Taipei Medical University Hospital, Taipei 110, Taiwan

Abstract

Cardiovascular comorbidities are the most common complications in end-stage renal disease patients. We selected hemodialysis patients with multi-cardiovascular comorbidities and intra-dialytic discomfort and cooperated with the cardiovascular department to arrange cardiac exams for early detection. We aimed to reduce cardiovascular complications in these patients.

Introduction

Patients with end stage renal disease are at high risk to develop cardiovascular complications. To early diagnose and treat these patients, we applied "population medicine" and cooperated with cardiovascular specialists to improve these patients' outcomes.

Materials and Methods

This early-diagnosis program was established by nephrologist and cardiologist teams. We included hemodialysis patients with multi-cardiovascular comorbidities and intra-dialytic discomfort, such as chest pain, shortness of breath, or fluctuating blood pressure. Those who met the inclusion criteria were referred to the cardiovascular department to receive echocardiography and myocardial perfusion scan. The primary outcome was all-cause mortality, and cardiovascular mortality, compared before and after the intervention.

Results

A total of 469 patients were enrolled. The mean age of these patients were 67.3 ± 13.1 years. Compared to the patients' outcome before this program, the mortality rate was improved from 1.5% to 1.18% person-years. Cardiovascular mortality rate was improved from 0.46% to 0.37%.

Conclusions

This early diagnosis program intervention was valuable for high risk hemodialysis patients. Our intervention led to a significant improvement in all-cause mortality rates, and cardiovascular mortality, highlighting the effectiveness of population medicine to improve patients' outcomes.

C154

Measuring Quality of Life in Hemodialysis Patients Impacting

血液透析腎友生活品質測量之探討

Chen-Wei Chen [1], Ie-Ching Hu[1], Te-Hui Kuo[2]

陳珍緯 [1], 侯玉琴 [1], 唐佩芳 [1], 郭德輝 [2]

[1]Department of Nursing , [2]Nephrology Center , National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan

國立成功大學醫學院附設醫院 [1] 護理部、[2] 腎臟科，台灣

Background：

根據衛福部公布 110 年國人十大死因排行，「腎炎、腎病症候群及腎病變」排名第九，透析發生率及盛行率高居不下，每年約九成腎友選擇以血液透析做為維持生命之方法，因此長期血液透析對生活品質的衝擊，已是現代醫護相當重視之議題。本研究目的在探討門診血液透析患者健康與生活品質之相關因素。以南部某教學醫院之門診血液透析中心為資料收集對象。

Methods：

採用衛服部生活品質量表

(EuroQol instrument, 為稱 EQ-5D) 作為評量工具:

- 量測對象:門診血液透析腎友
- 量測人數:145 人
- 量測工具:掃 QR Code 以個人喜好為基礎的自我評量，避免人為因素而影響填答內容
- 測量內容: 一種為健康生活品質的測量，包含行動、自我照顧、日常活動、疼痛/不舒服、及焦慮/沮喪等五個面向；以及 0-100 分的健康狀況等兩部份，0 分代表當天想像中最差的健康狀況，100 分代表當天想像中最佳的健康狀況。

將生活品質量表(EQ-5D)(圖一)，設計成 QR Code 模板(圖二)，護貝於各區 E 化工座車桌面，由護理師提供 QR Code 讓腎友自行填答。

Results：

由評量結果顯示，健康狀況評分 60 分以上占 88%；而從生活品質的五個面向中，我可以四處走動占 75%、我能照顧自己沒有問題占 75%、我能從事平常活動沒有任何問題占 76%、我沒有任何疼痛或不舒服占 72%、我不覺得焦慮或沮喪占 90%。

Conclusions：

藉由生活品質量表 EQ-5D 得知，評量工具是由腎友主觀認定當日的健康狀況作評分，沒有正常值或閾值標準。可知血液透析腎友的健康分數與生活品質息息相關 。

Key words：

Measuring Quality of Life、Hemodialysis

C155

The association of denosumab use and the risks of cardiovascular events in hemodialysis patients

保骼麗使用和血液透析患者的心血管事件

Lung-Chih Li[1], Tsuen-Wei Hsu[1], Chiang-Chi Huang[1], Chia-An Chou[1] and Chien-Ning Hsu[2]

李隆志[1], 許淳惟[1], 黃鏘錡[1], 周嘉安[1], 許茜甯[2]

[1.] Division of Nephrology, Department of Internal Medicine; [2.] Department of Pharmacy, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan

[1.] 高雄長庚紀念醫院 內科部 腎臟科

[2.] 高雄長庚紀念醫院 藥劑部

Background: Osteoporosis and cardiovascular diseases (CVD) are both important issues and correlated in end stage kidney disease (ESKD) patients. Denosumab, a receptor activator of nuclear factor-κB ligand (RANKL) inhibitor, is increasingly used as an anti-resorptive agent. The current study aimed to investigate whether denosumab use can reduce the risk of CVD in ESKD patients on regular hemodialysis.

Methods: The study cohort utilized propensity score matching (PSM) methods at a large medical institution in Taiwan. The Kaplan–Meier analysis and Cox regressions were performed to assess the effect of denosumab treatment on the cardiovascular events in hemodialysis patients.

Results: We identified 388 patient who received denosumab therapy for osteoporosis form 19,400 ESKD patients follow up in Chang Gung Memorial Hospital between Janunary 1, 2003 and December 31, 2018. After a 1:2 PSM, there were 162 patients in the denosumab group and 324 patients without denosumab use. The incidence rate of CVDs (myocardial infarction (MI), ischemic stroke and congestive heart failure) was significantly lower in the denosumab group than the non-denosumab group (HR = 0.58, 95 % CI = 0.37-0.92, p = 0.0195). However, the secondary outcomes including myocardial infarction, ischemic stroke, congestive heart failure and In-hospital death from any cause were lack of statistical significance. In the subgroup analysis, denosumab is associated with lower risk of CVD in female and patients with higher Ca*P product, hypertension and hyperlipidemia.

Conclusions: Denosumab therapy was associated with lower risk of cardiovascular events in ESKD patients. Denosumab has lower risk of CVD in female and patients with higher Ca-P product, hypertension and hyperlipidemia.

Key words: cardiovascular events, denosumab, hemodialysis

C156

Shared decision-making in hemodialysis patients with Hyperphosphatemia – An example of Southern medical center

SDM 介入血液透析病人高血磷之執行現況-南台灣某醫學中心為例

Yi-Chun Sung[1], Tung-Sui Yeh [1], Shih-Ming Hsiao[1], Chiu-Hui Tsai[1], Yu-Ying Huang[1], Yi-Wen Chiu[2]

宋藝君 [1] 葉冬穗 [1] 蕭仕敏 [1] 蔡秋蕙 [1] 黃玉瑩 [1] 邱怡文 [2]

[1]Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University; [2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

[1] 高雄醫學大學附設醫院護理部 [2] 高雄醫學大學附設醫院腎臟內科

背景：高血磷在長期透析病人族群中是普遍且相當重要的併發症，然而透過飲食控制或透析的方式，仍無法有效地控制血中磷離子的濃度。長期沉浸於高血磷的情形下，常會伴隨著低血鈣與活性維生素 D3(calcitriol)的不足，誘發次發性副甲狀腺機能亢進(Secondary hyperparathyroidism)，造成腎性骨病變、血管及軟組織鈣化，繼而引發心臟血管疾病，增加住院率及死亡率。因此透析病人藉由飲食控制及正確服用適當藥物，對血磷控制極為重要。

方法：本調查收案地點為高雄某醫學中心血液透析室，收案對象為常規血液透析血磷值>5.5 mg/dL、經腎臟科醫師啟動 SDM「面對降血磷藥物，我的選擇有什麼?」的病人。收集資料內容包括：基本資料、病人血磷值、SDM 輔助評估表、病人服用磷結合劑種類與執行 SDM 的滿意度。

結果：2021 年 1 月 1 日至 2023 年 8 月 31 日共收案 40 位，平均年齡為 76.5 歲，年齡>65 歲(47.4 %)，男性(47.4 %)、高中(含)以下(44.74 %)、自己做決策(84.2 %)、無工作者(57.9 %)。結果發現選擇自費降磷藥物使用的病人共 38 人，另兩人選擇飲食控制為優先。選擇自費降磷藥物種類以碳酸鑭(lanthanum carbonate)病人最多(77.78%)，且這些病人多數合併其他 1~2 種降磷藥物使用，合併服用碳酸鈣(CaCO3)的病人占 66.67%，合併使用氫氧化鋁 $Al(OH)_2$ 者 13.89 %，同時合併兩種藥物者為 11.11 %。收案對象啟動 SDM 時的血磷值為 6.09 mg/dL，SDM 介入後 3 個月的平均血磷值為 5.14 mg/dL，其中 22 位病人血磷值<5.5 mg/dL；病人對 SDM 偏好的分析共 4 個題項，分別為；我在意藥物的副作用 20 人次(50%)、我會考慮自費藥物的價格者 16 人次(40%) 、我不願意服用降磷藥物，想要先飲食控制看看者 13 人次(32.5%)、我在意服藥的方式有 11 人次(27.5%)；對於 SDM 執行過程滿意度，平均得分為 4.3 分。

結論：針對控制不佳的高血磷病人，腎臟科醫師啟動 SDM「面對降血磷藥物，我的選擇有什麼？」，透析護理師藉由一套有系統且具實證資料的「醫病共享決策臨床應用指引」指導工具引導病人，能讓病人可以更了解控制高血磷的照護與藥物選擇。確實遵從醫囑採低磷飲食、正確服用降磷藥物，仍是影響血磷控制的重要因素。

Keywords: Hyperphosphatemia, shared decision making (SDM)

C157

Percutaneous coronary intervention in dialysis patient may decrease intradialytic hypotension

經皮冠狀動脈介入手術可降低透析中低血壓的發生率

Tzu-Shan Huang[1], Jian-An, Wang [2], Zheng-Zhe Wu[3], Yu Huang Chiu[1], Wei-Ren Lin[1], Po-wei Chen[1], Junne-Ming Sung[1], Ming-Cheng Wang[1], Chin-Chung Tseng[1], Kuan-Hung Liu[1]
黃子珊[1], 王健安[2], 吳政哲[3], 邱裕桓[1], 林威任[1], 陳柏偉[1], 宋俊明[1], 王明誠[1], 曾進忠[1], 劉冠宏[1]
[1] Department of Internal Medicine, National Cheng Kung University Hospital, [2] Institute of Data Science, National Cheng Kung University, [3] Division of nephrology, Kuo General Hospital
[1] 成大醫院內科部, [2] 成功大學數據科學研究所, [3] 郭綜合腎臟科

Background：
Cardiovascular disease is the leading cause of death in patients with ESKD (end-stage renal disease). While PCI can improve ventricular systolic function and may provide survival benefits for dialysis patients, its impact on intradialytic hypotension frequency remains unknown.

Methods：
We enrolled 230 hemodialysis patients from National Chen Kung University Hospital and collected data on coronary artery angiography and percutaneous coronary intervention up to November 30, 2022. Intradialytic hypotension (IDH) was defined as systolic pressure below 90mmHg. Hemodialysis session records were obtained for 180 days pre- and post-PCI. We assessed the influence of PCI on IDH incidence using logistic regression analysis with generalized estimated equation method.

Results：
During the study period, 78 patients underwent a total of 51 PCI procedures. We analyzed total 6938 sessions, with 3366 before PCI and 3572 after PCI. In a 360-day analysis (180 days pre- and post-PCI), no significant difference in intradialytic hypotension (IDH) incidence was observed. However, within a 180-day window (90 days pre- and post-PCI), IDH incidence significantly decreased with an odds ratio of 0.634 (p=0.003). In patients with diabetes mellitus (DM), a reduced risk of IDH was observed across both timeframes, exhibiting an odds ratio of 0.649 over a 360-day period (CI 0.459-0.925, p=0.017).

Conclusions：
PCI appears to be associated with a reduced risk of IDH over 180 days. In patients with DM, this risk reduction is observed over a 360-day period encompassing pre- and post-PCI.

Key words：
Intradialytic hypotension, Percutaneous coronary intervention, Diabetes mellitus, coronary artery disease

C158

Care of Hemodialysis Patients Taking Low-dose ^{131}I _The Regional Hospital Experience

服用低劑量碘-131 血液透析病人照護-地區醫院經驗

Feng-Mei WU, A-Jhen LI
吳鳳美，李阿真
Hanming Christian Hospital hemodialysis center
漢銘基督教醫院 血液透析中心

Background：

血液透析病人罹患甲狀腺癌服用 ^{131}I (碘-131)的血液透析，除了維持安全血液透析照常規外，需再合併輻射防護措施以保護醫療團隊、輔助人員(環衛)及環境的安全。

Methods：

遵循核醫部門提供 ^{131}I 病人血液透析設置準則:設置適當的屏蔽、血液透析區域使用不透水隔離紙以免血液飛濺汙染、醫護人員於血液透析區域穿著防護裝備。

1.**設置適當的屏蔽:** 鉛板、鉛頸圈、鉛衣的使用

2.**不透水隔離紙:**鋪於床墊、周圍地面、洗腎機，洗腎機面板則為保鮮膜覆蓋。

3.**人員防護裝備與措施:噴濺與染污的預防**

3-1 穿戴手套、鞋套、口罩、防護衣、防水髮帽、鉛衣，鉛頸圈。

3-2 **上機前:**病人到達病室前洗腎機在 Stnd By 狀態、血壓計設定自動測量。

3-3 **透析過程:** 上機採對接。必要醫療接觸外，醫護人員於屏蔽外，隨時注意病人情況。

3-4 **結束透析:** T-Line 方式收血、拔針。收血後，穿刺針與管路不分離、不排血水(或線上排水)，直接丟棄(手部染污暴露機率更少)。

4.**人員的編派(減少照護人員暴露時間):**安排技術熟練之醫護人員執行透析照護。分兩位護理人員照護(前、後段時間)。服用 ^{131}I 藥物一個月內，不安排懷孕的工作人員接觸或照護該病人。5.**病人:** 當天血液透析後再服用 ^{131}I 藥物，服藥後二至三天再進行血液透析。

6.**洗腎機(該病人專用):**床位安排於他人少經過之處、固定排水管，置於原處不隨意移動。

Results：

醫療團隊遵循相關照護準則，團隊人員在安全輻射防護下執行血液透析相關照護、維持原有血液透析品質。

Conclusions：

文獻顯示，第一次血液透析血中 ^{131}I 的清除率在 50%到 72% 之間，剩餘血中濃度隨著透析的次數而減少；輻射防護設置、措施務必妥善地執行以保護醫療團隊、輔助人員(環衛)及環境的安全。

Key words：

^{131}I 輻射 血液透析

C159

Weekly Timing Matters: Impact of Dialysis Day on Intradialytic Hypotension with Mediation analysis

透析中低血壓與透析日的關聯性和中介因子分析

Ying-Hsuan Lin[1], Wei-Ren Lin[1], Chia-Chun Lee[1], Yu-Huan Chiu[1], Zheng-Zhe Wu[2], Yu-Hsuan Yang[1], Hui-Lin Guo[1], Junne-Ming Sung[1], Ming-Cheng Wang[1], Chin-Chung Tseng[1], Kuan-Hung Liu[1]

林盈萱[1], 林威任[1], 李佳駿[1], 邱裕桓[1], 吳政哲[2], 楊育璿[1], 郭慧琳[1], 宋俊明[1], 王明誠[1], 曾進忠[1], 劉冠宏[1]

[1]Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University. [2]Division of Nephrology, Department of Internal Medicine, Kuo General Hospital

[1]國立成功大學醫學院附設醫院內科部 [2]郭綜合醫院腎臟內科

Background：

Intradialytic hypotension (IDH) is a prevalent yet life-threatening complication associated with morbidity and mortality in hemodialysis patients. Variable interdialytic intervals due to scheduling driven by healthcare personnel rather than physiological needs may introduce different risk profiles.

Methods：

This cohort study in a southern Taiwan tertiary hospital, conducted between January 1, 2016, and July 7, 2022, with 182 participants, categorized dialysis days as HD1 (Monday/Tuesday), HD2 (Wednesday/Thursday), and HD3 (Friday/Saturday). IDH was defined using reduction criteria (Fall 40: systolic BP drop ≥40 mmHg) or nadir criteria (Nadir90/100: systolic BP < 100 if predialysis systolic BP was ≥160; otherwise, systolic BP < 90mmHg). Multivariate logistic regression and mediation analysis were employed to assess IDH risk related to the dialysis day.

Results：

With 182 participants and 127,369 hemodialysis sessions, IDH prevalence for HD1 was 19.6% (Fall40) and 10.3% (Nadir90/100). Univariate logistic regression revealed a significant positive association between IDH and HD1 using the Fall 40 criteria. In multivariate models adjusting for patient demographics, ultrafiltration, and dialysis settings, HD1 was identified as the safest dialysis day in terms of IDH risk based on both criteria. Mediation analysis confirmed the significant influence of ultrafiltration on the relationship between the dialysis day and IDH risk.

Conclusions：

These findings highlight a significant link between the first hemodialysis day of the week and higher intradialytic hypotension risk, mediated by factors like ultrafiltration. This provides insights for clinicians in making decisions about ultrafiltration considering the specific day of the week.

Key words：

Hemodialysis, intradialytic hypotension, interdialytic interval, mediation analysis, ultrafiltration

C160

Information system integrates dialysis shunt ultrasound image data management
資訊化系統整合透析瘻管超音波影像資料管理

郭慧如, 陳嬌蓉, 李佳諺, 俞靜儀, 梁鴻華, 傅崇銘, 李文欽
Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang-Gung Memorial Hospital
高雄長庚醫院 腎臟科

背景(Background)：

透析廔管是血液透析病人重要的血管通路，臨床上運用廔管超音波儀器可輔助醫療人員，快速判讀透析廔管血流變化，早期診斷廔管失能風險；專案中使用國內廠商研發的手持式超音波儀器進行廔管功能檢測，而檢測後的 PACS 影像檔與醫師標記的文字記錄(血管圖圖片檔)存放，除內建具影像編輯管理，支援 DICOM（醫療數位影像傳輸協定）影像存取，更將其導入醫院管理資訊系統(Hospital Information Systems，HIS)及醫學影像存檔與通信系統(Picture Archiving and Communication Systems，PACS)，於檢測後能發揮快速追蹤、提升醫護人員臨床判讀與決策效率。

方法(Methods)：

專案申請手持式超音波(無線式)，並委請資管部門及儀器課於血液透析室設定 HIS 影像無線存取及資訊保護機制:

一、以單一病人為資料存取:依據個人資料檔進行檢查檔收件，將檢查報告傳輸至病人專屬病歷號資料檔，多次檢查皆會自動歸戶。

二、採就源性設計輸入:在資訊產生的源頭一次輸入完畢，減少事後輸入，如執行廔管超音波檢查時會同步測量血管深度、直徑、血流速度並立即於各個影像上標註數據，依權限可跨科檢閱。

三、影像建立型態分類:檢測後的廔管超音波影像檔與醫師標記血管圖圖片檔皆分類存放，並連結於透析作業系統之病人專屬造管輸入欄目中，可同步對照廔管手術時間及經皮血管腔內血管成形術（percutaneoustransluminal angioplasty,PTA）歷程記錄。

四、經醫院管理部授權，以專屬帳號密碼認證作業方式得以檢視臨床運用，資料傳輸人員皆須以電子簽章方式留存傳輸紀錄。

成果(Results)：

血液透析室於 2023 年 4 月至 8 月，廔管超音波執行人數為 59 人(63 人次)，血管種類分別為自體動靜脈廔管 52 人、人工動靜脈廔管 3 人、即穿型人工血管 4 人，共完成 360 張廔管超音波 PACS 影像檔；另因穿刺困難、廔管觸摸不易、多條分流等因素，繪製 16 張血管圖供治療師下針時比對，其 PACS 影像及血管圖圖片檔皆 100%完成傳輸至 HIS 系統，執行醫師也 100%完成 HIS 電子簽章；並於轉介心臟內科及心臟外科執行 PTA 時，提供即時性的臨床決策性支援，達成有效的跨團隊交接班作業。

結論(Conclusions)：

運用廔管超音波儀器執行透析病人的生命線監控，在品質管理上能支援臨床決策，並在醫療記錄資訊科技的持續進化下，朝向影像記錄結構化、建立品質分析儀表板，更有助於提升臨床醫療品質！持續建立以病人為中心的資訊架構，將透析廔管數據應用朝向精準醫療及智能分析。

關鍵字(Key words)：資訊化、廔管超音波、影像資料

C161

Experience in using continuous pre-pump arterial pressure monitoring in hemodialysis

導入血液透析中幫浦前動脈壓持續監測使用經驗

Tsui-Ling Lin[1], Yi- Ling Hsieh[1], Fong-Shung Huang[3], Hui-Ting Liu[1], Ching-Wen Lee[2], Chun-Fu Lai[2]

林翠玲[1], 謝易玲[1], 黃鳳雄[3], 劉蕙婷[1], 李慶玟[1], 賴俊夫[2]

[1] RN, Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2] Renal Division, Department of Internal Medicine, National Taiwan University Hospital Taipei, Taiwan

[3] Department of Integrated Diagnostics & Therapeutics

[1] 台大醫院護理部 [2] 台大醫院內科部腎臟科 [3] 台大醫院綜合診療部

Background：

透析是否足量是影響病患的預後及存活率的因素之一，評估透析效率的方式是每個月抽血檢測一次，影響清除率 (Kt/V)的其中之一因素為血流速度，目前台灣常規血液透析套組並無幫浦前動脈壓力偵測管路，當病人血管通路功能異常時，常常無法發現，查閱文獻，發現透析中動脈壓監測可提供臨床人員及時瞭解病人實際血流情形，本院血液淨化中心積極推動新增迴路動脈壓的監測，於國內首創透析中監測幫浦前動脈壓，提供臨床人員血液流速的參考依據，提升血液透析照護品質。

Methods：

本院血液淨化中心於 111 年成立專案小組，討論及修正動脈壓監測管於臨床實作可行性，於 112 年 1 月份新增血液透析迴路動脈壓測壓管，血液透析過程中監測迴路幫浦前動脈壓可經由測得的壓力，透過透析機內建模式，計算出實際血流速；推行前期舉辦教育訓練，提升單位同仁對動脈壓監測重要性認知，並訂定動脈壓監測臨床標準流程，協助臨床人員使用的順暢度，降低使用者壓力；由種子人員分區教學實作，漸進式由門診延伸至加護病房使用，訪查臨床使用動脈壓力監測實況，收集臨床端使用反饋並於會議中加以說明、宣導及澄清。

Results：

血液透析迴路動脈壓監測，經由透析機運算實際血流量，可得知病人血管通路是否功能正常，提前介入醫療措施，避免血管通路完全阻塞；另外偵測穿刺針下針位置是否妥適，穿刺針尺寸是否需調整，經由動脈壓負值推測是否有吸血管壁等異常情形，及早調整穿刺針位置可及時提升血流速穩定度，增加透析效能。

Conclusions：

目前使用幫浦前動脈壓監測的相關資料稀少，經由使用經驗的累積，期許未來能訂定針對國人的監測值標準，並將血液透析動脈壓監測擴大應用於提升透析清除率、早期預警血管通路阻塞及預測透析中低血壓的發生。

Key words：

血液透析、動脈壓監測

C162

Uric acid predicts all-cause mortality in patients with hemodialysis differs between high and low Charlson's index

尿酸對血液透析患者全因死亡率的預測在高查爾森指數和低查爾森指數之間存在差異

Sheng-Wen Niu, MD-PhD[1,2,3], Hugo Y. -H. Lin, MD-PhD[1,2,3], I-Ching Kuo, MD[1,2,3], Yi-Wen Chiu, Prof[2,3], Shang-Jyh Hwang, Prof[2,3], Jer-Ming Chang, Prof[2,3], and Chi-Chih Hung, MD[2,3]**

鈕聖文[1,2,3]林祐賢[1,2,3] 郭宜瑾[1,2,3] 邱怡文[2,3] 黃尚志[2,3] 洪啟智[2,3]* 張哲銘[2,3]*

[1] Department of Internal Medicine, Kaohsiung Municipal Ta-Tung Hospital [2] Department of Internal Medicine, Division of Nephrology, Kaohsiung Medical University Hospital, Kaohsiung Medical University [3] Department of Medicine, College of Medicine, Kaohsiung Medical University

[1] 高雄市立大同醫院內科部 [2] 高雄醫學大學附設中和紀念醫院內科部腎臟內科 [3] 高雄醫學大學醫學系

Background: Hyperuricemia is both an inflammatory and nutritional factor. Hyperuricemia is a marker of endothelial injury, which may help to promote atherosclerosis. Hyperuricemia or gouty attack in dialysis patients may also be a reflection of the underlying inflammatory state with subsequent increased risk for mortality. Scott D. Cohen, et al showed that gout was associated with an increased risk of mortality, especially in female patients without diabetes and hypertension. Uric acid is also correlated with malnutrition-inflammation-atherosclerosis (MIA) syndrome. Contrary to the general population, low but not high serum UA is associated with higher all-cause mortality in chronic dialysis patients, especially in those with PEW. Patients with hyperuricemia had higher antioxidant capacity and less oxidative damage, and they also had better nutritional status in general. Thus, we design the present study to investigate whether the hyperuricemia is a risk factor associated with worse survival in dialysis patients and whether comorbidities modify the effect of hyperuricemia.

Methods: To investigate the impact of hyperuricemia on mortality of hemodialytic subjects, we included 2615 hemodialytic participants based on the presence of UA levels, divided by UA level quintiles and sextiles in both subgroups of Charlson's index < 3(n=1107) and ≥ 3(n=1508). We performed linear regression analysis to investigate the relationship between UA levels and other factors, and Cox regression to confirm the effect of UA level on mortality in both subgroups of Charlson's index < 3 and ≥ 3 in hemodialytic subjects.

Results: In linear regression, UA was associated with male, lower age at dialysis, shorter entry-year, lower prevalence of DM, higher pre-dialytic body weight, lower Kt/V (Gotch), higher nPCR, higher albumin level, higher log of cholesterol level, higher phosphate level and higher log of PTH level. In Cox regression, high UA was associated with worse mortality with Charlson index < 3, but lower mortality with Charlson index ≥ 3: Subgroup of UA=6-7 mg/dl is significantly related to 39% increase in risk of all-cause mortality (HR: 1.39, 95% CI: 1.06–1.82) compared with of UA > 9 mg/dl with Charlson index ≥ 3; and subgroup of UA > 9 mg/dl is significantly related to about double increase in risk of all-cause mortality (HR: 1.99, 95% CI: 1.18–3.36) compared with of UA > 9 mg/dl with Charlson index < 3.

Conclusion: High UA level was associated with worse mortality with Charlson index < 3, may reflect an inflammatory factor; low UA level was associated with worse mortality with Charlson index ≥ 3, may reflect a nutritional factor.

Keywords: Uric acid, all-cause mortality, hemodialysis, Charlson index

C163

The effect of increasing influenza vaccination rate in hemodialysis patients
提升血液透析病人流感疫苗施打率之成效

Chen-Ying Hou[1], Yeh-Chen[1], Huai-Hsuan Chang[1], Yu-Wen Chiu[1], Yi-Hsiu Lin[1], Chen-Wei Chen, Te-Hui Kuo[2]

侯震纓[1], 陳燁[1], 張懷萱[1], 邱郁雯[1], 林怡秀[1], 陳珍緯[1], 郭德輝[2]

[1]Department of Nursing , [2]Nephrology Center , National Cheng Kung University Hospital , College of Medicine ,Tainan, Taiwan

國立成功大學醫學院附設醫院[1]護理部、[2]腎臟科，台灣

Background：

血液透析病人通常屬於免疫系統較弱的狀態，感染流感的風險增加，若病人感染流感後，可能加重原本慢性病的惡化，更可能引發併發症，需要住院治療，甚至導致死亡，因此，提升血液透析病人施打流感疫苗的重要性與強化流感預防的認知顯得格外重要。本文運用小組團體衛教提升病人對自我照護的認知，並且建立便捷與快速的單一窗口，以提升病人施打流感疫苗之意願。

Methods：

1. 護理師運用健康適能原則製作 PPT，透過小組團體衛教提供病人流感相關資訊，讓病人清晰了解流感對透析病人造成的風險及施打流感疫苗對病人提供的保護性，並強調接種流感疫苗的重要性，以提升施打流感疫苗的意願。
2. 透過跨單位合作，由血液透析室與感控師、門診施打流感疫苗治療室，三方合作建立便捷且快速之單一窗口，當病人有施打流感疫苗意願時，可由血液透析室醫師看診後開立注射單，病人直接持此單張至門診治療室施打流感疫苗，藉由簡化看診繁複之流程，以提升病人施打流感疫苗之意願。

Results：

透過小組的團體衛教提升病人施打流感疫苗之認知與建立病人便捷施打流感疫苗之流程，單位血液透析病人流感疫苗施打率由 2022 年 32.5%提升至 2023 年 52.3%。

Conclusions：

運用小組團體衛教與建立施打流感疫苗便捷程序提高血液透析室病人流感疫苗施打率效果顯著。藉由小組團體衛教提升病人對流感預防的認知，並修改繁複的看診程序，建立便捷與快速的單一窗口，提高病人流感苗的施打率，對於血液透析病人的健康促進發揮重要作用，也是醫療機構可廣泛推廣的健康策略。

Key words：

血液透析、流感疫苗

C164

A study on the Relationship Between Self-Health Management and Blood Phosphate Level in Hemodialysis Patients

血液透析病人健康自我管理與血磷數值的相關性研究

盧惠敏[1], 程 音[2], 楊素眞[3]

亞東記念醫院護理部護理長[1], 亞東醫院護理部督導[2], 亞東醫院護理部主任[3]

前言：

長期血液透析病人會有許多慢性合併症，高血磷為其中之一。磷長期累積會造成骨頭病變、軟組織鈣化、皮膚病變及心血管疾病等合併症，不但影響醫療照護品質更可能危及病人生命。有效控制血磷除了血液透析與服用磷結合劑以外，飲食控制也是相當重要的影響因子之一。

研究方法：

收案對象為接受血液透析治療一年以上且連續兩季的血磷值大於 5.5mg/dL 的 28 位病人，透析護理師為期半年以每個月依照抽血報告進行床邊個別性的衛教；創新「降磷傲嬌包」武功祕笈，內容包含血液透析飲食選擇及高磷食物的烹調注意事項、正確降磷藥物認識、客制化用藥提醒等；創新「武磷高手」透過競賽方式，腎友間互相激勵與成果分享等。

研究結果：

研究前後結果分析個案血磷值明顯降低($p<0.001$)，KAP(Knowledge Altitude Practice)模式分析，知識及行為有明顯的進步($p<0.05$)。

結論：

透過激勵與教導能引發腎友學習並參與自我照顧的意願，唯獨透析護理師對於飲食攝取及衛教的知識提供與指引方法較為侷限，建議營養師可介入至單位進行腎友個別飲食指導，針對長期無法達標的腎友提供飲食計畫，積極與主要照顧者共同修正腎友食物攝取，定時追蹤，減少腎友因高血磷產生的合併症，提升自我照顧能力與生活品質。

關鍵字：血液透析、自我健康管理、高血磷

C165

Association of the vascular access flow with echocardiographic parameters in hemodialysis patients with heart failure and reduced ejection fraction

血液透析病患合併低收縮分率心衰竭之血管通路血流與心臟超音波參數之相關性

Ya-Han Fu, MD[1,2], Chih-Ching Lin, MD, PhD[1,2]

傅雅涵 [1,2], 林志慶 [1,2]

[1]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital; [2] School of Medicine, National Yang-Ming Chiao-Tung University

[1] 台北榮民總醫院內科部腎臟科, [2] 國立陽明交通大學

Background: The vascular access flow (Qa) affected cardiac function in maintenance hemodialysis (HD) patients with heart failure with reduced ejection fraction<40% (HFrEF). However, few literatures concerned the influence of cardiac function on Qa in this population.

Methods: We retrospectively screened the HD patients who received echocardiogram and Qa measurement in two hospitals. Patients with HFrEF received twice of both echocardiography and Qa at 1 year apart were enrolled and divided into two groups, including those with or without the treatment of sacubitril/valsartan. The difference of Qa (△Qa) and the echocardiographic parameters after 1-year treatment were compared between the two groups. The correlations between △Qa and the differences of echocardiographic parameters were examined. Multiple linear regression analysis was applied to predict △Qa from the difference of echocardiographic parameters and whether the use of sacubitril/valsartan.

Results: A total of 33 HD patients with HFrEF were analyzed with a mean HD vintage of 4.7 years. Sixteen patients received sacubitril/valsartan and the other 17 patients received conventional treatment. The △Qa and the difference of left ventricular ejection fraction (△LVEF), left ventricular internal diameter at end-systole, tissue Doppler-derived E/A ratio across the mitral valve, Doppler-derived medial E/e' ratio were significantly different between the two groups. The △Qa showed positive correlation with △LVEF and negatively associated with the difference of left ventricular end-systolic volume, interventricular septum thickness in diastole (△IVSd), left ventricular posterior wall thickness in diastole, and left ventricular mass index in sacubitril/valsartan group. The △Qa could be predicted as -44.034+15.868*△LVEF-25.072*△IVSd+ 145.964* (sacubitril/valsartan use or not), with $R^2 = 0.909$ and adjusted $R^2 = 0.899$.

Conclusions: The △Qa after 1-year treatment was associated with echocardiographic parameters of △LVEF and △IVSd and the use of sacubitril/valsartan.

Keywords: Access flow (Qa) of vascular access; echocardiographic parameters; maintenance hemodialysis (HD); heart failure with reduced ejection fraction (HFrEF)

C166

Ultrasound Aids in Reducing Unnecessary Angiography for Arteriovenous Fistula Patients

以超音波輔助動靜脈瘻管評估以減少不必要的血管攝影

Ting-Ya Wang[1], Ting Chen[1], Chih-Yu Yang[1,2]

王亭雅[1], 陳婷[1], 楊智宇[1,2,*]

[1] 臺北榮民總醫院腎臟科 [2] 國立陽明交通大學醫學院

Background:

Ensuring an optimal vascular access is fundamental for keeping hemodialysis adequacy and preventing uremic symptoms. As vascular access dysfunction can lead to increased morbidity and mortality, making it crucial to monitor access to prevent unexpected access failure. KDOQI Clinical practice Guideline for vascular access had suggested ultrasound dilution method (UDM) and duplex ultrasound as monitor method. However, the validated diagnostic thresholds of ultrasound and clinical outcomes still holds many questions to be answered.

Methods:

We hold a retrospective search on the patient in our dialysis facility from 2020-2023, who underwent ultrasound exam on arteriovenous fistula after showed decline(>25%) on Qa. We separate these patient according to the outcome(whether if these patient receive PTA within 3 months), and compare their underline disease, lab data, ultrasound result, and Kt/V.

Results:

In 47 patients, 20 patients received PTA and 27 patients did not received PTA. The sensitivity of ultrasound was (14/20)70%, specificity (22/27)81.5%. Qa2(declined), D1, stenosis percentage showed significant between two groups.

Conclusions:

Ultrasound may predict AVF dysfunction and prevent patient from unnecessary PTA intervention and contrast expose. Further work is required.

Key words: Ultrasound, vascular access surveillance, arteriovenous fistula

C167

Exploring the Effectiveness of Exercise Training on Vascular Access in Hemodialysis Patients

血液透析病人運動訓練對血管通路成效探討

程 音[1], 盧惠敏[2], 楊素眞[3]
亞東記念醫院護理部護理長[1], 亞東醫院護理部督導[2], 亞東醫院護理部主任[3]

前言：
血液透析必須要透過良好的血管通路才能有效達到透析效率，良好的動靜脈瘻管以順暢及提供高速血流量為首要的目標，為了強化動靜脈瘻管功能，臨床上會教導腎友執行手部的運動。當血管通路流量不足或是失去通暢性，會限制透析治療的執行造成透析不足量，病人死亡率大大增加。

研究方法：
收案以新建立尚未開始使用及已使用的血管因血流速不足而執行氣球擴張術(PTA)後有意願參與研究的腎友，共計 12 位為期 12 週於透析中教導等長及等張運動，方式如下：手握重量 1kg 啞鈴執行(a)前臂旋前、旋後(b)手腕伸直(c)手腕屈曲(d)手指抓握運動，每日三回每組 20 次；透過 LINE @ 社群網路平台推播訊息；輔以衛教單張及影片協助；隔次來院透析時追蹤成效等。

研究結果：
測量運動前後血管瘻管管徑變化，每位腎友都有明顯血管徑增大，平均增加 10.1%(p<0.001)，雙手握力都有明顯的改善。

結論：
血管運動可以增加動靜脈瘻管的功能，透過運動訓練增加握力提升肌肉力量，不僅透析量增加住院率也大大降低。

關鍵字：血液透析、運動訓練、血管通路

C168

The Application and Effectiveness of Decision Support Tools in Shared Decision-Making for Severe Secondary Hyperparathyroidism in Hemodialysis Patients.

決策輔助工具在血液透析重度副甲狀腺亢進病人醫病共享決策之應用成效

黃瓊珮[1], 顏綠蓉[1], 莊佳音[1], 楊千儀[1], 馬宗良[2]

Chiang-Pei Huang[1], Lu-Jung Yen[1], Chia-Yin Chuang[1], Chien-Yi Yang[1], Tsung-Liang Ma[2]

戴德森醫療財團法人嘉義基督教醫院 血液透析室[1], 腎臟科[2]

[1] Hemodialysis center,[2] Department of Nephrology, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan

背景：

臨床常見透析病人因高血磷引發副甲狀腺亢進，產生皮膚搔癢、骨頭痠痛及無力等表徵，嚴重影響透析品質與治療，故激發單位想藉由醫病共享決策輔助表（PDA）讓重度副甲狀腺亢進病人了解疾病，幫助病人釐清想法及找出合適的治療方法，並與醫師達成醫療決策共識，實踐最佳的照護計畫。

目的：

針對血液透析病人，面臨重度副甲狀腺亢進的治療選擇，運用 SDM，以實證醫學證據用病人能夠理解的方式說明，邀請病人和家屬共同參與討論增加病人對治療決策的參與感，進一步提升病人對醫病共享決策的滿意度及有助於確保治療方案符合個人期望，降低病人因治療決策過程產生的焦慮。

方法：本專案執行對象為門診血液透析病人副甲狀腺素(iPTH) ≥800 pg/mL，且維生素 D 治療效果不佳或有禁忌症者。執行期間：112 年 2 月 14 日至 112 年 9 月 5 日(收案 6 人)。針對門診血液透析病人由醫師評估為重度副甲狀腺亢進並符合收案條件者，由醫師啟動 SDM，護理師在過程中擔任引導員(coach)的角色，運用自製決策輔助評估表與影片，於病人接受血液透析治療時播放，觀看完畢後護理師一對一以醫病共享決策輔助表(PDA)引導病人進行 SDM，若無法完成決策之病人須列入個案管理定期追蹤，並轉知主治醫師安排時間與病人討論選擇適合的治療模式進而選擇出符合病人與家屬共同期待的醫療決策共識，並於下一次透析時進行成效問卷調查。

結果與討論：

臨床運用成效評估問卷中 100%皆認同可幫助做出一個更好的決定或具體組織自己決定的想法。共享決策前『無法做決定』的有 6 人(100%)，決策後有 5 人(83.3%)決定調整藥物治療，有 1 人(16.7%)決定副甲狀腺切除手術。滿意度調查中，病人及家屬對於運用中利用透析時間觀看影片及問卷的時間充裕，無需利用額外時間來了解且對於訓練教材的課程是台語版及內容很豐富，表示很清楚易懂其滿意為 96.6%；疾病治療的了解達 93.3%；整體滿意度達 95%。醫療問題焦慮程度改善分數原 3.2 分降為 2.5 分，有效改善民眾降低醫療抉擇時的焦慮程度。

團隊在這經驗中，運用製作的 SDM 讓病人了解疾病過程，共同討論選擇適合的治療模式，提升病人健康識能，也讓團隊更能有信心的提昇醫療決策共享的推動與執行。

關鍵字：血液透析、重度副甲狀腺亢進、醫病共享決策

C169

The Impact of Hyperphosphatemia on 2-Year Survival in Elderly Hemodialysis Patients

高血磷對老年血液透析患者 2 年存活率的影響

Tz-Heng Chen [1,2], Yuan-Chia Chu[3], Hsin-Ling Tai[4], Der-Cherng Tarng[5]

程子珩 [1,2], 朱原嘉 [3], 戴辛翎 [4], 唐德成 [5]

[1]Division of Nephrology, Department of Medicine, Taipei Veterans General Hospital, [2]Institute of Emergency and Critical Care Medicine, National Yang Ming Chiao Tung University, [3]Information Management Office, Taipei Veterans General Hospital, [4]Department of Nursing, Taipei Veterans General Hospital, [5] Department of Medicine, Taipei Veterans General Hospital

[1] 臺北榮民總醫院內科部腎臟科, [2] 國立陽明交通大學急重症醫學研究所, [3] 臺北榮民總醫院資訊室, [4] 臺北榮民總醫院護理部, [5] 臺北榮民總醫院內科部

Background：

Hyperphosphatemia has been linked to adverse cardiovascular outcomes and increased mortality risk in patients undergoing hemodialysis (HD). However, the survival benefits of strict phosphate control in elderly HD patients remain unclear. In this study, we aimed to investigate the impact of hyperphosphatemia on the risk of all-cause mortality and cardiovascular outcomes among elderly individuals receiving HD.

Methods：

In a hospital-based cohort study, we identified HD patients aged 75 years and older from June 1, 2021, to May 31, 2023. The patients were divided into hyperphosphatemic (serum phosphate > 4.5 mg/dl) and normophosphatemic (serum phosphate 2.5 to 4.5 mg/dl) groups. We compared the 2-year all-cause mortality and the risk of major adverse cardiovascular events (MACE) between the two groups. MACE was defined as a composite of nonfatal stroke, nonfatal myocardial infarction, and cardiovascular death.

Results：

Among the 134 HD patients included, 56 patients were hyperphosphatemic, and 78 patients were normophosphatemic. The mortality rates were 16.1% in the hyperphosphatemic group and 41.0% in the normophosphatemic group. The hyperphosphatemic group exhibited a reduced risk of all-cause mortality (adjusted hazard ratio of 0.33; 95% confidence interval, 0.12–0.94, $p = 0.037$) than the normophosphatemic group. The risk for MACE did not significantly differ between the two groups

Conclusions：

In elderly HD patients, hyperphosphatemia was associated with a reduced risk of all-cause mortality compared to normophosphatemia over a 2-year period. The risks of MACE were comparable between both groups. While elevated phosphate levels in the HD population are typically associated with adverse outcomes, our findings indicate that the mechanism connecting serum phosphate to mortality might be distinct in elderly HD patients compared to a broader HD group.

Key words：

Hemodialysis (HD); hyperphosphatemia**;** major adverse cardiovascular events (MACE); mortality

C170

Using intelligent systems to improve the number of errors in dehydration volume setting for hemodialysis patients

運用智能系統改善血液透析病人脫水量設定錯誤發生次數

Yuan-Fang Chen[1], Yu-Mei Yang[1], Yuh-Feng Wu[1], Li-Ching Chen [1], Jun-Jie Cai [2]

陳筠芳 [1]，楊玉美 [1]，吳玉鳳 [1]，陳麗菁 [1]，蔡俊傑 [2]

[1] Hemodialysis Room, Changhua Christian Hospital

[2] Division of Nephrology, Changhua Christian Hospital

[1] 彰化基督教醫院血液透析室 [2] 彰化基督教醫院腎臟內科

Background:

血液透析病人乾體重是指經由血液透析治療移除體內多餘水份後所達到的體 重，又稱血液透析病人的理想體重。水份平衡的維持著重於乾體重的評估，透析過程血壓偏高、輕微活動即呼吸喘、下肢水腫等症狀，是體內有體液滯留，需多脫水；透析中也可能因脫水量過多，而引起聲音沙啞、抽筋、耳鳴、頭暈、血壓下降，甚致休克的症狀。為病患提供安全的透析治療，正確的評估設定脫水量是極重要課題。

Methods:

本單位於 2016 年 9 月開始智能數位化的血液透析系統，減少數據計算錯誤。病患上機前的體重、血壓數據；透析過程中的生理參數；下機後的體重與血壓量測後都自動上傳。測量完畢、數據即時上傳、數位計算功能，都能夠避免「洗太多休克、洗太少肺積水」的狀況。2022 年單位發生透析中脫水量設定錯誤意外事件共達 3 件。分析其原因是上機前未設定機器板面脫水量，上機後仍未再次確認脫水量設定是否正確，導致病人透析後發生脫水量錯誤，洗前洗後體重誤差大，擬定改善對策如下 1.請馬雅智能系統導入透析機器板面設定脫水量與 VIP 透析前評估應脫水量不一致即出現警示符號畫面提醒，直到脫水量設定有一致警示畫面才會消失，執行期 2023 年 2 月 18 日開始實施 2.加強宣導上機 SOP 流程，應設定好脫水量再上機透析。

Results：

以上對策經實施到 2023 年 9 月皆無發生透析中脫水量設定錯誤意外事件。

Conclusions：

智能系統導入透析機器板面設定脫水量與 VIP 透析前評估應脫水量不一致即出現警示符號畫面之提醒，有效降低脫水量設定錯誤事件，確保病人治療安全，提升護理照護品質。

Key words：

血液透析、乾體重、脫水量

C171

Heterotopic Ossification－A Rare Complication in Hemodialysis Patients：A Case Report

血液透析合併罕見異位性骨化症：案例報告

何欣怡[1], 連美琪[1], 黃玉瑩[1], 邱怡文[2], 郭美娟[2]
Ho-Shin-Yi[1], Mei-Chi Lian[1], Yu-Ying Huang[1], Yi-Wen Chiu[2], Mei-Chuan Kuo[2]
[1] Department of Nursing, and [2] Department of Nephrology, Kaohsiung Medical University Hospital
[1] 高雄醫學大學附設醫院護理部 [2] 高雄醫學大學附設醫院腎臟內科

背景

異位性骨化症(Ectopic calcifications)為關節旁軟組織(Periarticular)發生磷酸鈣沉積，於血液透析病人發生率為 0.5% -7%。臨床特徵是關節周圍皮組織出現腫瘤樣腫塊，造成關節疼痛、活動受限等困擾，進而影響其生活品質。目前對異位性骨化症確切的病理尚未完全瞭解，但與副甲狀腺功能亢進、高血磷症、高血鈣症相關。臨床上，可藉由軟組織超音波、電腦斷層、磁振造影、骨骼掃描與痛風結石鑑別。透過此案例分享，增進臨床醫護人員的專業知識，提升透析照護品質。

方法

於 2022 年 12 月至 2023 年 8 月照護期間，記錄其臨床症狀、病程、實驗室檢查及影像學檢查結果。

結果

個案左前臂、左腕和右手肘旁出現多處腫瘤樣腫塊伴隨手肘關節畸形、疼痛、麻木及活動受限；自 2021/04 月透析，至今 2 年 4 個月，於 2021/12/16 iPTH：918.1pg/mL、P:5.3-6.7mg/dL、Ca++：4.3-5.35mg/dL。由於 2022/12/15 UA:6.27mg/dL，因此懷疑為痛風所引起的尿酸結石，優先給予降尿酸藥物使用，2023/06/01 UA:1.75mg/dL，但其腫塊及疼痛皆未獲得改善。進一步安排電腦斷層，發現為鈣化沉積，由於藥物治療效果有限，因此安排外科手術移除病灶，病理組織組織顯示為大量鈣化物質沉積。術後一個月左手疼痛、麻木及關節活動度改善。

結論

在血液透析患者中，由於磷離子排出受阻與次發性副甲狀腺亢進導致鈣磷異常；且過去研究指出當鈣、磷二者的乘積值大於 60，軟組織鈣化風險增加。因此鈣磷調節為重要的議題，因此於血液透析病人採取低磷飲食、適當的磷結合劑使用與調控副甲狀腺功能為避免骨病變的重要課題。

關鍵字：異位性骨化症、鈣磷沉積、副甲狀腺

C172

Electronic Whiteboard Construction Improves Inpatient Hemodialysis Care Workflow

電子白板建置改善住院血液透析照護工作流程

Yu-Mei Yang [1], Yu-feng Wu [1], Li-Ching Chen [1], Jun-Jie Cai [2]

楊玉美 [1], 吳玉鳳 [1], 陳麗菁 [1], 蔡俊傑 [2]

[1] Hemodialysis Room, Changhua Christian Hospital [2] Division of Nephrology, Changhua Christian Hospital

[1] 彰化基督教醫院血液透析室 [2] 彰化基督教醫院腎臟內科

Background：

本院住院血液透析病人每月平均約有 1000 人次，電腦資訊系統有效改善住院病人透析排程之正確性。但目前仍有部分缺失：1.單位護理師因害怕會遺漏，對於目前住院病人名單仍使用白板書寫，仍有人為操作失誤的風險；2.不能以資訊系統事前做有效交班，單位護理師仍須用紙本交班，增加工作負荷；3.加護單位使用透析機、移動式 RO 機及延長管相關配件分布在各區庫房，造成使用者、點班者困擾；因此，與馬雅資訊人員合作，藉由連結彰基 HIS 透析護送病人資料，整合建置住院透析系統電子白板功能，期望能改善病人排程遺漏、交班及儀器點班問題，降低醫療人員的工作負擔，提升工作效率。

Methods：

2022 年 6 月份開始由 2 位組長統籌單位需求，負責定期跟馬雅資訊人員開會討論電子白板建置所需增設功能，建立完善的血液透析電子白板功能。最後定案功能包括：1.電子白板顯示住院病人排程；2.單位公告訊息 3.儀器作業 4.白板交班。系統設置後，於 2023 年 4 月中旬開 2 次課向單位護理同仁介紹電子白板實際操作流程，並開始試行。5 月 1 日正式移除傳統白板，電子白板上架開始使用操作。以大型的電視螢幕介面呈現各項資料，可以透過立即觸控畫面找尋得到正確的資料訊息。

Results：

結果顯示透析電子白板建置後的優點有：1.住院病人有醫囑帶入不用擔心寫錯床號或姓名，安排床位後即可看出標示血管通路左、右邊，減少臨床工作量；2.病人 BC 型肝炎以顏色區分能正確分辨安排床位；3.加護單位人員派班及或病人特殊交班，只要在單位公告訊息輸入即會呈現當天交辦事項；4.儀器點班電子化，使用者可以自行建立儀器所在，減少護理人員工作負荷；5.醫師查房時，可在電子白板螢幕查詢自己病人被安排的透析床位。

Conclusions：

住院透析病人的狀況不再侷限於住院區才能查閱，只要進入透析電子白板網址，醫護人員都能隨時掌握住院病人動態。於大型白板螢幕上直觀看到所有設備的動向與狀況，資料的準確性及即時性都大有的提升，也有效提升醫護人員的滿意度。

Key words：

血液透析 Hemodialysis、電子白板 Electronic whiteboard

C173

Use health literacy strategies to produce health education leaflets to enhance awareness of daily dialysis care

使用健康識能策略製作衛教單張以提升透析日常照護認知

Ya-Hui Wu[1] , Chen-Wei Chen 1, Ie-Ching Hu[1], Chen-Ying Hou[1] ,Wei-Ning Yeh[1], Te-Hui Kuo[2]
吳雅惠[1], 陳珍緯[1], 侯玉琴[1], 侯震纓[1], 葉惟甯[1], 郭德輝[2]
[1]Department of Nursing, [2]Nephrology Center, National Cheng Kung University Hospital, College of Medicine,Tainan, Taiwan
國立成功大學醫學院附設醫院[1]護理部、[2]腎臟科，台灣

Background：
依台灣腎臟醫學會《2021 腎病年報》指出，台灣 2019 年新發生透析人數共 12,475 人，其中使用血液透析有 11,298 人（佔 9 成），血液透析病人提升照顧認知度使行為發生改變，可改善其生活品質、減少住院率及醫療費用並降低死亡率，現今高齡化社會除了病人主要照護者不外乎家屬，也可能是看護或外傭，在照顧的過程除了要了解病人的病況，還要接受因疾病不同而有不同的照護技巧，因此需要借助衛教單張來達到正確認知及照護模式，然而舊式護理指導單張用詞過於專業、字句多且繁雜，不利一般民眾閱讀、理解，基於健康平等的信念，個人的健康識能限制不應成為獲得健康的阻 礙「健康識能機構」概念應運而生，強調健康照護機構應致力「讓民眾易於獲取、理解、應用健康資訊與服務」，衛生福利部國民健康署署長謹識 107 年 12 月藉由導入健康識能友善的照護，提升醫療服務品質，達成以病人為中心的目標。

Methods：
國民健康署為促進衛教教材之發展與品質，使教材能達到健康識能友善，發揮最大的傳播效用，使就醫者及照護者易於獲得、理解、評估並應用健康資訊改善照護技巧及增進健康。本單位的衛教單張運用有善教材的方針，減少單張上的文字解說，加深標題顏色及放大文字，並口語化，圖片選擇容易理解且圖文相符，以圖像記憶加深印象，並錄製有聲書方便照護者或病人如果無法使用文字來執行衛教，可以利用手機掃描 QR code 聽取衛教內容。

Results：
衛教單張修改完成後，並 用於臨床衛教上，使照護者、病人更能了解衛教單張的內容，標題也清楚表達衛教主題，對於衛教單上的圖片及文字更易懂，讓外籍照護者實際聽取有聲書，內容聲音清晰；講解速度適中，更方便讓照護者使用，本單位以衛教單張滿意度調查 5 個面向結果獲得 98 分的成果。

Conclusions：
台灣透析是世界之冠，每年透析人口逐漸增加，依年齡別區分，2019 年 64 歲以上老人透析人口佔 61%，，良好的透析照護要從日常做起，當腎臟病發作時往往都已不可回復，透析是長期的、長遠的，讓患者達到有效的衛教功效，可以讓年輕患者盡快回到工作岡位，讓年長患者也可以因為照護者的技能提升減少不必要的住院及醫療成本。

Key words：
健康識能、血液透析

C174

To explore whether patients who eat during dialysis have a higher chance of developing hypotension?

探討透析中進食的病人，發生低血壓的機率是否比較高?

Shiau-Min Lin[1], Yu-Ying Huang [1], Mei-Chuan Kuo[2]

林小閔 [1], 黃玉瑩 [1], 郭美娟 [2]

[1]Department of Nursing, Kaohsiung Medical University Hospital, Kaohsiung Medical University

[2]Department of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan

高雄醫學大學附設中和紀念醫院護理部 [1] 腎臟內科 [2]

目的:

透析中低血壓（intradialytic hypotension ,IHD）是透析病人臨床上是常見的現象，約 15～50%透析治療中會發生。血液透析的時間 4 小時，早、中或晚班的腎友透析時間都會遇到用餐時間，透析過程中，腎友體內血液流動、新陳代謝以及消化功能都會受到透析治療而加快，容易感到肚子餓，臨床上都會衛教病人透析中不要進食，病人也常問是否真的不能吃東西嗎?藉由實證文獻探討透析中進食的病人，是否會增加出現低血壓的情形?

方法:

根據臨床問題形成 PICO，使用 PubMed、embase、CEPS、Cochrane Library、EBSCO(包含 MEDLINE comple、CINAHL Plus with Full TexT)、碩博士論文、 Google Scholar 學術搜尋等資料庫搜尋，運用布林邏輯技巧 OR、AND、 NOT，並利用 MeSH terms 找尋類似關鍵字，共搜尋到 48 篇，瀏覽標題與摘要篩選文獻，排除重複文獻，最後全文瀏覽後篩選符合 PICO 的文獻，最後納入 1 篇文獻。在 2011 年英國牛津實證醫學中心醫學文獻證據等級分類標準(Oxford Centre for Evidence-Based Medicine)為 Level 1d。運用 JBI 進行評讀，文獻內容評讀後，8/13 分，建議強度為 A 級，證據支持具證據品質，對於病人是有益的。

結果:

這項隨機交叉試驗旨在分析接受每週三次連續 3 週血液透析的病人在透析期間進食對透析中血壓的影響。將 26 名血液透析病人隨機分為實驗組(採高蛋白或低蛋白飲食)和對照組（不進食）進行隨機交叉試驗，在（第 0 週）時，病人在預定的透析治療期間不進食食物的情況進行評估。在相隔一周，在（第 1 週）開始透析後 1 小時給予高蛋白含量的食物，在相隔一周，在（第 2 週）在透析後 1 小時給予低蛋白食物。透析期間膳食的順序（高蛋白和低蛋白，反之亦然）是隨機的，透析期間進食與透析中收縮血壓有顯著差異， $p < 0.05$。

結論:

藉由文獻評讀發現攝取高蛋白或低蛋白飲食含量在透析中進食沒有顯著變異性，但進食會增加腸胃道的血液供應量、同時造成周邊血管張力快速下降，造成全身血量減少時失去代償，發生透析中低血壓，故建議臨床上透析中採原形少量飲食為主。

關鍵字: 血液透析病人、透析中進食、透析低血壓

C175

The Correlation Among Health Literacy, Self-Management Behaviors and Adequacy of Dialysis in Peritoneal Dialysis Patients

腹膜透析病人健康識能、自我管理行為與適量透析指標之相關性探討

劉嘉琳[1]，蔡任弼[2]，徐邦治[3]，洪思群[4]

[1.]大林慈濟醫院護理部 [2.]大林慈濟醫院腎臟科 [3.]花蓮慈濟醫院腎臟科

[4.]台北慈濟醫院腎臟科

背景：

腹膜透析為理想之居家透析治療；腹膜透析病人參與 90%以上的照顧活動，因此病人的自我照顧知識與技能可能影響治療效果。本研究主要探討腹膜透析病人健康識能、自我管理行為及適量透析指標之相關性，提供未來臨床介入照護措施之參考。

方法：

本研究採橫斷性研究設計，以方便取樣，選取北、南、東地區接受 3 個月以上腹膜透析之病人為研究對象。研究工具包括人口學基本資料、「中文版腹膜透析病人健康識能量表」、「腹膜透析患者自我管理量表」、電子病歷資料，以 SPSS 25.0 版建檔並進行描述性統計與推論性資料分析。

結果：

本研究共收案 214 位腹膜透析患者，平均年齡 58 歲（*SD* = 12.73），以女性（118 人，55.1 %）、已婚（171 人，79.9 %）、閩南人（172 人，80.4 %）、無工作（115 人，53.7 %）、教育程度為高中以上（136 人，63.5 %）居多。平均透析時間 4.61 年(SD = 3.82)，有慢性病（187 人， 87.4 %）、自己換液者佔多數（176 人， 82.2 %）。健康識能平均得分為 23.08 分（*SD* = 3.14）；自我管理平均得分為 74.55 分（*SD* = 8.13）。適量透析指標方面，每週尿素氮清除率 Kt/V 平均值為 2.11（*SD* = 0.34），血清白蛋白濃度平均值為 3.55 g/dl （*SD* = 0.34），血紅素平均值為 9.71 g/dl （*SD* = 1.31），鈣磷乘積平均值為 44.98 （*SD* = 12.13），患者不曾感染腹膜炎約佔 73.4 %，顯示多數患者可達到醫療品質照護指標，但血清白蛋白濃度與血紅素平均值，則有偏低的情形。本研究結果發現教育程度大學以上、居住於北部、閩南人與有慢性病的患者族群有較佳的健康識能；年紀愈大、已婚、無工作、居住於北部的患者有較好的自我管理行為。健康識能與自我管理行為呈顯著正相關。在邏輯斯迴歸分析中發現性別（*OR* = .034，*p* = .003）、年齡（*OR* = .934，*p* = .039）、教育程度（*OR* = .165，*p* = .026）、種族（*OR* = .052，*p* = .015）為 Kt/V 之預測因子；主要換液者（*OR* = 2.931，*p* = .014）為 Albumin 之預測因子；透析時間（*OR* =1.187，*p* < .001）、慢性病（*OR* = .326，*p* = .0024）、換液技術管理（*OR* = .707，*p* = .017）為腹膜炎感染之預測因子。

結論：

建議應針對教育程度偏低的個案，提供適切的衛教、定期評估營養狀態，特別是老年人。此外，隨著透析治療時間的增加，病人可能會簡化並偏離標準腹膜透析程序，導致腹膜炎感染機率增加，建議應定期技術回覆示教，檢視換液步驟正確性，以降低腹膜炎發生率。

關鍵字：腹膜透析、健康識能、自我管理行為、適量透析

C176

Using nursing assessment to improve the effectiveness of dialysis treatment

運用護理評估提升透析治療效益

Pin-Han Hsia[1], Hsiu-Wen Changchein[1], Ching-I Cheng[1], Woan-Jean Lin[1], Shu-Neng Chueh[1], Hui-Ting Liu [1], Yi-Ting Chen[2,3], Shao-Yu Yang[3], Chih-Kang Chiang[2,3]

夏賓含 [1], 張簡綉雯 [1], 鄭靜宜 [1], 林琬真 [1], 闕淑能 [1], 劉蕙婷 [1], 陳怡婷 [2,3], 楊紹佑 [3], 姜至剛 [2,3]

[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2]Department of Integrated Diagnostics & Therapeutics, Taiwan University Hospital, Taipei, Taiwan

[3]Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

[1] 台大醫院護理部 [2] 台大醫院綜合診療部 [3] 台大醫院內科部腎臟科

Background：

當進入慢性腎臟病第四期，即面臨是否接受及選擇腎臟替代療法，包括：腎臟移植、腹膜透析、血液透析及安寧緩和治療，臨床上運用醫病共享決策（Shared Decision Making, SDM）促進透析模式的選擇。本中心設計前、後認知評估問卷，期望能了解病患及家屬對衛教的理解程度，並提供專業護理評估病人適合的透析治療，藉以提升透析治療的效益。

Methods：

本中心於 2022 年 4 月 25 日開始使用前後認知評估問卷，結合 SDM，給予 CKD 第五期病人衛教腎臟替代療法。經統計，採用新式問卷衛教後腹膜透析植管病人至 2022 年 12 月 31 日共植管 34 人，已經開始執行腹膜透析病人共 29 人，予進行一對一問卷訪談。

Results：

問卷結果顯示，由未透析前 SDM 和護理評估的介入提升個案認知，與病人開始腹膜透析後有符合期待佔 93.07%，自覺選擇腹膜透析是正確的決定佔 93.1%、可以勝任腹膜透析，佔 96.55%、腹膜透析符合我的生活方式佔 100%。整體而言，病人於透析前接受衛教，經前後評估問卷，幫助病人選擇透析治療，後選擇腹膜透析，整體皆為滿意。

Conclusions：

藉由新版衛教問卷，可提升護理人員衛教一致性，藉由前後測，讓病人了解此次衛教需要了解的項目有哪些，增加病患對腹膜透析的理解度，使開始進行腹膜透析後更快適應腹膜透析對其生活的影響。護理師亦可了解病人的認知程度，並於不懂的地方當下直接再做諮詢，提升病人決策認知。

Key words：

醫病共享決策，腎臟替代療法，護理衛教評估

C177

Improving peritoneal dialysis patients' non-emergency self-care abilities at home
提升腹膜透析病人非緊急事件居家自我照顧能力

Woan-Jean Lin[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Ching-Wen Lee[1], Yi-Ting Chen[2,3], Chih-Kang Chiang[2,3]

林琬真[1], 鄭靜宜[1], 闕淑能[1], 劉蕙婷[1], 李慶玟[1], 陳怡婷[2,3], 姜至剛[2,3]

[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan

[3]Division of Nephrology Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

[1]護理部，台大醫院 [2]血液淨化科，綜合診療部，台大醫院 [3]腎臟科，內科部，台大醫院

Background:

腹膜透析特性為居家換液的透析方式之一，2020年某醫學中心腹膜透析治療病人共 453 人，護理師採主責照護模式，夜間及假日若遇緊急事件，需仰賴護理師以值班電話線上諮詢，甚至嚴重需到院處置，故分析2019年7-9月值班電話紀錄，共接獲 117 通，將撥打電話事件分類統計，非緊急事件53通，佔45%，除了造成值班電話佔線，也顯示病人對於居家自我照顧能力不足，若能針對非緊急事件問題提出因應措施，將能提升病人非緊急居家自我照顧能力，並能減少非緊急電話佔線及提高腹膜透析照護品質。

Methods:

收集病人撥打非緊急事件諮詢問題53件，將事件類型相近問題整理成19個居家自我照顧主題，將此19問題製作質性問卷實施前測(越了解分數越高)，對象為開始腹膜透析>3個月病人，並由主護發個別化衛教單張及製作海報宣導，並於前測實施後3-6個月後再施行後測，並持續監測實施衛教宣導後病人撥打值班電話次數進行比較。

Results:

質性問卷研究非緊急事件問題19題進行前後測分析，問卷回收303人，結果顯示，平均衛教前正確率占64%，衛教後正確率提升至73%，以pair-t進行前後測統計分析，94.7%統計皆達顯著意義，平均P值 =0.006。收集2020年1至12月，撥打值班電話共418通，其中非緊急事件共87 通(占20.8%), 相較前測45%大幅改善，病人獲得衛教內容提升非緊急居家事件自我照顧能力，賦能病人解決問題能力，進而提升腹膜透析照護品質。

Conclusions:

藉由平時加強居家照護衛教，可提升腹膜透析病人自我照顧能力，賦能病人解決問題能力，進而提升腹膜透析照護品質。

KeyWords:

腹膜透析、衛教、自我照顧能力

C178

Exploring the correlation between initial peritoneal function test and the prognosis of peritoneal dialysis patients

探討初次腹膜功能測試對腹膜透析病患預後之相關性

Woan-Jean Lin[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Ching-Wen Lee[1], Yi-Ting Chen[2,3], Vin-Cent Wu[3], Chih-Kang Chiang[2,3]

林琬真[1], 鄭靜宜[1], 闕淑能[1], 劉蕙婷[1], 李慶玟[1], 陳怡婷[2,3], 吳允升[3], 姜至剛[2,3]

[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan

[3]Division of Nephrology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

[1] 護理部，台大醫院 [2] 血液淨化科，綜合診療部，台大醫院 [3] 腎臟科，內科部，台大醫院

背景

腹膜透析病患開始進行腹膜透析後會進行腹膜功能測試用以調整透析處方，腹膜功能結果“腹膜通透性”可分為主要兩大類 L&LA 和 H&HA。腹膜透析模式分為 CAPD 及 APD，病患可選擇所要的模式以配合其生活作息。臨床上常有病患屬 L&LA 腹膜功能，依 ISPD 準則建議應使用 CAPD，但病患或家屬會依其生活作息傾向使用 APD 透析模式。對這類 L&LA 腹膜功能之病患使用 APD 透析模式是否合適，以及對預後有何影響？此研究目的在釐清這方面，希望對醫護人員建議這類病患選擇透析模式有所依循。

方法

回朔性調查 2016 年 1 月至 2020 年 12 月 31 日有 359 位末期腎病病患於北區某醫學中心腹膜透析室進行初次腹膜透析。將這些病患依其初次腹膜功能結果(PET)及當時透析模式(CAPD or APD)分為四組：L&LA-APD 63 人，L&LA-CAPD 131 人，H&HA-APD 72 人，及 H&HA-CAPD 93 人。追蹤至 2022 年 12 月 31 日，分析病患各項臨床數值，與各組腹膜功能及腹膜透析模式不同對其預後的影響，如轉出率，以及第一次腹膜炎的時間。

結果

統計分析發現各組平均年紀以 L&LA-APD 51 歲（range, 40-63)最年輕，及 H&HA-CAPD 61 歲（range, 51-74)最年長。男女比無統計差異。在臨床檢驗數值上，各組平均血色素值以 L&LA-CAPD 10mg/dL 最高，H&HA-APD 9.4mg/dL 最低，*P* 值 0.016。各組 CRP 則無統計意義，*P* 值 0.13。各組毒素清除率 Kt/V 及 nPCR 則無達統計意義，*P* 值分別為 0.6 及 0.2。轉出率(含轉出至血液透析或死亡)以 H&HA-CAPD 54%最高，兩組 APD 皆為 32%最低，*P* 值 0.005。發生第一次腹膜炎則是 H&HA-APD 最多，兩組 CAPD (L&LA 和 H&HA)最少，*P* 值 0.041。

結論

腹膜透析病患的初次腹膜功能與腹膜透析模式並不影響其毒素清除率。高通透腹膜功能之兩組病患年紀較大且血色素較低，轉出率及腹膜炎發生率確實高於低通透兩組。低通透腹膜功能病患使用 APD 在轉出率及腹膜炎發生率比起 CAPD 組並沒有較差，可能的原因有較年輕，及血色素相對較高。

關鍵字：腹膜透析，腹膜功能測試 PET，CAPD， APD

C179

Utilizing remote patient management to improve the care of peritoneal dialysis patients

應用遠端病患管理系統提升腹膜透析病人照護

Juei-Hsin Hsu[1], Ching-I Cheng[1], Shu-Neng Chueh[1], Hui-Ting Liu[1], Yi-Ting Chen[2,3], Chih-Kang Chiang[2,3]

徐睿忻[1] 鄭靜宜[1] 闕淑能[1] 劉蕙婷[1] 陳怡婷[2,3] 姜至剛[2,3]

[1] Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2] Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan

[3] Division of Nephrology, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

[1] 台大醫院護理部 [2] 台大醫院綜合診療部血液淨化科 [3] 台大醫院內科部腎臟科

Background：

台大醫院腹膜透析病 2023 年 6 月病人數 437 人，使用 APD 人數有 184 人（42.1%）。醫護人員藉由雲端取得 APD 治療數據，及早發現異常事件，讓病人獲得及時協助與建立管理模式。系統以黃旗、紅旗代表特殊或異常事件。初期紅旗及黃旗警示各 5 個，使用後發現舉旗警示無法完全辨識特殊事件，容易導致判斷疲乏，且病人撥打值班電話比例仍偏高，故期望重新定義警示旗，及早發現病人 APD 異常事件，提升照護腹膜透析管理效能。

Methods：

本研究以醫療風險管理模式重新定義舉旗設定，參考醫療失效模式與效應分析(Healthcare Failure Mode and Effect Analysis, HFMEA)，分析影響的發生率及嚴重度了解風險優先指數(Risk Priority Number, RPN)。收集 2021 年 1-2 月發生紅黃旗次數，以單一變項次數頻率/發生變項總次數=發生頻率百分比，依照發生頻率百分比計算給分；由臨床專家(14 位資深腹膜透析護理師)以 Likert 1-4 score 評分嚴重度及重要性，變項越重要分數越高，反之。

Results：

重新制定紅旗警示為：略過注入或留置的次數 3 次、引流提早結束 3 次(重要度高，發生機率低→表示發生即須嚴重注意)、減少留置時間 45 分；黃旗警示為：減少的治療時間 30 分、減少的治療量 10%、及 0 週期引流差異 50%。統計 2023 年 1 月及 2 月值班緊急電話處理的問題：APD 相關為 15 次（佔 33.3%）及 11 次（佔 33.3%），較 2022 年同期為 26 次（佔 44.8）及 10 次（佔 34.5%）降低，減少病人 APD 時發生緊急狀況的比例，有效降低緊急電話的使用率。

Conclusions：

警示旗的重新定義使得護理人員及早發現及處理病患問題，降低病患緊急事件發生率。

Key words：

全自動腹膜透析機、醫療風險管理、遠距醫療

C180

Experience in caring for patients with peritoneal diaphragm leakage in a medical center in Southern District

南區某醫學中心腹膜透析橫膈膜滲漏病人之照護經驗

Chiu-Hui Tsai[1], Hsin-Wen Hsu[1], Shu-Li Wang[1], Chih-Chuan Yan[1], Chin-Huei Hsu[1], Wei-Chen Chen[1], Yu-Ying Huang[1]

蔡秋蕙[1], 許馨文[1], 王淑麗[1], 顏志娟[1], 許錦惠[1], 陳韋蓁[1], 黃玉瑩[1]

[1]Department of Nursing Kaohsiung Medical University Hospital, Kaohsiung Medical University

高雄醫學大學附設中和紀念醫院護理部

背景：腹膜透析是除血液透析外，一種既方便又能有效率維持病人透析的方式，但透析液滲漏導致肋膜積水，是影響透析品質甚至導致腹膜透析失敗的原因。本院自 2013 年至 2022 年，新進入腹膜透析治療病人數有 144 人，有五位病人(皆為女性)發生透析液滲漏造成肋膜積水(hydrothorax)，肋膜積水發生率為 0.34 ‰。有四例在經檢查及治療後轉血液透析治療；一例手術治療成功，目前已超過 4 個月、仍持續腹膜透析治療中。本文以本院發生腹膜透析液滲漏致肋膜積水之手術成功經驗做為分享，當有相似病人發生時可做為參考。

方法：一、確認發生透析液滲漏導致肋膜積水之檢查：1.胸部 X 光檢查。2.胸部電腦斷層檢查。3.置入胸腔引流管(on pig tail)→透析液加入 Patent Blue test。二、治療：確認診斷後，以胸腔鏡手術行橫膈膜疝氣修補手術(Exploratory thoracotomy with thoracoscopic diaphragm repair)。於手術室中腹膜透析液加入 Patent Blue，利用紗布是否沾染甲基藍確認橫膈膜破損處，行以橫膈膜疝氣修補手術。

結果：此手術成功之病人因為殘餘腎功能多，依外科醫師建議術後暫停腹膜透析，採慢性腎病飲食控制一個月後，自小量透析液 1000mL 開始逐日增加注入量與留置時間，並於前兩週最末夜間睡前漏空，病人逐漸適應最大容許量與留置時間，無再出現夜咳、呼吸喘、無法平躺等問題，三個月後追蹤胸部 X 光無透析液滲漏復發，病人繼續腹膜透析治療與常規追蹤。

結論：臨床上發生透析液滲漏引起的肋膜積水的病人大多數為女性，與本院 10 年來統計相符合，藉由此次手術成功案例之分享，當發生透析液滲漏引起肋膜積水須積極找尋發生原因，提醒病人發現每次引流出來的透析液變少、體重增加，及有呼吸困難、咳嗽等，要立即就醫進一步檢查。另外，不是只有直接轉血液透析治療的選擇，有病人的配合、家人的支持，及整個醫療團隊（腎臟科醫師、腹膜透析護理師、營養師、胸腔外科醫師）共同照護，提升病人自我照顧能力，促使病人能持續腹膜透析治療，並維持良好的生活品質，讓病人回歸家庭及社會。

關鍵詞：腹膜透析、透析液橫膈膜滲漏

C181

Improve the incidence of peritonitis in peritoneal dialysis

改善腹膜透析病人腹膜炎發生率

蔣美蘭[1], 陳琬君[1]

屏東基督教醫院腹膜透析室

背景:

腹膜透析相關腹膜炎(Peritoneal dialysis-associated peritonitis，簡稱 PD peritonitis)是腹膜透析患者最常出現的併發症，腹膜炎是病人從腹膜透析轉為血液透析的主要原因之一，此外許多證據表明腹膜炎會增加繼發性腹膜炎風險，縮短病人在腹膜透析治療的時間。本單位腹膜炎發生率在 2022 年下半年度 2.88 次/100 人月與 2021 年下半年同期相比 0.92 次/100 人月升高許多。

目的:

1.了解腹膜炎原因

2.實施有效的措施計劃降低腹膜炎。

改善措施:

對所有病人引發腹膜炎原因認知試題前後測驗，每半年腹膜功能測試及來院看診時，不定期做換液技術監測。針對新病患及感染個案家訪，提供改善建議。每位感染個案列入腎臟科會議討論，張貼停、看、聽之感染警示海報。進行一對一病患衛教、每年訂出下年度"季主題"衛教內容，進行一對一病患衛教。辦理腎友座談會(主題:腸胃道保健與生活、預防腹膜炎)。

結果:

經實施改善措施後，本單位腹膜炎發生率由 2022 年下半年度 2.88 次/100 人月，降至 2023 年上半度的 1.57 次/100 人月，由此看出經實施以上改善措施確實有效降低本單位腹膜炎發生率。

結論:

引發腹膜炎認知及換液技術再評核、居家訪視、感染警示海報、個別衛教的改善措施，確實能降低腹膜炎發生。

C182

False Positive Galactomannan Antigenemia is Associated with Icodextrin Dialysate in Patients Undergoing Peritoneal Dialysis: a Single-Center Experience Case Series

半乳甘露聚醣抗原檢測偽陽性與腹膜透析病患使用愛多尼爾透析液有關

Tyng-shiuan Gau[1], Wei Wang[1], Pao-Yu Chen[2], Yu-Shan Huang[2], Yi-Ting Chen[1,5], Chih-Kang Chiang[1,5], Shuei-Liong Lin[1,6], Yu-Hsiang Chou[1]

高廷瑄[1], 王瑋[1], 陳抱宇[2], 黃于珊[2], 陳怡婷[1,3], 姜至剛[1,3], 林水龍[1,4], 周鈺翔[1]

[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [2] Infection Division, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan, [3]Hemodialysis Division, Department of Integrated Diagnostics and Therapeutics, National Taiwan University Hospital, Taipei, Taiwan, [4]Graduate Institute of Physiology, College of Medicine, National Taiwan University, Taipei, Taiwan

[1]臺大醫院內科部腎臟科, [2]臺大醫院內科部感染科, [3]臺大醫院綜合診療部血液淨化科, [4]臺大醫學院生理所

Background:

Aspergillus galactomannan (GM) antigenemia is widely applied in the diagnosis of invasive aspergillosis (IA), but may yield false-positive results. The structures of GM antigen and icodextrin are similar since both consist of polysaccharide polymers.

Methods:

Three patients receiving icodextrin dialysate had GM antigenemia during hospitalization. The diagnosis and treatment of IA were given based on host factors, clinical manifestations, mycological evidence and the images. If IA is not likely, clinical features and GM antigen were followed instead.

Results:

All three patient's serum GM antigen were positive (maximum of indices, 1.73, 4.74, 4.22; cutoff, 0.5), but the fungal culture of the sputum and the dialysate were negative. PD was discontinued due to hernia and hydrothorax respectively in the first two patients, and the GM antigen decreased. In the first case, PD with icodextrin dialysate was resumed after hernia repair and the GM antigen increased thereafter. Voriconazole was administered for suspected IA in the third patient, but the GM antigen fluctuated. Icodextrin dialysate was discontinued for two weeks, and the GM antigen turned negative.

Conclusions:

The serum GM antigen indices decreased after the discontinuation of the icodextrin dialysate in all three cases, and increased again after resuming icodextrin dialysate in two cases. Thus, the association of icodextrin dialysate and false positivity of GM antigenemia was assumed.

Key words

Aspergillus galactomannan antigen, icodextrin dialysate, peritoneal dialysis

C183

Comparative Clinical Outcomes of Peritoneal Dialysis and Hemodialysis in Elderly Patients with End-Stage Kidney Disease: A Nationwide Cohort Study

末期腎病老年患者進行腹膜透析與血液透析比較結果：台灣人口之世代研究

Yu-Kai Peng[1], Chieh-Li Yen[1], Yung-Chang Chen[1], Ji-Tseng Fang[1], Huang-Yu Yang[1]

彭昱凱[1]，顏介立[1]，陳永昌[1]，方基存[1]，楊皇煜[1]

[1] Nephrology Department, Linkou Chang Gung Memorial Hospital

[1] 林口長庚醫院腎臟科

Background：

Along with the population ageing, the incidence of elderly patients with new-onset end-stage kidney disease (ESKD) has increased rapidly. Unlike younger patients, these elderly ESKD patients are less likely to undergo kidney transplant, and therefore the decision of receiving peritoneal dialysis (PD) and hemodialysis (HD) is more crucial.

Methods：

By utilizing Taiwan's National Health Insurance Research Database, this study assessed the clinical outcomes between new-onset elderly ESKD patients under PD or HD. The one-to-four propensity score matching was performed to balance two groups.

Results：

A total of 36,852 patients, aged more than 65, who were newly diagnosed with ESKD and initiated renal replacement therapy between 2013 and 2019 were identified. These patients were categorized into two groups: the PD group and the HD group according to their long-term renal replacement treatment. After propensity score matching(PSM), the PD group displayed a lower incidence of major adverse cardiac and cerebrovascular events (MACCE) (10.09% vs. 13.03%, hazard ratio (HR): 0.74, 95% confidence interval (CI): 0.66-0.83), malignancy (1.23% vs. 2.14%, HR: 0.55, 95% CI: 0.40-0.76), and MACCE-associated mortality (1.35% vs. 2.25%, HR: 0.62, 95% CI: 0.46-0.84) compared to the HD group. However, the PD group demonstrated a higher rate of infection (34.09% vs. 24.14%, HR: 1.28, 95% CI: 1.20-1.37). The risks of all-cause mortality and infection-associated mortality did not differ between two groups.

Conclusions：

In conclusion, for the elderly patients with new-onset ESKD, this study found that peritoneal dialysis presents lower risks in MACCE, malignancy, and MACCE associated mortality but is associated with higher risks of infection and slightly higher frequency of hospitalization. The all-cause mortality or infection-related mortality did not differ between PD and HD. This information may help elderly ESKD patients to better choose HD or PD as long-term renal replacement therapy

Key words：

ESKD, PD, HD, Malignancy, Infection, MACCE

C184

Positive correlation of serum indoxyl sulfate level with peripheral artery stiffness by cardio-ankle vascular index in peritoneal dialysis patients

血清硫酸吲哚酚濃度跟腹膜透析患者以心踝血管指數測量週邊動脈硬度有關

Yu-Chi Chang [1], Chih-Hsien Wang [1, 2], Hung-Hsiang Liou [3], Bang-Gee Hsu[1, 2]
張宇祺 [1], 王智賢 [1, 2], 劉宏祥 [3], 徐邦治 [1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3]Dvision of Nephrology, Department of Medicine, Hsin-Jen Hospital, New Taipei City, Taiwan
[1] 花蓮佛教慈濟醫院腎臟內科, [2] 花蓮慈濟大學醫學系, [3] 新北市新仁醫院

Background:
Indoxyl sulfate (IS)-induced oxidative stress is detrimental to vascular structures through the altered functions of endothelial and smooth muscle cells and associated with endothelial dysfunction and arterial stiffness. Peripheral arterial stiffness (PAS) predicts future cardiovascular disease. Cardio-ankle vascular index (CAVI) is a marker of arteriosclerotic disease and is associated with cardiovascular events. The aim of this study is to examine the relationship between serum total IS levels and PAS measured by CAVI in peritoneal dialysis (PD) patients.

Methods:
Eighty-four adult PD patients who received regular PD for more than 3 months were enrolled in this study. CAVI values were derived using the waveform device (VaSera VS-1000). Left or right CAVI values of 9.0 or higher were included in the high CAVI group. Serum total IS level was measured by liquid chromatography–mass spectrometry analysis.

Results:
Among 84 PD recipients, 36 patients (42.9%) were in the high CAVI group. Compared with PD patients in the normal CAVI group, PD patients in the high CAVI group had older age (P = 0.023), higher serum C-reactive protein (P = 0.014), and serum IS levels (P < 0.001), as well as lower peritoneal clearance of creatinine (P = 0.029). Based on the multivariate logistic regression analysis, serum IS level (odds ratio [OR]: 1.164, 95% confidence interval [CI]: 1.059–1.281, P = 0.002) was the independent predictors of PAS in PD patients. By Spearman correlation analysis, logarithmically transformed IS (log-IS) levels were significantly correlated with left CAVI (P < 0.001), right CAVI (P = 0.039), and log-CRP levels (P = 0.007). The area under the receiver-operating characteristic curve for serum IS was 0.795 (95%CI 0.693–0.875, P < 0.001) to predict the development of PAS in PD patients.

Conclusions:
These finding demonstrate that serum IS level is a significant risk factor of the development of PAS in adult PD patients.

Key words:
Indoxyl sulfate, Peritoneal dialysis, Peripheral arterial stiffness, Cardio-ankle vascular index

C185

Optimizing Peritoneal Dialysis Re-Implantation with the Hybrid Method: A Retrospective Analysis of Enhanced Outcomes

Hybrid Method 在腹膜透析重新植管可行性之探討

Li-Chuan Chen[1], Meei-Chyi Guo[2], Hui-Ping Hsiao[3], Yi-Ching Chang[4], Pei-Ying Chen[5], Shu-Ai Lin[6], Hui-Wen Kao[7], Suh-Huey Ke[8], Jiu-Yun Tian[9], Chiung-Yu Shih[10], Meei-Ju Wu[11], Hsin-Ling Tai[12]

Department of Nursing, Taipei Veterans General Hospital, Taipei, Taiwan

Background：

In Taiwan, medical expenditures related to dialysis have garnered significant attention. The Hybrid Method do not necessitate a period of hemodialysis treatment postoperatively, it may confer advantages for peritoneal dialysis re-implantation patients as well.

Methods：

We conducted a retrospective statistical analysis, collecting data from January 1, 2018, to August 31, 2023, on a total of 27 instances of patients who underwent re-implantation., 10 instances employed the Laparoscope method, and 17 instances utilized the Hybrid Method for catheter implantation. We analyzed the effectiveness of these two catheter implantation techniques based on factors such as implantation date, length of hospital stay, temporary hemodialysis frequency, and hospital expenses.

Results：

The waiting period from re-implantation surgery to the resumption of peritoneal dialysis treatment was 9.2 ± 6.5 days for laparoscopic surgery and 1.1 ± 0.5 days for the Hybrid Method. Hospitalization durations were as follows: 19.6 ± 15.0 days for laparoscopic surgery and 12.9 ± 9.1 days for the Hybrid Method. Hospitalization expenses amounted to 225,875 ± 174,519 yuan for laparoscopic surgery and 133,465 ± 53,364 yuan for the Hybrid Method.

Conclusions：

Presently, the Hybrid Method catheter implantation surgery allows peritoneal dialysis patients to maintain continuous peritoneal dialysis and reduce patient attrition to hemodialysis. Consequently, the Hybrid Method proves to be a viable and beneficial option for peritoneal dialysis re-implantation.

Key words： Hybrid Method 、PD catheter implantation、Peritoneal Dialysis

C186

Reducing the Incidence of Peritonitis in Peritoneal Dialysis Patients

降低腹膜透析病人腹膜炎發生率

鄭玉滿[1], 江如芬[2], 盧惠敏[3]

亞東紀念醫院腹膜透析室護理師[1], 亞東紀念醫院血液透析室副護理長[2], 亞東紀念醫院血液透析室護理長[3]

目的：居家腹膜透析是腎臟替代療法的另一項選擇，病人完成腹膜透析知識及自我照護技巧訓練後，即可每日執行 4-5 次的腹膜透析換液治療；因其為長期性的自我換液操作執行，病人有可能未遵從換液技術標準步驟，或是缺乏無菌觀念，甚至在接受大腸鏡檢查前未服用預防性抗生素及排空腹中透析液等造成腹膜炎的發生（郭等，2018）。腹膜炎是腹膜透析常見及嚴重併發症，反覆感染會導致腹膜超過濾能力下降、增加住院率，甚至是病人轉做血液透析及死亡的主因（Szeto & Li, 2019)。單位 2021 年腹膜炎季發生率為 1.61、1.64、2.75、3.56 次/百人月，自第二季開始逐漸升高，年發生率為 2.36 次/百人月，遠高於衛生福利部中央健康保險署（2022）統計 2021 年腹膜透析病人腹膜炎發生率 1.53 次/百人月，盼由現況分析探討原因，進行改善來降低腹膜炎發生率，提升照護品質。

方法：2021 年單位共發生腹膜炎 28 件，經現況分析及問卷調查，腹膜炎發生率高主要問題如下：

1.護理人員：未正確落實換液技術及預防腹膜炎衛教、無稽核機制。

2.病人：未正確執行換液操作及對預防腹膜炎認知不足。

3.政策：缺乏內視鏡排檢提示功能、衛教工具不完善。

透過規劃教育課程，舉辦教育訓練、團體衛教，宣導正確預防腹膜炎觀念。制定換液技術訓練與指導規範，套用自創標語「同手握、同手勾、轉 2 圈迷你帽、拉、倒、接」，加深步驟執行印象。設計管路銜接輔具，供雙手顫抖、無力病人使用，使透析管路易正確銜接，降低因手部問題造成技術執行的挫敗感。增設內視鏡排檢提示功能、制定稽核制度、製作衛教及換液技術影片、成立腹膜透析病人 Line 群組定期推播衛教影片、照護訊息等。

結果：執行後腹膜炎發生率由 2021 年 28 件降至 2022 年 16 件。故標準化回診衛教內容、內視鏡排檢提示、腹膜炎發生者每季換液技術評值，訂為單位標準作業流程。每月安排主要換液者返院接受評核換液技術、認知查核列為單位品管監測項目。每月雙週星期一、三舉行團體衛教。利用衛教單張、影片製作、資訊提示、LINE 推播，配合團體衛教與回示教，讓病人及家屬確實執行腹膜透析換液及日常照護。

結論：改善後單位腹膜炎發生率由 2.36 次/百人月降至 1.46 次/百人月，運用不同的教學媒介可引發病人的學習興趣。透析治療實屬專業特殊照護族群，主要照護者為外傭時，常因語言及文字對衛教內容不了解，因應網路無國界，衛教照護資訊不漏接，除藉由 Line 或視訊聯絡，建議專屬腹膜透析資訊人員，與單位定期跨團隊討論，建置透析專屬網站，增設病人多元數位醫療資訊及指導翻譯功能，以提升病人照護品質。

關鍵字：腹膜透析、腹膜炎

C187

The correlation between Icodextrin and peritoneal patient fluid overload - Retrospective of the peritoneal dialysis room experience of a Central Medical Center

Icodextrin 與腹膜透析病患液體過多之相關性-某中區醫學中心腹膜透析室經驗回溯

Yi-Hua Chang[1], Hsiu-Yen Lin[1], Chun-Yan Hsu[1], Huei-Fong Tai[1], Li-Ching Chen[1], Chia-Lin Wu[2]

張宜驊[1], 林秀姻[1], 許春燕[1], 蔡慧鳳[1], 陳麗菁[1], 吳家麟[2]

[1.] Peritoneal dialysis Room, Changhua Christian Hospital

[2.] Division of Nephrology, Changhua Christian Hospital

彰化基督教醫院 腹膜透析室[1] 腎臟科[2]

Background：

多數腹膜透析病患的水分控制並不如想像中的好，常有體液容積過多的問題，因脫水問題或腹膜硬化而退出腹膜透析治療之病患不在少數，嚴重也甚至可能增加病患的死亡率。

Methods：

本單位的統計資料庫回朔分析

Results：

2007~2011 年間與 2017~2021 年間，因腹膜與脫水間合併有腹膜硬化退出比率下降 3.7%、心血管疾病退出下降 10.4%、脫水衰竭退出下降 12.5%。

Conclusions：

顯示 Icodextrin 對脫水差病人確實有改善進而降低因脫水衰竭或腹膜合併症退出腹膜透析治療，也藉由此文章發表期許 Icodextrin 能普及化使用，以提升病人在腹膜透析治療的存活率。

Key words：

愛多尼爾、腹膜透析、脫水衰竭

C188

Using smart medicine to improve peritoneal dialysis quality care

運用智慧科技提升腹膜透析照護品質

Hsin-Lin Peng[1], Li -Chuan kuo [1], Ying-Wen Chi[1]

彭杏林 [1], 郭琍娟 [1], 紀穎雯 [1]

Tri-Service General Hospital Nephrology

三軍總醫院腎臟科

Background：

病人回診流程在醫療系統中是重要的部份之一，而腹膜透析病人每月定期回診，如何優化回診流程，縮短待診時間，提高醫療服務效率，是刻不容緩課題。智慧醫療指結合醫療與資訊科技，透過科技資訊串聯與整合，提供精準健康照護與應用，進而縮短臨床醫療人員看診及準備作業時間。尤其在疫情期間，藉由電子病歷查詢及運用行動通訊軟體 line@，適時介入病人健康自我管理與學習，減少來院次數，改善傳統健康指導模式，提供完整透析服務，讓病人居家透析管理更加容易。

Methods：

運用跨領域模式與本院資訊人員合作，導入智慧醫療概念，建置腹膜透析電子病歷系統，與 HIS 資料串接，將相關檢查、影像判讀整合匯入電子病歷系統內，每月檢驗報告以組合趨勢圖資訊呈現，視覺化設計讓檢驗資料一目了然，簡化護理師查詢及抄寫時間，縮短回診事前人工準備作業及醫師診療查詢時間；另搭配通訊軟體 LINE@進行居家透析自我管理及飲食紀錄回傳，並針對全自動腹膜透析病人，配合雲端管理平台(APD+RPM)，護理師可隨時使用手機監測居家透析病人遵從性、脫水狀況，提早發現問題即早介入治療，建立病人自主管理責任及健康行為目標設定，強化自我照護能力，修正飲食自我管理行為及搭配藥物調整，逐步改善透析相關併發症，進而提升生活品質。

Results：

統計 112 年 6 月腹膜透析人數為 115 人，每月花費抄寫檢驗報告紙本作業、腹膜功能測試報告及輸入腎臟醫學會等各項資料，經由電子病歷系統介入後，減少人工作業 4.8 個工作天 (115 人*20 分鐘/60 分鐘/8 小時)；每月列印生化報告平均使用 3 張 A4 紙，資訊優化後每年可減少 8,280 元影印費用(115 人*3 張*12 月*2 元)，朝向聯合國 17 項永續發展目標 SDGs 邁進；另搭配通訊軟體 LINE@協助下，加強病人飲食互動回饋及營養師專業諮詢，112 年 1 月至 6 月高血磷由 44.1%下降至 33.2%，顯著改善，同時病人對醫療照護滿意度由 87%顯著提升至 94.1%。

Conclusions：

腹膜透析為長期居家透析治療，透過跨領域合作，簡化臨床紙本作業，病人藉由智慧科技醫療輔助照護，更能遵循醫囑及增加自我照護能力，減少透析併發症發生，全面提升醫療品質及建立良好醫病關係。

Key words：

腹膜透析、電子病歷系統、通訊軟體 LINE@

C189

Reducing delayed automated PD utilization in hospitalized peritoneal dialysis patients

降低腹膜透析住院病人 APD 延遲使用異常件數

王麗娥[1], 盧惠敏[2], 程 音[3]
亞東紀念醫院腹膜透析護理師[1], 亞東紀念醫院血液透析室護理長[2],
亞東紀念醫院護理部督導[3]

目的：臺灣病人安全通報系統，將火災列入公共意外通報案件，火災原因以電器設備最多佔32.8%，本院配合衛福部實施自帶電器管理指引，住院病人使用居家全自動腹膜透析治療，機器需經醫療儀器室審核通過才能使用；統計 2020 年 11 月～2021 年 5 月住院之腹膜透析病人使用 APD，因未完成院方審核機制，延誤透析治療共 11 件；故期望透專案活動改善，腹膜透析住院病人延遲治療的發生率，提升醫院用電安全及護理照護品質。
方法：單位統計 2021 年發生住院 APD 延遲使用高的的問題，透過現況分析、及問卷調查並設計查檢表，了解造成 APD 延遲使用的真正原因，於 2021 年 10 月 4 日-15 日實際訪談 34 位使用 APD 治療病人，瞭解病人申請自帶機器衛教執行困難點。
分析主要原因為：一、機器審核有時間限制。二、機器審核備物內容不完整。三、不知道機器要審核才可使用。四、無衛教工具、護理師不清楚申請流程
依據四大要因選定並於 2021 年 11 月起執行相關對策：
『對策一』制定「全自動腹膜透析機」租借辦法及同意書，含租借期限及方法，單位 1 台教學機、1 台備用機，每三個月廠商保養一次。『對策二』制定提醒小卡、錄製影片及運用 Line 推播制作衛教提醒小卡，貼於每日透析紀錄本首頁提醒錄製「住院不要手忙腳亂打包祕笈」，於腹膜透析診間播放，邀請使用 APD 病人加入醫院 Linebot，每季推播，加強住院申請機器宣導。製作「住院申請注意事項提醒卡 QR code」，貼於機器上讓病人隨時取得資訊。『對策三』每季回診時針對使用 APD 病人採一對一衛教及制定考核項目，針對 APD 住院送審準備用物及注意事項。『對策四』制定醫院自帶 APD 機器申請流程
制訂「全自動腹膜透析(APD)病人住院治療處置標準」將申請流程張貼於護理站加強同仁宣導並定期舉辦在職教育課程。
結果：經討論制定租借辦法及舉辦在職教育、製作提醒卡、影片播放、衛教等等措施；統計 2021 年 9 月至 2022 年 9 月住院腹膜透析使用 APD 病人共 12 位，延遲使用件數 0 件，與院方租借共 7 件，達成目標；護理人員認知由 55.0%提升至 90.9%。因改善成果良好，制訂「全自動腹膜透析(APD)病人住院治療處置，標準化(W10130-01-008)。
結論：統計使用全自腹膜透析的病人由 34 位增加至 43 位，有 7 位病人因來不及申請審核與院方租借；全自動腹膜透析便利性高，未來是末期腎臟病人治療的另一種趨勢，目前本院 2 台全自動透析機，一台為教學，另一台提供住院病人租借使用，如同時段其他病人有需求就無法再提供機器，已持續討論編列年度預算進行 APD 增購作業，提供腹膜透析病人住院有延續性治療，並提升完善的照護品質。
關鍵字：腹膜透析、全自動腹膜透析

C190

Nursing Experience of Using Shared Decision Making to Care an End-Stage Renal Disease Elderly Patient Facing the Choice of Dialysis Modality

運用共享決策於高齡末期腎病病人面對透析抉擇的護理經驗

劉寶玲[1], 戴辛翎[2]
高雄醫學大學附設中和紀念醫院 護理部[1]
台北榮民總醫院 護理部[2]

背景/目的：

台灣透析發生率與盛行率仍居高不下，影響國人健康甚鉅，目前約有 8.7 萬人接受透析治療，平均每人每年的健保醫療費是 74 萬元，占全民健保總支出約 9.0%。當病人進程至末期腎病（End-Stage Renal Disease, ESRD）時，因生命威脅與腎功能無法回復而產生抉擇衝突。研究指出，運用醫病共享決策（Shared Decision Making, SDM）可有效提升病人的自我決策效能，降低決策衝突，採用此模式可以達到完整告知病人不同治療方式的風險與優勢，及對未來生活的影響，並讓病人的價值觀及偏好在決策的過程中受到重視。希望藉此照護經驗幫助高齡病人與家屬考量適合自己的透析方式，以達成病人的生活目標為優先，其次為減少合併症與醫療負擔，維持殘餘腎功能，保有較佳的生活品質。

方法：

1.以周全性老年護理作為評估工具，藉由觀察、傾聽、會談、身體評估方式進行資料收集，確立個案有抉擇衝突、營養少於身體所需、潛在危險性感染等三項主要健康問題。

2.運用 SDM 輔助工具，以病人為中心的照護模式，在醫病相互尊重與溝通下，協助病人選擇適合的透析方式。

結果：

在照護過程中以傾聽、鼓勵病人表達心中想法、啟用 SDM 分析血液及腹膜透析治療方式與利弊得失，邀集醫病雙方與家屬參與討論、相互溝通、澄清疑慮，尊重其意願下選擇腹膜透析，逐進行腹部 Tenckhoff 導管植入手術；藉由醫療團隊跨部門診斷、諮詢與衛教補充個案營養所需；衛教病人傷口感染徵象、教導換藥技術並回覆示教、執行腹膜透析訓練計畫與傷口照護以降低感染風險。在整體性及持續性照護模式下，病人親自參與課程規畫，配合自己身心狀況決定學習進度，經由不斷的練習與鼓勵，激發其潛能，增進自信心，個案在短期內學會獨立執腹膜透析換液技術、連續可攜帶式腹膜透析(CAPD)相關照護與注意事項，並在日後的回診與追蹤治療無感染與腹膜炎徵象，對其生活品質的改善有很大的幫助。

結論：

本案為 66 歲男性，曾有高血壓、高血脂、糖尿病、冠狀動脈疾病等病史，本次因噁心、嘔吐、食慾不振、疲倦、呼吸喘入院，經診斷急性腎臟衰竭，須長期透析治療。病人在瞭解各種腎臟替代療法後，在醫護團隊協助下運用 SDM 選擇腹膜透析，進行後續的療程，筆者以個案為中心設計的周全性照護計畫，包含腹膜透析訓練課程、管路照護、預防腹膜炎發生、蛋白質飲食、服用磷結合劑。腹膜透析不需扎針，飲食與水分管控較彈性，透析過程不會有不適感，透析時間自由，不須受限醫院透析時間表；此外，病人可維持較久的殘餘腎功能，還有較好的生活品質，對於有學習與自我照顧能力的病人，即便是高齡，也可選擇腹膜透析。

關鍵字：高齡、腹膜透析、醫病共享決策

C191

Using multimedia teaching and video platforms to promote the peritoneal dialysis patients for self-health management in nursing experience

運用即時通訊軟體視訊平台提升初次面臨腹膜透析患者自我照顧之護理經驗

楊淑津, 鄭晶丹, 李岳庭, 廖上智, 李建德
Shu-Chin Yang, Ching-Tan Cheng, Yueh-Ting Lee, Shang-Chih Liao, Chien-Te Lee
高雄市立鳳山醫院(委託長庚醫療財團法人經營)
Kaohsiung Municipal Feng Shan Hospital - Under the management of Chang Gung Medical Foundation

Background：
末期腎臟病是一種慢性不可逆的疾病，依據台灣腎臟醫學會【2021 腎病年報】指出全台約 9 萬人洗腎人口位居全球第一其，造成病人及家屬生活、社會及經濟上負擔。洗腎方式有兩種，分為血液透析及腹膜透析；選擇腹膜透析病人須具有強烈的學習動機，以及個人衛生習慣良好，遵從性高且獨立自主。而台灣即將在 2025 年邁入超高齡社會，需在短時間學會換液技術、導管出口照護及腹膜透析專業知識，這對於年紀大或照護者來說都會產生焦慮及壓力，擔心無法獨力完成照護進而產生無力感。本文主要透過探討運用通訊軟體視訊平台可立即給予協助並指導技術完整性之經驗，促進居家腹膜透析病人自我照護品質，讓病人可安心接受居家腹膜透析治療。

Methods：
等待植管期間，請病人與照護者加入「即時通訊軟體」，為增進對居家腹膜透析自我照顧之信心，可請照護者將居家環境清潔幫忙拍照上傳或直接開啟視訊方式提供合宜資訊與措施。影音取代了書面文字，將換液技術及導管出口照護分解動作錄製影片上傳記錄在記事本，另將腹膜透析相關知識如:體重血壓監測、記錄本填寫、緊急事件處理及透析營養注意事項一併上傳群組。在未開始換液前，病人及照護者可反覆觀看與學習增加印象，若遇到不清楚部分線上發問可立即給予正確解答，讓教學沒有距離零時差，達到雙向溝通。進入換液技後請病人及照護者接受測試，了解對於腹膜透析知識增進準備度，個別指導錯誤觀念及技術。

Results：
接受居家腹膜透析病人及照護者在即時通訊軟體視訊平台介入後，比較常見的錯誤觀念為 1. 口罩不用天天更換 2.房間內可以養寵物 3.空調可以吹牆壁；另外，線上回覆視教的動作，常犯之錯誤動作為 1. 洗手後衛擦拭乾 2.導管位置固定不佳，移除膠帶時會常拉扯管路 3. 拿取透析液未檢查濃度、有效期限且未依照換液標準動作執行操作。藉由利用聲音、影像等視訊畫面即時予以修正後，增加自信心，進而執行自我照顧行為，以促進其生活品質。

Conclusions：
即時通訊軟體視訊平台確實可提供完整性、及時性、連續性、互動性照護，零時差距離同時也藉由主動關懷積極介入，適時減輕照護者及個案心理負擔，同時拉近醫病關係及提升信任感，期望持續提供更優質的照護品質是我們的共同目標。

Key words：
腹膜透析、視訊、即時通訊軟體

C192

Continuous tracking the correctness of hand washing among peritoneal dialysis patients

持續追蹤腹膜透析病人洗手正確性

Li-Chiung Yang[1], Mei-Chih Hu[1], Lan-Yen Chen[1], Ya-Hui Lai[2], Ching-Wei Wang[1], Yueh-Feng Tsai[1], Ting-Yi Wang[1], Li-Hsueh Huang[1]
楊麗瓊[1], 胡美枝[1], 陳蘭燕[1], 賴雅惠[2], 王景薇[1], 蔡岳峰[1], 王婷翊[1], 黃麗雪[1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[2] Infection Conttral Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1] 台南新樓醫院 洗腎中心
[2] 台南新樓醫院 感染管制中心

背景：
良好的手部衛生是降低感染最簡單、最容易執行的方法，也是病人安全的第一道防線。本腹膜透析室於 110 年 11-12 月監測腎友洗手的情形，發現有 60%的腎友未正確洗手，於 111 年 2-9 月執行改善措施後有達到改善的目的。但腎友每日在家執行多次洗手，當操作時間久且次數多時，容易未依照標準技術操作，因此將持續腎友正確洗手列為年度工作之一。

方法：
一、與感管護理師共同討論如何持續性執行洗手評核，以維持洗手的正確性。
二、確立洗手評核項目，並於 111 年 12 月開始執行措施：
(1)與感管護理師討論後，a.設計『腹膜透析腎友洗手知識評估』試題，內容包括：正確洗手概念、重要性、洗手時機及應注意事項等，並將考題列為新腎友必須完成的試卷之一 b.修正洗手評核表，內容包括：用物準備、有去除手錶及飾品、有潤濕雙手、有用足夠的洗手液(按 2 下)、雙手搓揉至少 40 秒、完成 7 字訣、使用流動的水、正確擦手紙拭乾雙手及以擦手紙或手肘關閉水龍頭等 9 大項 c.雙手塗抹螢光粉，評值洗前/洗後雙手之狀況，洗後進行討論
(2)不定期於腎友回診或檢查或換管時抽測洗手狀況，完成洗手評核表後請腎友簽名並進行討論
(3)設計洗手遊戲圖卡，讓腎友除了正規的洗手評核之外，也可以由遊戲中加深如何正確洗手的印象。

結果：
1111201-1120731 有 25 位腎友完成『腹膜透析腎友洗手知識評估』試題，執行率 100％；20 位腎友實際完成洗手評核表、遊戲圖卡及螢光粉測試，執行率 80％。

結論：
腹膜透析腎友每次換液前需確實洗手以降低感染的風險，但每天多次重覆執行某一技術時會因為鬆懈而有簡化步驟、不遵守標準技術操作之情形發生；本腹膜透析室此次將執行重點放在確實洗手的維持，希望除了正式的洗手技術評值、考試之外，設計圖卡讓腎友從拼湊圖卡中得到正確的洗手資訊、並首次使用螢光粉的方式來評核病人洗手技術，希望增加洗手正確性，進而達到預防感染之目的。

關鍵字：腹膜透析、換液、洗手

C193

Analysis on peritonitis in peritoneal dialysis patients

腹膜透析病人再發生腹膜炎相關分析

Yu-Ting LIN[1], Hui-Zhen RUAN [2]

林玉婷 [1], 阮慧珍 [2]

[1] National Taiwan University Hospital Bei-Hu Branch, Department of Nursing, Hemodialysis Center [2] National Taiwan University Hospital, Department of Nursing, Peritoneal dialysis Center

[1] 國立台灣大學醫學院附設醫院北護分院護理部血液透析中心 [2] 國立台北護理健康大學護理研究所 [3] 國立台灣大學醫學院附設醫院腎臟內科

研究動機：

透析替代治療模式中，以腹膜透析對殘腎功能保護性較好，但腹膜透析最常見的腹膜透析相關性感染是腹膜炎，也是最嚴重的急性併發症。然而單次重度腹膜炎或再發性腹膜炎的發生，常導致腹膜超過濾功能下降，造成腹膜炎透析失敗而拔管，更是轉入血液透析的主要原因，甚至嚴重到敗血症導致死亡。因此探討腹膜炎的危險因素，以避免或延緩腹膜透析相關性腹膜炎的發生，進而提升生活品質及延長腹膜透析病人存活率是極為重要的。

研究方法：

本研究採縱貫式研究設計，收集資料自北部某醫學中心之腹膜透析病人，期間自 2020 年 1 月至 2022 年 12 月，回朔分析腹膜透析中心共有 443 位病人，其中有 173 人發生 232 次腹膜炎。收集內容包括個案性別、年齡、疾病史、腹膜透析模式、生化檢驗值、腹膜炎的微生物學以及腹膜炎感染後的結果。資料以 SPSS 24.0 版進行統計分析。

研究結果：

在 173 位研究對象中，發生 232 次腹膜炎的特性中，男性有 125 人次(53.9%)、女性有 107 人次(46.1%)，以 51 歲以上占 76.7%為好發族群，感染常見的原因以操作換藥技術不當占 128 人次(55.2%)，其次是腹部內器官炎症 94 人次(40.5%)；最常見的感染菌種以革蘭氏陽性最多，占 91 人次(39.2%)，其次是格蘭氏陰性占 64 人次(27.6%)；營養及發炎指數狀態，HB 和 ALB 皆有 1/2 的異常指數、CRP 有 1/3 的異常；在感染預後情形以治癒為主，但轉至血液透析者占 26.7%(62 人)。區間中有 173 人數發生腹膜炎，以≥2 次為再發生腹膜炎有 38 人(22%)，顯示有 1/5 的人會有再復發的情形，其中以女生比男生有再發生腹膜炎的風險降低 3%；以年齡每增加 1 歲有再發生腹膜炎的風險降低 3%；有糖尿病比沒有糖尿病有再發生腹膜炎的風險 1.443 倍；有心臟病比沒有心臟病有再發生腹膜炎的風險降低 60%，有顯著差異；發生低鉀的次數，以每增加一次低鉀的次數有再發生腹膜炎的風險增加 1.632 倍。

結論：

腹膜透析病人的再發生腹膜炎以女性有較高的再發生率，年齡為有顯著的意義，所以針對年輕人已經發生腹膜炎，再衛教是非常重要的，對於有糖尿病、心臟病的疾病史的病人的衛生策略，更需要有效的介入措施，以預防再發生腹膜炎的次數。持續四次低血鉀發生次數，為顯著差異，所以要積極改善預防低血鉀的發生，以避免腹膜炎發生率的風險。

關鍵字：腹膜透析、腹膜炎

C194

Sharing experience in assisting the elderly to complete peritoneal dialysis fluid exchange training

協助長者完成腹膜透析換液訓練之經驗分享

Mei-Chih Hu[1*], Lan-Yen Chen[1], Li-Chiung Yang[1], Li-Hsueh Huang[1]
胡美枝 [1*], 陳蘭燕 [1], 楊麗瓊 [1], 黃麗雪 [1]
[1] Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan
[1] 台南新樓醫院 洗腎中心

背景：

艾瑞克森社會心理發展學將65歲以上稱為老年期。台灣2022年的人口統計資料結果，65歲以上佔17.56%，顯示台灣是一個高齡的社會狀態。老年人動作及反應慢、自我照顧的能力低，對於學習新事物會害怕、排斥及擔心，因此需要較個別化的措施，才能得到較好的效果。因此，當老年病人需接受透析治療時，醫護人員常直接建議HD，但當遇到老年人選PD時，我們怎麼處理：勸退他？或是了解原因後再尋求解決方法呢？

方法：

面對個案高齡之狀態，我們進行了討論，決定依其個別性採取衛教措施：

A：換液技術訓練部份：1. 改變換液訓練方式：將換液流程口語化、簡單化並印成大字報張貼於換液桌前，讓病人可以一邊看一邊操作技術並且只強調重點。2. 考量老年病人反應慢及記憶差之因素，將訓練時間延長並增加訓練次數至個案可獨自操作技術為主。3. 善用換液教學影片：讓病人反覆看影片，利用影片加深其印象。4. 讓病人以紙筆寫下換液流程(此過程重複2次)，加深其印象。5. 於出院時另外提供大字報，讓病人回家時張貼於換液桌前。6. 盡量於出院後安排家訪，實際了解居家換液環境及實際換液狀況，適時提出修正。

B：飲食部份：1. 蛋白質：先計算個案每日蛋白質應攝取量，教導個案以自己手掌來評估每日攝取是否足夠；考慮個案牙口不好的問題，建議攝取黃豆製品、配方奶、蛋白。2. 鉀：蔬菜可切成小塊直接拌炒或以少量的水悶熟。3. 磷結合劑：建議磨粉或切小塊搭配食物使用。

結果：

臨床上，個案年紀大學習腹膜透析真的會因為無法熟記換液流程有深深的挫折感、缺乏自我肯定，醫護人員在訓練過程中需給予較多的鼓勵、放慢訓練速度、延長訓練時間、增加訓練次數、如有家人者需協調家人提供幫忙，最終結果就是讓個案能順利完成換液訓練。

結論：

社會型態改變，獨居或老老互相照顧的案例增加，或許因為外出 HD 不方便、經濟....等原因，不得不選擇 PD 的治療方式。在照護經驗中，發現讓老年個案完成換液訓練是需要有相當大的耐性及技巧性，整個照護過程中也考驗著醫護團隊的臨場反應，需隨時依照個案的狀況調整訓練的步伐及自己的心態，維持最大的耐性及接受度去認同個案的反應，如此才能讓個案能順利進行治療。

關鍵字：腹膜透析、老年人、換液訓練

C195

Peritoneal dialysis nurses-coached shared-decision making facilitates the implementation of dialysis catheter implantation

腹膜透析治療師主動參與的醫病共享決策促進了透析導管植入的實施

Chien-Hsiu Liu, Chin-Ju Cheng, Mei-Ying Wu, Fu-Lin Chang, Chao-Chuan Lee, Tsuen-Wei Hsu, Ben-Chung Cheng, Wen-Chin Lee

劉建秀, 鄭錦如, 吳美瑩, 張富玲, 李昭娟, 許淳惟, 鄭本忠, 李文欽

Division of Nephrology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital

高雄長庚醫院 腎臟科

背景:

台灣洗腎人口近 10 萬其中接受腹膜透析約僅占 8.5%，當末期腎病病人面臨選擇腎臟替代療法時，病人及家人常因不瞭解及擔心長期照護問題，往往出現抉擇衝突。提供「透析治療模式多元選項」決策支持措施可以減少末期腎病病人決策困擾，我們探討透析前接受腹膜透析治療師以共享決策方式執行腹膜透析衛教，進而成功植管的成效分析。

方法:

經由門住診醫師及慢性腎臟病衛教師轉介病人至腹膜透析室，由腹膜透析治療師運用醫病共享決策方式及提供多元衛教資料，利用腹膜透析推廣室之衛教工具，影音衛教光碟、圖片及衛教單張施行個別性衛教。

結果:

回溯分析統計 2020 年~2022 年經由腹膜透析治療師個別性衛教總病人數共 319 人次三年分佔：143，90 和 86 (人次)，男性 187 人(58.6%)、女性 132 人(41.4%)，平均年齡 57.1±15.1 歲。衛教病人來源涵蓋門診、住院，病人來源以門診個案居多，三年分佔比率：62.2%，65.6% 和 69.8%。而經腹膜透析治療師衛教，進而植管成功的比率及病人數，三年分佔比率為門診：53.7% (51 人)，55.6% (20 人)和 71.1% (32 人)；住院：46.3% (44 人)，44.4% (16 人)和 28.9% (13 人)。接受衛教進而成功植管的總病人數高達 176 位，男性 103 人(58.5%)、女性 73 人(41.5%)，平均年齡 54.3±15.5 歲。末期腎臟病人接受腹膜透析治療師個別衛教進而成功植管者曾接受慢性腎臟病照護計劃(Pre-ESRD)收案衛教之比率三年分佔：49.5%，58.3%和 57.8%。

結論:

當末期腎病個案需接受開始進入透析，面臨腎臟替代療法抉擇、接受腹膜透析的治療過程中，由腹膜透析治療師提供「腹膜透析衛教」，透過醫病共享決策方式讓病人及家人彼此間溝通、瞭解及接受能夠充分了解腹膜透析治療方式，對於病人在往後透析期間可減輕個案焦慮，正向面對後續照護問題。

關鍵字: 末期腎病、腹膜透析、慢性腎臟病照護計劃、醫病共享決策、植管

C196

Results of using the BSRS-5 for initially screening psychiatric symptoms and implementing timely interventions in patients undergoing peritoneal dialysis

以簡式健康量表初篩腹膜透析病人精神症狀與及時介入之結果

Pei-Jung Wu[1], Yung-Chu Yang [1], Hsueh-Chi Chou[1], Mei-Hsien Wu[1], Hui-Ying Lin[1], Hsin-Chun Tsai[1], Chen-Wei Chen[1], Chin-Chung Tseng [2], Jo-Yen Chao[2]

吳佩蓉 [1], 楊詠筑 [1], 周雪琦 [1], 吳美賢 [1], 林惠瑛 [1], 蔡幸錞 [1], 陳珍緯 [1], 曾進忠 [2], 趙若雁 [2]

[1] Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan

[2] Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan

[1.] 國立成功大學醫學院附設醫院護理部 [2.] 國立成功大學醫學院附設醫院腎臟科

Background：

藉由簡式健康量表(Brief Symptom Rating Scale，BSRS-5)在臨床上定期評估透析病人之精神症狀，對於有心理困擾之患者，應主動給予關懷及支持，視其需要進行轉介，提供抒發之管道，持續追蹤，目的在於迅速了解個人之心理照護需求，進而提供所需之心理衛生服務。

Methods：

本研究透過簡式健康量表，於 2022 年 4 月南部某醫學中心對 220 位腹膜透析病人進行橫斷結構式問卷調查，用來評估腹膜透析病人自覺的精神症狀。問卷內容主要做為精神狀態之簡易篩檢。

Results：

研究結果發現，有「睡眠困擾」約佔五成；有「感覺緊張不安」約佔兩成；有「感覺緊張不安」約佔兩成；；有「感覺憂鬱、心情低落」約佔兩成；「覺得比不上別人」佔近兩成的人；「有出現自殺想法」佔 4.1%。在腹膜透析 BSRS APD 與 CAPD 統計上發現，「睡眠困擾」項目並不沒有因為 CAPD 或 APD 系統的不同而有所差異。針對 BSRS-5 五題總分大於等於 10 分或自殺意念大於等於 2 分者，皆立即通報與作後續持續追蹤。發展以醫院為基礎(hospital-based)的自殺防治小組有其重要性。主要目的在透過整合性服務，有效地防範問題、降低醫療使用、社會成本及自殺死亡率，積極進行自殺防治。

Conclusions：

本院腹膜透析病人經由簡式健康量表之評量，發現約有一半病人認為患病後睡眠對生活有影響，病人整體的健康狀況及情緒問題會導致工作及活動受限，也是影響病人生活品質的重要因素，故建置病人自殺防治作業，團隊成員不但能落實提升高風險個案評估與通報，並能有效降低自殺未遂案件，落實病人安全，盼能提供臨床實務運用之參考。

Key words：

腹膜透析、簡式健康量表

C197

Health education on hyperphosphatemia in peritoneal dialysis patients

腹膜透析患者高血磷衛教

Lan-yen Chen[1]*, Mei-Chih Hu[1], Yueh-Feng Tsai[1], Ting-Yi Wang[1], Ching-Wei Wang[1], Li-Hsueh Huang[1], Li-Chiung Yang[1]

陳蘭燕[1]*, 胡美枝[1], 蔡岳峰[1], 王婷翊[1], 王景薇[1], 黃麗雪[1], 楊麗瓊[1]

[1]Dialysis Center, Tainan Sin Lau Hospital, Tainan, Taiwan

[1]台南新樓醫院洗腎中心

背景：

腹膜透析常見合併症高血磷，會引發皮膚搔癢、骨質疏鬆、手腳抽筋、肢體水腫等，磷高影響鈣三醇合成下降，致副甲狀腺功能亢進、骨骼病變、心血管疾病；2023 年依 KDOQI 建議透析患者血磷值 2.7-4.5mg/dl，若血磷大於 6.5mg/dl，死亡率可達 27%。飲食上需限制磷攝取，如：豆類、堅果類、可樂、蛋黃、肉類、魚類及加工食品等高磷食物，食物皆含磷酸鹽在腸中被吸收，磷攝取量每日限制 800-1000 mg，透析治療不能完全清除高血磷，除飲食控制還需服用磷結合劑來治療。

方法：

本單位於 111 年 10 月-12 月血磷≧5.5mg/dl 發生率為 40%，利用月初抽血調查患者高血磷之原因，醫護人員討論。

確立問題：單位患者常見吃餅乾堅果類食品，降磷藥物用法不正確，忘記服藥。

112 年 1-6 月實施改善措施：1.改變傳統衛教海報模式，將海報改為心智圖分類高磷食物，並用彩色海報呈現 2.製作彩色高磷食物照片，用於高血磷患者採一對一衛教 3.對於高血磷者於≧5.0mg/dl 者，於日記本張貼高血磷提示單 4.衛教降磷藥物分裝，以利隨身攜帶於口袋、袋子、餐桌上，於外出或家中方便取用，並正確在餐中與魚肉一起服用 5.對於服用降磷藥物遵從性低者，依個別性於手機設定鬧鐘，提醒服藥時間。

結果：

經執行後改善前高血磷發生率 40%，改善後 112 年 7 月- 9 月高血磷發生率 26%，下降 14%，有達到目的，故持續執行改善方法。

結論：

利用心智圖高磷食物彩色海報，張貼公佈欄，吸引患者主動觀看海報內容，藉由護理人員解說食物含磷量，讓患者記得高磷食物種類，成功達到衛教目的；回診時採面對面的溝通，了解患者實際食物攝取狀況，護理人員使用高磷食物照片，提供一致性的衛教，針對降磷藥遵從性的提升，正確飲食增加免疫力，降低死亡率，提升透析品質延續生命力。

關鍵字:腹膜透析、高血磷

C198

Enhancing the choice of peritoneal dialysis by pre-ESRD education program

探討腹膜透析與提升照護品質計畫之成效

Ya Ling Chen, Fang Lieng Yeh, Ling Juang, Hsin Lin Peng, Li Chuan Kuo, Ying Wen Chi
陳雅玲, 葉芳伶, 姜菱, 彭杏林, 郭琍娟, 紀穎雯
Tri-Service General Hospital Nephrology
三軍總醫院腎臟科

Background：
中央健保署自 112 年 7 月推動「全民健康保險鼓勵院所加強推動腹膜透析與提升照護品質計畫」，期望能提升末期腎臟病病人(End Stage Renal Disease，ESRD)選擇腹膜透析治療方式，增強腹膜透析病人自我照護能力及照護品質，發揚醫病共享決策 Shared Decision Making，SDM)精神，促進腎臟病整體醫療照護品質。
本院為配合計畫，擬定計畫推動流程圖，前端門診由醫師積極篩選病人，衛教師介入執行「末期腎臟病共享決策計畫」，後端由腹膜透析護理師針對門診轉介及住院病人，階段性安排「末期腎臟病共享決策計畫」說明，應用末期腎臟病治療選擇之電子書與相關衛教單，即早提供相關衛教資訊，強化病人對於腎臟替代治療選擇多一分了解與參與。

Methods：
採用 KDIGI guidelines 建議，針對腎絲球過濾率小於 15ml/min，具透析高風險病人，由醫師於前端門診進行初步說明，後續安排至衛教室，接受完整「末期腎臟病共享決策計畫」，衛教師以階段性方式執行，弱化病人對於透析治療衝擊，以強化對透析治療知識為目的。腹膜透析衛教師透過 Line 官方群組功能，發佈「末期腎臟病共享決策計畫」衛教資訊，以年齡層為分組，安排透析病人以一對一方式，進行末期腎臟病共享決策衛教指導。

Results：
統計 112 年前端門診推動末期腎臟病共享決策計畫共 120 位，後端共 26 位，進入長期透析治療病人中，選擇腹膜透析 8 位，選擇血液透析 72 位。分析選擇血液透析病人中，37 位平均年齡大於 70 歲，另有衛生習慣不良、視力不佳、行動不便、腹部曾經手術、工作等等因素，經醫師評估不適合選擇腹膜透析治療。

Conclusions：
此計畫推展 3 個月至今，對於提升接受腹膜透析治療尚無顯著成效，可能因末期腎臟病前期照護計劃成效卓越，延緩進入透析日程，造成透析高齡化，是影響接受腹膜透析因素之一。但計畫推展，對於實施院所及醫療人員，增加了執行報酬與實質效益。期望未來末期腎臟病共享決策推動效益，除了促進醫病溝通外，能夠顯著提升末期腎臟病透析治療照護品質

Key words：
共享決策、腹膜透析、腎臟照護衛教師

C199

Peritoneal dialysis-related tunnel infection caused by *Dermabacter hominis*
由 Dermabacter hominis 引起之腹膜透析相關隧道感染

Hui-Ying Lin[1], Wen-Chun Chen[1], Hsueh-Chi Chou[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Hsin-Chun Tsai[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Jo-Yen Chao[2], Chin-Chung Tseng[2], Ming-Cheng Wang[2]

林惠瑛[1], 陳雯君[1], 周雪琦[1], 吳佩蓉[1], 吳美賢[1], 楊詠筑[1], 蔡幸錞[1], 徐秀蓮[1], 陳珍緯[1], 趙若雁[2], 曾進忠[2], 王明誠[2]

[1]Department of Nursing; [2]Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan

國立成功大學醫學院附設醫院 [1]護理部、[2]內科部腎臟科

目的：

腹膜透析相關感染之隧道感染會增加腹膜透析導管相關性腹膜炎的風險，也是導致導管移除而退出腹膜透析治療的主要原因之一。找出造成發生隧道感染的原因，積極治療和預防再發生是至關重要的。

方法：

一名 63 歲男性，因多囊腎接受連續性腹膜透析治療 6 年，有高血壓、左心室肥大、甲狀腺惡性腫瘤等病史，不曾發生過腹膜透析相關感染性合併症。於東部泡溫泉旅遊後，隧道處皮膚發生紅腫(範圍 10*1cm)、壓痛，導管出口處有暗紅色血樣分泌物，覆蓋出口之紗布上可見少量暗紅色濕的分泌物，且有難聞的氣味。分泌物嗜氧菌培養之菌種為 *Dermabacter hominis* 及 *Staphylococcus epidermidis*。隧道處超音波檢查發現腹膜透析導管周圍有膿瘍形成。感染後第 4 天，隧道處皮膚紅腫範圍縮小至 5*1cm。第 14 天，隧道處皮膚紅腫已改善，但出口處仍有少量暗紅色血樣分泌物，再次送檢，菌種只剩 *Dermabacter hominis* 一種。

結果：

依據藥敏試驗結果將抗生素 Cravit 調整為有效的 Cephalexin 治療。針對導管出口照護及換液主要執行者進行技術操作評核。衛教感染期間，增加導管出口處照護次數，mupirocin 藥膏局部使用。沐浴時，導管出口處使用防水貼膜遮蓋出口部位，以預防水源致病菌滲入。抗生素療程總共 21 天。2023 年 4 月至 10 月導管出口及隧道處皮膚正常，未再發生感染。

結論：

Dermabacter hominis 是健康人類的正常皮膚菌叢之一，屬於革蘭氏陽性菌、不形成孢子、不抗酸、兼性厭氧短桿菌。容易在免疫功能低下或患有嚴重疾病病人的皮膚或軟組織中引起伺機性感染，臨床近來可從腹膜透析檢體中被檢測出。導管出口部位應避免接觸藉由水源傳播的微生物，如泡澡。而溫泉水亦潛藏著藉由水源傳播致病菌的高風險因素，如泡溫泉。導管隧道處超音波檢查是確認隧道感染的重要工具。發生感染後，進行有效的抗生素治療。感染原因分析後針對病人居家照護錯誤之處加強再衛教，皆是預防再發生感染的重要照護措施。

關鍵字：

Dermabacter hominis, 腹膜透析、隧道感染、泡溫泉、導管出口照護

C200

Investigation for the bacterial virulence factors associated with clinical severity of staphylococcal peritonitis in peritoneal dialysis patients

與腹膜透析患者葡萄球菌性腹膜炎臨床嚴重程度有關的細菌毒力因素之研究

Chia-Chun Lee[1], Jo-Yen Chao[1], Te-Hui Kuo[1], Wei-Ren Lin[1], Kuan-Hung Liu[1], An-Bang Wu[1], Yu-tzu Chang[1], Ming-Cheng Wang[1], Junne-Ming Sung[1], Jenn-Wei Chen[2], Chin-Chung Tseng[1]

李佳駿[1], 趙若雁[1], 郭德輝[1], 林威任[1], 劉冠宏[1], 吳安邦[1], 張育誌[1], 王明誠[1], 宋俊明[1], 陳振暐[2], 曾進忠[1]

Division of Nephrology[1], National Cheng Kung University Hospital and Department of Microbiology and Immunology[2], College of Medicine, National Cheng Kung University

國立成功大學醫學院附設醫院腎臟科[1]及微生物學科暨微生物及免疫學研究所[2]

Background: Staphylococcal species such as coagulase-negative staphylococci (CNS) and *Staphylococcus aureus* are the most common pathogens of peritoneal dialysis (PD)-related peritonitis. The virulence factors of staphylococci including antibiotic resistance, biofilm production, toxins, enzymes other virulence factors. The association of these virulence factors with clinical severity has not been evaluated yet. The objectives of the present study were to identify the host and bacterial virulence factors that are associated with the severity of PD-related peritonitis caused by staphylococcal species.

Methods: PD-related peritonitis caused by CNS and *S. aureus* at NCKUH between January 1998 and December 2018 were review. PCR amplification was performed to detect the staphylococcal virulence genes, including oxacillin resistance-related gene *mecA*, biofilm control genes *icaA* and *icaD*, and genes encoding biofilm-associated protein (*bap*), and other virulence-related genes. The bacterial enzymes such as lipase and lecithinase, nuclease and thermonuclease, toxins such as hemolysins were also detected.

Results: 151 episodes of PD-related peritonitis were included into this study. Among these episodes, 78 (51.7%) required hospitalization, 73 did not. Bacterial enzymes such as lipase (P = 0.008) and lecithinase (P = 0.001) were the virulence phenotypes, and *fnbA* (P = 0.004), *sspA* (P = 0.002) and *sspB* (P = 0.002) were the virulence genes significantly associated with severe abdominal pain. β-hemolysin (P = 0.03), lipase (P = 0.02), lecithinase (P = 0.002), *fnbA* (P = 0.02), *sspA* (P = 0.005) and *sspB* (P = 0.005) were associated with patient hospitalization. Cardiovascular disease was the most common underlying factor associated with patient hospitalization (P = 0.06).

Conclusions: Moderate to high fever, severe abdominal pain were the significantly frequent symptoms of hospitalized patients. Bacterial enzymes (lipase, lecithinase, protease) and fibronectin-binding protein A were the bacterial virulence factors associated with severe clinical symptoms (severe abdominal pain) and patient hospitalization.

C201

Overview of Sharesource Flag Alerts and Event in PD-related infection patients

腹膜透析相關感染合併症病人 Sharesource 警訊與事件概況

周雪琦[1], 蔡幸錞[1], 吳佩蓉[1], 吳美賢[1], 楊詠筑[1], 徐秀蓮[1], 陳珍緯[1], 曾進忠[2], 趙若雁[2]

Hsueh-Chi Chou[1], Hsin-Chun Tsai[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Chin-Chung Tseng[2], Jo-Yen Chao[2]

[1]Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan [2]Division of Nephrology, Department of Internal medicine, National Cheng Kung University Hospital, Tainan, Taiwan

[1] 國立成功大學醫學院附設醫院護理部 [2] 國立成功大學醫學院附設醫院內科部腎臟科

Background：

雲端管理平台可查看並及時處理病人的個別問題，長期的治療記錄可提供寶貴的照護線索，本研究之目的為了解台灣南部某醫學中心發生透析感染合併症病人警訊及事件概況。

Methods：

本研究回溯分析自 2019 年 08 月至 2023 年 09 月 30 日期間，於台灣南部某醫學中心曾使用過 HomechoiceClaria®的 180 位腹膜透析病人，利用 Sharesource 資料庫與查閱病歷系統，分析腹膜透析相關感染合併症者之警訊與事件概況。

Results：

結果顯示期間發生透析相關感染合併症71人，共發生1889次紅旗警報：減少的治療時間30分鐘佔45.4%、減少留置時間60分鐘佔28.0%、減少的治療量>10%佔9.4%、略過注入或留置的次數>2次佔17.3%；感染病人發生裝置程式差異黃旗警報共18人總計1861次，佔裝置程式差異警報總次數的24.79%；警訊事件共發生7975次，前三項為：檢查病人端管路52.8%、引流量不足15.85%、檢查管路與透析液袋5.93%，應據此提供合宜的評估與照護措施。

Conclusions：

Sharesource 讓醫護團隊更能貼近病人的生活，支持與提升病人整體自我效能，對病人的治療體驗產生積極正面的影響，了解各個面向的病人的警訊事件狀態，對於原因的分析其助益與價值，可達到品質管理的成效。

Key words：

腹膜透析、Sharesource 警訊與事件、腹膜透析相關感染合併症

C202

Proteomic analysis from peritoneal dialysis effluent-derived extracellular vesicles in patients with ultrafiltration failure

腹膜透析患者發生脫水不良之腹膜液外泌體蛋白質體分析研究

Chi-Wei Shih[1], Shih-Hua Lin[1], Yu-Juei Hsu[1], Shun-Neng Hsu[1], Chih-Chien Sung[1]

石濟維[1], 林石化[1], 許育瑞[1], 許舜能[1], 宋志建[1]

[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

[1] 國防醫學院三軍總醫院腎臟內科

Background：

Ultrafiltration failure (UFF) is a critical problem in patients with peritoneal dialysis (PD). Traditionally, assessing the function of peritoneal membrane in PD patients depends on peritoneal equilibration test (PET). Although Aquaporin-1 level in the PD effluent (PDE) has been reported as a non-invasive biomarker to predict PD efficiency and UFF, but there is still lacking comprehensive analysis in PD patients with UFF.

Methods：

PDE was collected from total 70 patients. Patients were divided into two groups of peritoneal membrane transport type: High group (PET: high and high average, n=35) and Low group (PET: low and low average, n=35). PDE extracellular vesicles (PDE-EV) were isolated by ultracentrifuge and then were further analyzed by LC–MS/MS. Bioinformatic analyses were also conducted.

Results：

The isolated PDE-EV was confirmed by nanoparticle tracking analysis and immunoblotting of CD9 and Mesothelin. Overall, there were 390 identified proteins from PDE-EV. Among them, 44 differential expressed proteins were identified based on dual criteria of $p<0.05$ and $|\log2(High/Low)|>0.5$ including 25 upregulated and 19 downregulated protein. Gene ontology analysis of identified upregulated proteins showed terms of immune response and complement activation, consistent with inflammatory response. Among decreased proteins, AQP1 and SLC2A1 transporters were significantly downregulated in High group patients compared with Low group.

Conclusions：

This study demonstrated the PDE-EVs could be a non-invasive approach way to evaluate the peritoneal membranous function and understand the pathogenesis of UFF.

Key words：

Peritoneal dialysis, proteomic analysis, ultrafiltration failure

C203

腹膜透析病人早期流失的原因探討:以南部某區域醫院為例

Early failure in patient with peritoneal dialysis: a single center experience

Chiang-Pei Huang[1], Wan-Chen Chang[1], Hsiag-Chun Chen[1], Yuh-Ru Liu[2], Pei-Chun Chiang[2]
黃瓊珮[1], 章婉真[1], 陳香君[1], 劉育如[2], 江培群[2]
[1] Hemodialysis center,[2]Department of Nephrology, Ditmanson Medical Foundation Chiayi Christian Hospital, Chia-Yi, Taiwan
戴德森醫療財團法人嘉義基督教醫院 血液淨化中心[1], 腎臟內科[2]

背景:
腹膜透析病人有著較好的生活品質、減少疼痛及彈性的治療模式，且較少的醫療費用，受到許多國家在政策上的支持。然而，約有 5-20%的早期流失率，造成病人生理痛苦及心理壓力、醫療人員的負擔，也是推展腹膜透析占率的一大阻礙；此研究藉由分析及改善原因，以期待能減少病人的早期流失。

方法:
針對南部某區域醫院腹膜透析病患中，收集 2018 年 1 月 1 日至 2022 年 12 月 31 日間，接受首次腹膜透析導管手術的患者資料，並定義腹膜透析早期流失為病人開始腹膜透析後 12 個月內脫離腹膜透析治療，分析腹膜透析早期流失的病人特質及原因。

結果:
統計中植管者共 129 人，其中 24 位病人早期脫離腹膜透析，其基本資料:男性 14 人(58.3%)；年齡中 50 歲~70 歲佔 15 人(62.5%)70 歲以上佔 9 人(37.5%)，4 位(16.6%)未受過教育，具共病者共 22 人(91.7%)，可自我照護者為 12 人(50%)，由家人照護者為 12 人(50%)，BMI 介於 18.5~24(kg/㎡)有 12 人(50%)，BMI 大於 24(kg/㎡)有 11 人(45.8%)，小於 18.5(kg/㎡)有 1 人(4.17%)，對於脫離原因分析:死亡佔 11 人(45.8%)、無法自我照顧為 5 人(20.8%)、導管問題 3 人(12.5%)、感染問題為 2 人(8.3%)、腎功能恢復者為 1 人(4.1%)、腎臟移植為 1 人(4.1%)及轉院為 1 人 (4.1%)。

結論:
對於脫離原因中約佔一半的(死亡)，則必須加強病人及家屬的照顧能力，並及早就醫，畢竟腹膜透析的回診頻率較少。而脫離原因中有較高比率的(病人或家屬沒有照顧自我能力或意願)，除了在透析模式介紹階段加強病人及家屬對腹膜透析的認知外，衛教師在執行醫病共享決策(SDM)或介紹時也應更加協助了解其有無照顧自我能力或意願。

關鍵字：腹膜透析、早期流失

C204

Clinical and Laboratory Features in Uremic Patients on Continuous Ambulatory Peritoneal Dialysis Before and After Parathyroidectomy

腹膜透析患者接受副甲狀腺切除手術之術前與術後的臨床和實驗數據特徵

Shun-Neng Hsu, Pauling Chu, Shih-Hua Lin

[1] Division of Nephrology, Department of Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

三軍總醫院 內科部 腎臟內科

Background: A detailed pre- and post-parathyroidectomy (PTX) assessment in uremic patients on continuous ambulatory peritoneal dialysis (CAPD) with severe hyperparathyroidism (HPT) is rarely performed. We aimed to evaluate the pre-and post-PTX clinical and Laboratory findings in CAPD patients.

Patients and methods: We did a single-center retrospective study on 44 consecutive uremic patients on CAPD (14 men, 30 women; mean age, 49.8 ± 11.5 years; mean peritoneal dialysis duration, 66.7 ± 31.8 months) who underwent PTX over a 10-year period. Data on demographic characteristics, perioperative laboratory parameters, including serum calcium (Ca), phosphate (P), alkaline phosphatase (ALP), intact parathyroid hormone (iPTH), and follow-up biochemistries for hungry bone syndrome (HBS) were collected. To prevent post-PTX hypocalcemia, calcium and/or active vitamin D analogs supplementation was given. The HBS group was defined as serum Ca levels declining (< 8.5 mg/dl) within the first-week post-PTX and were refractory to medical control. We alternatively applied continuous ambulatory intraperitoneal calcium therapy (CAIC) to improve postoperative symptomatic hypocalcemia.

Results: The most common pre-PTX clinical manifestations were pruritus (60.9%), fatigue (43.5%), and bone pain (43.5%). Eleven of 44 patients (25.0%) had multiple uremic tumoral calcinosis (UTC). Thirty-one patients (70.5%) developed HBS post-PTX. The HBS group had lower post-PTX calcium on the 3rd day and 1st week ($p < 0.0001$) and the 1st and 9th month ($p < 0.05$) than the non-HBS group. Interestingly, the CAPD patients who had HBS or UTC had a remarkable decrease in serum P, ALP, and iPTH but an increase in iron utilization [serum iron (SI) and transferrin saturation (TSAT)] after receiving PTX. Notably, CAPD patients with UTC developed less severe HBS despite serum P remaining high after the operation until nine months later. UTC progressively resolved in 1 to 8 months in 7 of 11 patients (63.6%).

Conclusions: Besides pruritus and bone pain, UTC is not uncommon in CAPD patients and has a favorable response to PTX. A lower post-PTX calcium level and higher changes in post-PTX calcium and ALP levels are good predictors of HBS. Iron utilization improved in CAPD patients receiving PTX, especially those with severe HBS and UTC.

Keywords: hungry bone syndrome, hyperparathyroidism, parathyroidectomy, peritoneal dialysis, uremic tumoral calcinosis

C205

Serum trimethylamine N-oxide level is independently associated with peripheral artery disease in kidney transplantation patients

血清氧化三甲胺濃度跟腎臟移植患者週邊動脈阻塞性疾病有關

Ho-Hsiang Chang [1], Han-Bin Boey [1], Yen-Cheng Chen [2, 3], Bang-Gee Hsu[1, 2]
張賀翔 [1], 倪漢斌 [1], 陳言丞 [2, 3], 徐邦治 [1, 2]
[1]Division of Nephrology, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, [2]School of Medicine, Tzu Chi University, Hualien, [3] Department of Surgery, Hualien Tzu Chi Hospital, Buddhist Tzu Chi Medical Foundation, Hualien, Taiwan
[1] 花蓮佛教慈濟醫院腎臟內科, [2] 花蓮慈濟大學醫學系, [3] 花蓮佛教慈濟醫院外科

Background:
Trimethylamine N-oxide (TMAO) is a gut-derived uremic toxin and increased risk of hypertension and all-cause mortality and cardiovascular events. Peripheral arterial disease (PAD), defined by low ankle-brachial index (ABI), is associated with increased mortality in kidney transplantation (KT) patients. The present study aimed to determine the relationship between serum TMAO level and PAD in KT patients.

Methods:
The present cross-sectional, single-center study included 98 KT patients. Liquid chromatography–mass spectrometry was used to assay serum TMAO levels. ABI values were measured using an automated oscillometric device. Patients with ABIs of <0.9 were categorized into the low ABI group.

Results:
In the study, 22 of the 98 KT patients (22.4%) had low ABIs. The rates of diabetes mellitus (p = 0.035) as well as the serum levels of TMAO ($p < 0.001$) were higher in the low ABI group compared with the normal ABI group. The multivariable logistic regression analysis revealed that serum levels of TMAO (odds ratio [OR]: 1.154, 95% confidence interval [CI]: 1.062–1.255, p = 0.001) was independently associated with PAD in KT patients after adjusted associated cofounders. Left and right ABI were negative correlated with TMAO (r = –0.476, and –0.532, all $p < 0.001$, respectively) and estimated glomerular filtration rate (eGFR) was also negative correlated with TMAO (r = –0.281, p = 0.005) by using the Spearman correlation analysis. The area under the receiver-operating characteristic (ROC) curve predicting PAD by serum TMAO level in KT patients was 0.868 (95% CI: 0.784–0.928, $p < 0.001$).

Conclusions:
In this study, serum TMAO levels were negative correlated with left and right ABI values and were associated with PAD in KT patients.

Key words:
Trimethylamine N-oxide, Kidney transplantation, Peripheral arterial disease, Ankle-brachial index

C206

Short- and Long-Term Outcomes of Kidney Transplant Recipients with COVID-19 Infection

腎移植病人得到新型冠狀病毒肺炎的短期和長期表現

Chit Yong Ling[1], Tung-Wei Hung[1,2], Jung-Da Lian[1], Horng-Rong Chang[1,2], Pao-Yu Tsai[1], Sheng-Wen Wu [1,2]

[1] Division of Nephrology, Department of Internal Medicine, Chung Shan Medical University Hospital, Taichung, Taiwan.

[2] School of Medicine, Chung Shan Medical University, Taichung, Taiwan.

Background:

The global pandemic of coronavirus disease 2019 (COVID-19) is a highly transmissible and pathogenic coronavirus. Among them, Kidney-transplant recipients (KTRs) appear to be at high risk for critically ill condition due to chronic immunosuppression and coexisting conditions. Currently named as “Long–coronavirus disease (Long-COVID) or Post-COVID,” this unclear condition is reported.

Methods:

This is a prospective, single-center cohort study was designed. We retrospectively collected data of 102 KTRs who were COVID-19 positive between May 1 and October 6, 2022 follow up. 18 KTRs were excluded, due to loss of follow up. To be eligible for this study, we are conducting phone surveys to assess the patients' conditions(Clinical presentation and Post Covid conditions) and reviewed baseline characteristics of acute coronavirus disease 2019, after their confirmed date of COVID-19.

Results:

Among patients with available data,54 (64.2%) were male in predominance, with a median age of 59 years (range, 27-84) and median time from transplantation to COVID-19 infection of 169 months (range, 36-407). Dyslipidemia and hypertension were common(74% and 60%,respectively). The most common symptom of COVID-19 in KTR were cough with sputum (55.95%), followed by fever (48.8%), and sore throat (38.1%). 79(94%) KTR who were in stable condition had mild COVID-19 severity.

26(31%) KTRs with post-COVID 19 condition may develop or continue to have symptoms. The most common symptom of post-COVID-19 condition was cough and fatigue (13.1% and 10.7%, respectively). 6(7.1%) KTR had COVID-19 reinfections and both cases were of mild severity. One KTR developed recurrent urothelial carcinoma 4 months after being infected with COVID-19

Conclusions：

In conclusion, almost all patient presented with mild disease and symptomatic resolution without requiring hospitalization and acute kidney injury is common in kidney transplant recipients with COVID-19, but is often mild

Key words：

kidney transplant recipients, COVID-19, long COVID

C207

Timing of steroid withdrawal and outcomes in kidney transplant recipients
停用類固醇時效和腎臟移植受腎者的預後分析

Lee-Moay Lim[1,2,3], Wei-Shan Chang[4], Ho-Yin Huang[5,6], Ming-Yen Lin[2,4], Hung-Tien Kuo[2,3*]
林麗玫[1,2,3], 張瑋珊[4], 黃合吟[5,6], 林明彥[2,4], 郭弘典[2,3*]
[1]Graduate Institute of Clinical Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan. [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan. [3]School of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan. [4]Division of Medical Statistics and Bioinformatics, Department of Medical Research, Kaohsiung Medical University Hospital, Kaohsiung Medical University, [5]Department of Pharmacy, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung, Taiwan. [6]School of Pharmacy, College of Pharmacy, Kaohsiung Medical University, Kaohsiung, Taiwan.
[1]高雄醫學大學醫學院醫學系臨床醫學研究所 [2]高雄醫學大學附設中和紀念醫院內科部腎臟內科 [3]高雄醫學大學醫學院醫學系 [4]高雄醫學大學附設中和紀念醫院臨床醫學研究部醫學統計分析及生物資訊研究室 [5]高雄醫學大學附設中和紀念醫院藥學部 [6]高雄醫學大學藥學院藥學系

Background：
Steroid is the mainstay of maintenance immunosuppression used in organ transplantation. However, there is no consensus on the best time to withdraw steroids after transplantation. The aim of this retrospective study was to determine the outcomes in kidney transplantation following the discontinuation of steroid in 3 months' time after a successful surgery.
Methods：
This retrospective single center study enrolled kidney transplant recipients from year 2010 till year 2020. The data was analyzed using resources from the Kaohsiung Medical University Hospital Research Database (KMUHRD). Patients were divided into two groups according to steroid usage of <90 days and ≧90 days. The outcome analysis includes events of infection, graft and patient survival in group with or without steroid.
Results：
The kidney transplant cohort consisted of 155 patients aged >20 years old with male predominant (52.9%). Urinary tract infection and pneumonia were the two most common infection found in both groups. *Pneumocystis Jirovecii* pneumonia and cytomegalovirus infections were more prevalent among patients who use steroids. As compared to those without steroid use, patients with steroid usage have a better graft survival (HR:2.8[CI:1.20-6.53], *P*=0.018). In terms of patient survival, there was no significant difference between the groups (HR:0.46[CI:0.16-1.30], *P*=0.141).
Conclusions：
Steroid withdrawal at <90 days after transplantation was not associated with superior graft and patient survival. Nevertheless, long-term steroid use may have adverse effects, such as atypical infections. It is important to consider other associated factors, including multi-agent immunosuppressive therapy and the patient's immunological risk stratification in future analyses for optimal results in assessing the timing of steroid withdrawal.
Key words：
Kidney Transplantation, steroid, survival, infection

C208

Risk of Sarcopenia, Frailty and Functional Performance in Older Adults with Pre-Dialysis Chronic Kidney Disease

未透析老年 CKD 病患之肌少症風險, 衰弱和身體功能表現

Tzu-Hui Chen[1], Shih-fen Hsiao[3], Shu-Li Wang[1], Lan-Fang Kung[1], Pei-Ni Hsiao[1], Yi-Chun Tsai[2]

陳慈徽[1], 蕭世芬[3], 王淑麗[1], 龔蘭芳[1], 蕭佩妮[1], 蕭仕敏[1], 蔡宜純[2]

[1]Department of Nursing, and [2]Department of Nephrology, Kaohsiung Medical University Hospital, [3]Kaohsiung Medical University

[1]高雄醫學大學附設中和紀念醫院護理部 [2]高雄醫學大學附設中和紀念醫院腎臟內科

[3]高雄醫學大學

前言與目的

台灣約有 40%的老年人口罹患慢性腎臟病(Chronic Kidney Disease, CKD)，而像 CKD 這樣的腎臟功能損傷已知會加重衰弱的風險，而肌少症則是骨骼肌肉質量與力量減低且身體活動能力下降的一種現象，若老年 CKD 病人不僅衰弱又合併肌少，將增加跌倒發生、住院率及死亡風險。本研究探討門診之未透析老年 CKD 病人其衰弱、肌少情形，並比較其身體功能表現與跌倒風險。

研究方法

本研究以某南台灣醫學中心尚未開始進入透析階段大於 65 歲以上之門診 CKD **病患**為對象，受試者以臨床衰弱量表(Clinical Frailty Scale, CFS)進行衰弱分級。同時施予肌少症(SARC-CalF)問卷，功能性測試如二頭肌肌力、股四頭肌肌力、手握力，以及來回五次坐站(Five Times Sit-to-Stand Test, FTSST)與三公尺計時起走(3m Timed Up-and-Go Test, TUGT)之所需時間也一併進行量測，將 TUGT 所需時間>13.5 秒作為預測跌倒風險的切點。

研究結果

共 191 位 CKD 門診病患(76.41±6.47 歲, 99 位女性)參與本研究並完成測試；將研究對象分成有肌少症風險(n=33)及正常(n=158)二組，發現有肌少症風險組中：年齡較大（分別為 81.73±6.13 歲與 75.30±5.95 歲）、女性比例較高（分別為 18 位與 15 位）、衰弱比例較高(CSF4-6 分有 30 位，p<0.001)、股四頭肌力、手握力較差、且完成 TUGT（分別 21.87±12.63 秒與 16.65±5.06 秒）及 FTSST（分別為 21.38±8.29 秒與 14.68±7.86 秒）花費時間較長，而有肌少症風險組的跌倒風險較高。

結論與建議

未透析病患若合併肌少和衰弱，將更容易發生跌倒機會，而事實上這些病患在發生跌倒前肌肉力量已經下降，因此在控制腎臟病進展的同時，應將跌倒風險及身體功能評估一併考慮進去，確保於老化的過程中能獲得身體及心理上的安全，提升老年階段的生活品質。

關鍵字：老年、慢性腎臟病、肌少症、跌倒風險

C209

Choosing Wisely - NO ACT IS ACT

明智選擇(Choosing Wisely): 你可以『不』洗腎- NO ACT IS ACT

Chiu-Ying Hsiao, I-Ning Yang

蕭秋穎, 楊翼寧

Division of Nephrology, Department of Internal Medicine, Chi Mei Medical Center,

奇美醫學中心內科部腎臟科

前言：

台灣的透析治療發生率和盛行率逐年攀升，但對於年齡大且具有多重共病的病人，接受腎臟替代療法未顯示出明顯的生存率優勢，反而可能降低生活品質。因此，保守治療是年紀大且合併多重共病的末期腎臟病病人另一個合理選擇。

目的：

為了避免低價值醫療，提出「明智選擇運動」（Choosing Wisely Campaign）的專案計畫，針對特定群體提供緩和醫療的選擇，詳細說明透析治療的風險和益處，鼓勵病人和其家屬充分溝通後選擇治療方式。同時比較保守治療與透析治療對病人生活品質的影響以及成本效益。

臨床導入流程及臨床運用效益評估：

收案對象包括符合下列兩項條件中任一項：(1)年齡≥75 歲、多重共病症、嚴重危及生命的臨床合併症、惡病質或嚴重營養不良、生活功能受限，5 項中符合 2 項以上 或(2)符合驚訝問題: 病人若在未來半年內死亡你是否會覺得驚訝？ 我不會驚訝。收集相關基本資料，包括年紀、性別、慢性疾病史、收案前最近一次抽血檢驗值。利用衛教單張，詳細說明各種腎臟替代療法的風險和益處，以及面對腎臟末期病變，不接收或接受腎臟替代療法可能會面臨的問題及處理方式。召開家庭會議，充分與病人、家屬溝通討論後，由病人或家屬決定治療方向並會診與轉介安寧團隊，追蹤時間為三個月。以歐洲生命品質學會 EQ-5D-5L 生活品質問卷，評估對生活品質的影響以及成本效益評估。

結果:

自 2022/11/1 開始進行收案，截至 2023/9/30 止，總共收案 36 人，結案 29 人。平均收案年齡為 80.55 歲，>75 歲患者佔 72%。其中 34%有糖尿病、75%有高血壓、44%有心衰竭、 24%有中風病史、24%有癌症史。其中 19 位 (65%)未開始透析治療、3 位(10%)接受透析治療中、7 位病人原本接受常規透析，後來選擇終止透析。追蹤三個月期間，共 17 位(58%)病人死亡，其中包含 12 位病人未開始透析、另外 5 位為停止透析的病人。生活品質問卷回收數據有限，但初步結果顯示，接受透析在多個生活品質指標上的嚴重度比例較高，並且有更多疼痛或不適以及憂鬱或沮喪。成本效益評估顯示，17 位接受保守治療的病人，三個月期間減少 232 萬健保支出。推估至全國透析人口，保守推估符合條件的患者選擇保守治療，三個月期間可以節省醫療費用高達 6.8 億。

結論與建議：

透析治療對於年紀大、衰弱且預後不佳的病人不僅降低生活品質亦增加低價值的醫療花費。因此，推廣『腎臟科明智選擇運動』，能讓病人做出有尊嚴的選擇，同時更有效地運用健保資源。

C210

Risk assessment of urinary tract stones in patients with spinal cord injury: a retrospective cohort study in Taiwan

脊髓損傷病人發生泌尿道結石的風險評估：台灣回溯型世代研究

Mei-Hua Cheng[1], Kuo-Ting, Chang[3], Meng-Hsuan, Hsieh [2], Chen-Yi Wang[1], Shu-O Chiang[5], Wei-Jie Wang[2,3,4]

鄭美華 [1], 張國廷 [3], 謝孟璇 [2], 王貞懿 [1], 江淑娥 [5], 王偉傑 [2,3,4]

[1] 衛生福利部桃園醫院復健醫學部職能治療科

[2] 衛生福利部桃園醫院腎臟科

[3] 衛生福利部桃園醫院轉譯醫學中心

[4] 中原大學生物醫學工程學系

[5] 以斯帖統計顧問股份有限公司

Background：

To estimate the incidence of spinal cord injury (SCI) and urinary tract stones (UTS). We also discussed trauma severity, paralysis, and the injury site associated with UTS in SCI patients.

Materials and Methods

This study used the health insurance databank and the mortality database of the Ministry of Health and Welfare Data Science Center (HWDC) from 2004 to 2015 to conduct a retrospective cohort study. The ninth edition of the International Diagnostic Code for Diseases (ICD9-CM) defined SCI and UTS. Cox regression was adopted to assess the risk of UTS in SCI patients.

Results

Using the HWDC database from 2005 to 2015, this study extracted 22,697 patients with SCI. The incidence with a decreasing trend year by year, with an average annual incidence rate of 111.4 per million. Men accounted for 66.3%, and the incidence was 2.03 times that of women. The severity of trauma in SCI patients was related to gender, age, and location of SCI; the cervical spine was the leading injury site. 40.5% of patients were rated severely injured according to the injury severity score (ISS $\geqq$ 16). Paralysis symptoms occurred in 21.2%, especially paraplegia and Hemiplegia/hemiparesis. The occurrence of paralysis was also related to gender, age, location of spinal cord injury, and the trauma severity. UTS occurred in 9.8%, mainly in the first year after SCI (26.3%), and the incidence was 2.1 per 100 person-years. UTS primarily occurred in men, the elderly, and patients with paralysis.

Conclusion

The incidence, trauma severity, and paralysis symptoms of SCI patients were related to gender, age, and location of spinal cord injury, predominantly male, 45-64 years old, and the injury site above the thoracic spine. However, UTS had no statistical correlation with trauma severity and SCI site. Mainly occurred in male and paraplegic and hemiplegia/hemiplegic patients.

Keywords: spinal cord injury, urinary tract stones, ISS, paralysis symptoms

C211

Association of acute kidney injury and mortality in patients with gram positive cocci bacteremia

急性腎損傷與致死率在革蘭氏陽性球菌血症病患之相關性研究

Yuwen Hsueh, MD[1], Hong-Mou Shih, MD, PhD[1,2], Cheng-Jui Lin, MD, PhD[1,2], Chih-Jen Wu, MD, PhD[1,2]

薛祐文[1], 施宏謀[1,2], 林承叡[1,2], 吳志仁[1,2]

[1]Division of Nephrology, Department of Internal Medicine, Mackay Memorial Hospital, Taipei, Taiwan

[2]Department of Medicine, Mackay Medical College, New Taipei, Taiwan.

[1]馬偕紀念醫院腎臟內科, [2]馬偕醫學院醫學系

Background：

Gram-positive cocci (GPC) bacteremia is difficult to treat and associated with high mortality. Daptomycin and vancomycin are the main effective treatment of choices for GPC bacteremia.The outcome of this group of patients is not known. The aim of this study is to evaluate the renal function and the strains of GPC bacteremia in patients treated with daptomycin and vancomycin.

Methods：

A retrospective and observational study in a single center conducted 548 patients treated with daptomycin, vancomycin or both. Abstracted data included demographic, clinical history, and laboratory parameters, such as baseline creatinine and creatinine on treatment. AKI is defined as an increase in serum creatinine of 0.3 mg/dL or >50%. Primary outcome was the mortality during hospitalization. Binary logistic regression analyses were used to determine the risk factors.

Results：

In multivariable-adjusted logistic regression, AKI is the risk factor associated with mortality. (odds ratio [OR] 3.049, 95% confidence interval [CI] 1.550 - 5.995, P = 0.001) We also analyzed the GPC bacteremia, including methicillin-resistant staphylococcus (MRSA), MSSA, methicillin-resistent coagulase negative staphylococcus (MRCNS), MSCNS, vancomycin-resistance enterococcus (VRE), vancomycin-sensitive enterococcus (VSE), and streptococcus species. We found that patients with VSE (OR 5.137, 95% CI 1.163 - 22.683, P = 0.031) and VRE (OR 4.569, 95% CI 1.680 - 12.427, P = 0.003) were more likely to have the worst outcome. MRCNS was another specie associated with mortality. (OR 2.609, 95% CI (1.399 - 4.866), P = 0.003)

Conclusions：

In patients who were treated with daptomyin or vancomycin during admission, AKI was independently associated with mortality. Besides, we also found that patients with enterococcus and MRCNS bacteremia had a higher mortality.

Key words：

Acute kidney injury, Bacteremia, Chronic kidney disease, Vancomycin

C212

Invasive listeriosis in chronic dialysis patients: a case series

末期腎疾病患者的侵襲性李斯特菌症：病例系列

Yi-Chun Liu[1], Shuh-Kuan Liau[1], Chao-Yu Chen[1], Yueh-An Lu[1], Yu-Jr Lin[2], Kuan-Hsing Chen[1], Chen-Chieh Hung[1], Yung-Chang Chen[1], Ya-Chung Tian[1], Hsiang-Hao Hsu[1]

劉怡君[1], 廖述寬[1], 陳昭妤[1], 呂悅安[1], 林育志[2], 陳冠興[1], 洪振傑[1], 陳永昌[1], 田亞中[1], 許翔皓[1]

[1]Department of Nephrology, Kidney Research Center, Chang Gung Memorial Hospital, Linkou Branch, College of Medicine, Chang Gung University, Taoyuan, Taiwan

[2] Research Service Center for Health Information from Chang Gung University, Taoyuan, Taiwan

[1]林口長庚紀念醫院,腎臟研究中心,腎臟科;長庚大學醫學院 [2]長庚大學健康資料研究服務中心

Background：

Listeria monocytogenes can cause invasive listeriosis, a serious foodborne illness that is particularly more common in vulnerable populations, including patients with end-stage kidney disease (ESKD). Mortality from invasive listeriosis is higher in these patients than in the general population. However, a review of the literature found little data on invasive listeriosis in patients with ESKD, and prognostic factors for these patients remain poorly understood.

Methods：

A retrospective analysis was conducted on 26 hospitalized patients with ESKD and culture-proven listeriosis over a 21-year period. A logistic regression model was used to assess risk factors.

Results：

In-hospital mortality was 46.1% and only 42.3% survived one year. Univariate analysis showed several factors associated with higher in-hospital mortality rate. Multivariate analysis revealed that lower platelet count at presentation and qSOFA score ≥ 2 independently predicted worse in-hospital mortality. This study is the first to identify lower platelet count and qSOFA score ≥ 2 as markers of high-risk invasive listeriosis in ESKD patients.

Conclusions：

Invasive listeriosis among ESKD patients exhibited a high mortality rate. In patients with invasive listeriosis and ESKD, poorer outcomes are independently associated with lower platelet counts and a qSOFA score ≥ 2.

Key words：

Listeriosis; ESKD; Chronic dialysis; qSOFA; Risk factor; Mortality; Prognosis

C213

Humoral Response Following a Fifth Dose of COVID-19 Vaccine and Breakthrough Infection in Patients on Peritoneal Dialysis

腹膜透析病人接種第五劑新冠疫苗及突破性感染後的免疫體液反應分析

Wan-Chuan Tsai, Kuei-Ting Tung, Kai-Hsiang Shu, Mei-Fen Pai, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Shih-Ping Hsu, Yu-Sen Peng

蔡萬全, 董奎廷, 徐愷翔, 白玫芬, 吳泓彥, 邱彥霖, 楊如燁, 徐世平, 彭渝森

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: Patients with end-stage kidney disease show impaired immune response after COVID-19 vaccination. However, uncertainty remains over the immunogenicity for the fifth dose in this population. This study aimed to compare the humoral response following a fifth dose of the COVID-19 vaccine between patients undergoing peritoneal dialysis (PD) and health-care workers (HCWs) and assess humoral response after vaccination and breakthrough infection.

Methods: This is the follow-up study of our prospective observational cohort, including 156 study participants (60 PD patients, and 96 HCWs as a control group). Humoral response was assessed by the measurement of the binding antibodies (detected for anti-receptor binding domain (RBD) antibodies with an enzyme immunoassay [Roche]) against the COVID-19 and the neutralizing antibodies (measured with a surrogate virus neutralization assay [Genscript]). The primary outcome was seroconversion rate of the anti-RBD antibodies following fifth dose (titer value ≥ 100 U/mL).

Results: Following the third, fourth, and fifth vaccination, anti-RBD antibodies were detected among all participants although PD patients experienced lower seroconversion rate at 1, and 3 months after second dose. For the neutralizing antibody response, PD patients had a similar seroconversion rate following fourth dose. Following receipt of the second dose, the anti-RBD titers for PD patients peaked at 1 month (geometric mean titers [GMT] 775, 95% CI, 527-1141) and waned over time: 61% decreased at 3 months (300, 209-432) and 69% decreased at 6 months (242, 107-545). Compared with the second dose, 16-fold, 31-fold, and 42-fold increase in anti-RBD titers after the third, fourth, and fifth doses were observed respectively. After the breakthrough infection, the anti-RBD titers peaked at 1 month (32977, 17126-63498) and waned over time: 25% decreased at 3 months (24763, 13633-44979), 60% decreased at 6 months (13042, 7694-22105), 73% decreased at 9 months (8787, 3716-20778) and 82% decreased at 12 months (5959, 1175-30211).

Conclusion: Our result showed that PD patients had a comparable humoral response to the COVID-19 vaccine, especially after 3, 4 and 5 doses compared with HCWs. After receipt of vaccination or breakthrough infection, humoral response was substantially waned.

關鍵字：新冠肺炎、第五劑、免疫體液反應、腹膜透析、疫苗

Key words: COVID-19; fifth dose; humoral response; peritoneal dialysis; vaccination.

C214

Immune Humoral Response Following Receipt of a Fifth Dose of COVID-19 Vaccines and Breakthrough Infection among Patients Undergoing Hemodialysis

探討血液透析病人接種第五劑新冠疫苗及突破性感染後的免疫體液反應

Wan-Chuan Tsai, Mei-Fen Pai, Kuei-Ting Tung, Hon-Yen Wu, Yen-Ling Chiu, Ju-Yeh Yang, Kai-Hsiang Shu, Shih-Ping Hsu, Yu-Sen Peng

蔡萬全, 白玫芬, 董奎廷, 吳泓彥, 邱彥霖, 楊如燁, 徐愷翔, 徐世平, 彭渝森

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: Few data exist concerning the immune humoral response and its dynamic changes following a fifth dose or breakthrough infection in patients on hemodialysis (HD). We aimed to assess the immune humoral response and its dynamic changes following the fifth dose of COVID-19 vaccines and breakthrough infection in HD patients compared with health-care workers (HCW).

Methods: This is the follow-up report of our prospective observational study of 536 study participants including 438 HD patients, and 96 HCW. The humoral response was assessed by measuring binding antibodies and neutralizing antibodies against the SARS-CoV-2 spike receptor-binding domain (RBD). The primary end point was seroconversion rate of binding antibodies following the fifth dose. The dynamics of humoral response was examined by changes of geometric mean titers (GMT) of anti-RBD antibodies.

Results: There was no difference in seroconversion rate following the fifth dose between HD patients and HCWs. Following receipt of the third, and fourth vaccination, seroconversion rate of binding or neutralizing antibodies was similar between HD patients and HCWs, although HD patients had a lower seroconversion rate after the first and second doses. The anti-RBD titers increased substantially after every single dose: a 21-fold increase was observed after the third dose compared with second dose; a 2-fold increase after the fourth dose (vs third dose), and a 1.7-fold increase after the fifth dose (vs fourth dose). After the fifth dose, the anti-RBD titers peaked at 1 month (GMT 34901, 95% CI 29867-40782) and waned over time: 39% decreased at 3 months (21272, 17817-25396), 62% decreased at 6 months (13087, 10314-16607), and 77% decreased at 9 months (7876, 5441-11401). Similar waning humoral response was observed after the breakthrough infection: the anti-RBD titers peaked at 1 month and waned over time: 32% decreased at 3 months, 66% decreased at 6 months, 75% decreased at 9 months and 79% decreased at 12 months.

Conclusion: Our result showed that HD patients had a similar humoral response to the fifth dose compared with HCW. Similar waning humoral response was observed after vaccination or the breakthrough infection.

關鍵字：突破性感染、新冠肺炎、第五劑、血液透析、抗體、疫苗

Key words: Breakthrough infection; COVID-19; fifth dose; hemodialysis; antibody; vaccination.

C215

The Efficacy of Multiple Strategies to Decrease Catheter-Associated Urinary Tract Infections in Nephrology ward.

運用組合式策略降低腎臟科病房留置導尿管感染發生率

Tang, T. J.[1], Sun, W. N.[2]

湯采儒 [1], 孫婉娜 [2]

[1]NCKUH, [2]NCKUH

[1] 國立成功大學醫學院附設醫院護理師, [2] 國立成功大學醫學院附設醫院

Background

腎臟專科病房因疾病特性留置尿管為常見技術，間接造成病人泌尿道感染風險，經文獻指出尿管留置導致泌尿道感染(Catheter-Associated Urinary Tract Infections, CAUTI)比率高達91%，調查單位 2022 年 CAUTI 感染密度為 6.0‰，高於所屬機構 CAUTI 發生率 3.0‰，因病人屬性容易產生尿滯留，且需精準監測尿量等，使單位尿管使用率為 39.6%高於所屬機構平均使用率 18.7%，分析單位 CAUTI 原因：(1)護理師放置尿管流程認知錯誤；(2)放置尿管過程中未落實標準流程；(3)導尿管使用頻率高於其他內科病房。

Methods

2023 年 5 月 1 日至 5 月 15 日，由小組成員成立降低 CAUTI 專案小組，派員參與 5 月 23 日感染管制中心舉辦之相關留置導尿管種子工作坊擔任教學總子，將其經驗於單位會議中分享及模擬實作，透過擬真教學方式於單位進行技術及認知考試，於 6 月 30 日前完成，並將此技術納入單位新人常規考核項目，在工作流程中透過(1)6 月 1 日起設置專屬大螢幕款計時器置於換藥車、(2)6 月 1 日起使用「消毒兩分鐘」警語貼紙黏貼於水溶性優碘瓶蓋上方，提醒留置尿管消毒時間，(3)7 月 20 日添購攜帶型膀胱超音波一台、(4)8 月 1 日起大夜班盡早拔除尿管到期者，評估是否放置尿管前，需進行膀胱超音波掃描確認餘尿量。

Results

組合式策略推行後於 2023 年 8 月 CAUTI 感染密度為 5.2‰，及 9 月 CAUTI 感染密度為 3.7‰，皆低於本單位 2022 年感染密度 6.0‰。

Conclusions

運用組合式策略可有效降低導管相關泌尿道感染發生率，並落實單位同仁依據標準流程觀念，簡化工作流程及增進病人照護品質。

Key words

Multiple Strategies, Foley, Urinary Tract Infection

C216

The Efficacy of Multiple Strategies to Decrease Infection Rates of Renal Biopsy Patients.

運用組合式策略降低腎臟切片病人感染率

Lin, C. W.[1], Sun, W. N.[2]
林清雯 [1], 孫婉娜 [2]
[1]NCKUH, [2]NCKUH
[1] 國立成功大學醫學院附設醫院護理師, [2] 國立成功大學醫學院附設醫院護理師

Background
腎臟切片用來診斷腎臟、免疫相關疾病的侵入性檢查，切片檢查需透過穿刺針進行組織採檢，因腎臟為富含血流臟器，故該檢查屬於高出血風險檢查，醫護人員需全程採無菌技術進行，降低出血、感染風險，據 2021 年統計單位腎臟切片感染發生率為 25.3%，且有逐年攀升情況，分析原因後發現：(1)切片用物消毒不正確；(2)手部衛生認知錯誤(3)未落實手部衛生標準流程。

Methods
2022 年 2 月 1 日由單位醫護人員及感管師組成改善小組，藉由實地稽核、認知問卷及病歷回顧等方式，將腎臟切片後病人感染因素進行分析，針對實地稽核發現之錯誤點，於 8 月 15 日舉辦在職教育及洗手技術考，並規定同仁於 9 月 30 日前須完成洗手技術考核，並納入單位新人常規考核項目。為落實正確洗手故每月進行手部衛生稽核，將未達成同仁名單個別進行學理測驗及色料實作技術考測驗，另在工作流程中透過(1)8 月 1 日更新單位切片探頭清潔設備如：清潔刷及泡消容器、(2) 8 月 15 日起設置專屬高分貝計時器及泡消流程圖於切片室、(3)更新單位舊有洗手海報並設計洗手提醒標誌、(4)與內科加護病房合作，設置洗手音樂計時器，並依據單位特性調整音量分貝，搭配單位專科衛教影音。

Results
組合式策略推行後，統計於 2023 年 1 月至 9 月腎臟切片感染發生率下降至 6.2%，低於目標設定值。

Conclusions
透過與感管師合作下，採用組合式策略模式下，養成單位同仁正確洗手文化，間接改善腎臟切片病人感染率，並藉由警語、計時器等設備強化同仁正確落實策略，提升腎臟切片病人之照護品質。

Key words
Renal Biopsy, Multiple Strategies, Infection Rates

C217

Comparison of Short-term Adverse Events Following Monovalent and Bivalent mRNA SARS-CoV-2 Vaccines among Dialysis Patients

透析病人接種一價及二價 mRNA 新冠疫苗後短期不良事件的比較分析

Wan-Chuan Tsai, Yen-Ling Chiu, Hon-Yen Wu, Kai-Hsiang Shu, Mei-Fen Pai, Kuei-Ting Tung, Shih-Ping Hsu, Yu-Sen Peng, Ju-Yeh Yang

蔡萬全, 邱彥霖, 吳泓彥, 徐愷翔, 白玫芬, 董奎廷, 徐世平, 彭渝森, 楊如燁

Division of Nephrology, Department of Internal Medicine, Far Eastern Memorial Hospital

亞東紀念醫院腎臟內科

Background: To broaden immune response and improve vaccine effectiveness against dominant-circulating variants, booster doses with bivalent mRNA vaccines that include ancestral SARS-CoV-2 and Omicron subvariants BA.1, BA.4, and BA.5 have been deployed in Taiwan since Sep 2022. The safety of these bivalent booster vaccine is not known in dialysis patients. This study aimed to compare the short-term incidence of adverse events following the monovalent and bivalent mRNA vaccines against SARS-CoV-2 in patients on dialysis.

Methods: In this prospective observational cohort study, we enrolled 549 study participants including 377 participants who received monovalent Moderna vaccines and 177 received bivalent Moderna vaccines. The frequency and duration of adverse events within 7 days after vaccination were prospectively assessed using an interactive web-based questionnaire.

Results: Bivalent vaccine caused lower rate of adverse events including any adverse events (58% vs 81%, $P<0.01$), any injection site reaction (49% vs 74%, $P<0.01$), and any systemic reaction (26% vs 41%, $P<0.01$) compared with the monovalent vaccine. For injection site reaction, participants experienced a lower risk of adverse events following bivalent vaccine including swelling (14% vs 21%, $P=0.04$), itching (2% vs 8%, $P<0.01$), pain (44% vs 69%, $P<0.01$), and nodule (3% vs 7%, $P=0.048$). For systemic reaction, although the incidence of fever or chills was similar, the bivalent vaccine elicited a decreased risk of adverse events including headache (3% vs 8%, $P=0.01$), poor appetite (1% vs 6%, $P=0.01$), fatigue (12% vs 20%, $P=0.02$), sleepiness (4% vs 13%, $P<0.01$), and dizziness (1% vs 4%, $P=0.02$). Following bivalent vaccines, a lower rate of medications use was also reported (6% vs 14%, $P<0.01$), all ($\geq$ 99%) of adverse events resolved within 2 days and only 1% of participants had their daily activity being affected.

Conclusion: The use of bivalent mRNA vaccines as a booster dose against SARS-CoV-2 was well tolerated in dialysis patients. The reported adverse events following bivalent vaccines were mostly minor, short-lived and less frequent than the monovalent vaccines.

關鍵字：不良事件、二價疫苗、透析、一價疫苗、新冠肺炎、短期。

Key words: Adverse event; bivalent vaccine; dialysis; monovalent vaccine; SARS-CoV-2; short-term.

C218

Preparaedness and Contingency Planning in response to COVID-19 epidemic in peritoneal dialysis unit at a certain district teaching hospital in northern area of Taiwan

北部某區域教學醫院腹膜透析室因應 COVID-19 之整備

林彥君[1], 盧尤娟[1], 何妙純[1], 謝宜蓁[2]

[1] 台大醫院新竹台大分院 腹膜透析室護理師

[2] 台大醫院新竹台大分院 血液透析中心護理長

背景:

自 2019 年底發生新型冠狀病毒(COVID-19)造成的肺炎疫情，因傳播力迅速，病程進展快，讓人聞之色變，嚴重甚至會造成死亡。末期腎臟疾病（end- stage kidney disease）患者，因常有多重共病、且免疫力低下，易受到病毒的侵害。腹膜透析患者雖以居家治療為主，仍有較高的感染風險，如何有效的因應病毒的來襲、阻斷病毒的傳播，成為重要的課題。

方法:

本單位為北部某區域教學醫院，為因應新型冠狀病毒(COVID-19)的肆虐，單位立即啟動防疫作戰計畫，訂定相關感染管制措施如下：1.制定標準化作業：「腹膜透析室感染管制作業程序」，感染管制作業程序包含工作人員、病人照護、環境清潔等、「制定腹膜透析病人發燒或疑似傳染性疾病處理流程」；2.規範就醫流程：包含一般個案及居家檢疫、居家隔離或自主健康管理個案就醫流程；3.環境動線方面的規劃；4.落實疫情期間日常管理，協助疫苗施打；5.即時掌握單位疫情動態；6.人員在職教育與充足的防護裝備。

結果:

配合 COVID-19 疫苗接種政策，協助腹膜透析腎友以分流方式完成疫苗接種，三劑疫苗接種覆蓋率達 54.3%(38/70)，截至 2023 年 8 月確診率 35.7%(25/70)，多為輕症感染，因感染 COVID-19 併發肺炎住院率 8%(2/25)，此兩位個案皆未完整接種疫苗，由此顯示疫苗接種的重要性，所幸及時確立診斷住院積極治療後已順利出院返家，並持續腹膜透析治療。每月回診方式改採按時段分流看診，避免同時段多人群聚情形，疫情期間成功防堵病毒，未發生單位內群聚感染現象。

結論:

2023 年 5 月 1 日中央流行疫情指揮官將 COVID-19 調整為第四類法定傳染病，後疫情時代正式來臨，與疫情及病毒和平共存儼然已成為趨勢，除了提醒腹膜透析腎友每日規則透析、並保持良好的生活習慣、適當的運動、按時注射疫苗、提升自身免疫保護力，共同邁向疫情後新生活。

關鍵詞：新型冠狀病毒(COVID-19)、腹膜透析、感染管制

C219

The impact of self-protective measures on nephrology ward nursing personnel in the post-pandemic era

自我防疫措施對腎臟內科病房護理人員於後疫情時代確診之影響

[1]Ya-Wen Sung, [2]Yi-Fang Hsin, [3]Xiao-Ching Chen, [4]Jia-Chin Du, [5]Chung-Yu Wei

[1] 宋雅雯, [2] 辛怡芳, [3] 陳筱晴, [4] 杜嘉秦, [5] 魏崇宇

Department of Nursing, Kaohsiung Medical University Hospital (KMUH), Kaohsiung Medical University

高雄醫學大學附設醫院護理部

Background：

COVID-19 為 2020 年新興傳染病，在這前所未見全球公衛危機中，醫療體系迅速制定且配合執行相關防疫政策，以及早辨識、控管並杜絕 COVID-19 進入社區及醫院，積極避免醫護團隊成員染疫而造成醫療量能縮減，轉眼間疫情已達 3 年，在這後疫情時代醫院已幾乎回復到疫情前的管理，但疫情似乎尚未全面緩解，疫情期間醫護人員養成的自我防護習慣，是否可以確實持續維護醫療量能。

Methods：

在這後疫情時代腎臟內科維持的管理措施有：1.護理人力資源調配機制：(1)將單位護理人員分區分組：儘量固定組別、跨組人員最小化，一個月不可超過 2 個以上的班別，且不可同時一個月橫跨 2 組別以上。(2)用餐、更衣彈性最大化：輪流吃飯、更衣，每次不超過 3 位同仁同時用餐，且期間不面對面交談，空間間距至少一公尺以上或對角線用餐。2.建立人員自主管理觀念：(1)人員體溫監測與健康管理機制：每日 1 次自主體溫登錄。發燒或不舒服時立即篩檢、通報並到急診就醫。(2)上班期間堅守正確配戴 N95。3.確實執行陪病管理：(1)確實限制探病及陪病規範。(2)TOCC 詢問及症狀：陪病者均需接受詢問並記錄 TOCC，遇有咳嗽、發燒、嗅味覺異常時，除規勸不要入院，且協助轉至急診就醫。4.環境清潔消毒 (1)所有公共空間紫外線燈至少 1 次/天消毒。(2)圍簾：利用圍簾做為床與床的阻隔用物。

Results：

單位自 2020.02-2022.11 確實執行相關防疫措施，護理人員確診率約 43%，低於內科病房平均確診率 63.9%(43-88%)，至 2023.07 為止單位確診率僅有 76.2%，二次確診率僅有 9.5%，且 2 位二次確診均為社區感染。

Conclusions：

醫療團隊也需做好自我防護措施，藉由人員建立對自我防疫觀念的重視，才能在生活及工作中確實執行防疫措施，進而避免折損戰力而讓護理人力更加嚴峻，才是穩固醫療量能的重要因素。

Key words：

後疫情時代、自我防疫、醫療量能

C220

The bacterial characteristics and antibiotics resistance of *Klebsiella pneumoniae* isolated from diabetic patients from a medical center in Southern Taiwan

克雷伯氏肺炎桿菌感染之細菌特性、致病因子及抗生素抗藥性與糖尿病之相關分析 – 臺灣南部某醫學中心之世代研究

Jo-Yen Chao[1], Cheng-Yen Kao[2], Tzu-Shan Huang[1], Wei-Ren Lin[1], Chin-Chung Tseng[1], Ming-Cheng Wang[1,3], Wei-Hung Lin[1]

趙若雁[1], 高正彥[2], 黃子珊[1], 林威任[1], 曾進忠[1], 王明誠[1,3], 林威宏[1]

1. Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

2. Institute of Microbiology and Immunology, School of Life Sciences, National Yang Ming Chiao Tung University, Taipei

3.Institute of Clinical Pharmacy and Pharmaceutical Sciences, College of Medicine, National Cheng Kung University, Tainan, Taiwan

[1.] 國立成功大學醫學院附設醫院內科部腎臟科, [2.] 國立陽明交通大學生命科學院微生物及免疫學研究所, [3.] 國立成功大學醫學院臨床藥學與藥物科技研究所

Background：*Klebsiella pneumoniae* infection is frequently encountered as urinary tract infection (UTI), liver abscess, pneumonia, and bacteremia in patients with diabetes, cirrhosis, malignancy, or who are immunocompromised. Diabetes patients with poor glycemic control are especially vulnerable to *K. pneumoniae* infection. There are several virulence factors potentially linked to the pathogenicity of *K. pneumoniae* invasiveness. We aim to investigate the association of capsular serotypes, various virulence factors of *K. pneumoniae* isolates with the host factors which include the patient's age, gender, and diabetes with levels of glycemic control, which may lead to *K. pneumoniae* infection. The antibiotic susceptibilities will also be evaluated.

Methods：We collected *K. pneumonia*e strains isolated from patients at National Cheng Kung University Hospital from Jan 1, 1999 to May 31, 2022. There was a total of 913 and 419 *K. pneumoniae* isolates obtained from UTI and bacteremia patients, respectively. The patient's age, sex, date of collection, baseline comorbidities and laboratory data were retrieved from the medical records. The antibiotics resistance of these isolates was recorded. The capsular serotypes and bacterial virulence factors were identified using polymerase chain reaction (PCR). The diagnosis of diabetes was confirmed using diagnostic code (ICD-9-CM code: 250 or ICD-10 code: E11) plus those with HbA1c data examined in our hospital. Patients were further categorized as non-diabetes, diabetes well-controlled (HbA1c ≤7%) versus those with inadequate control (HbA1c >7.0%). Comparison between groups were performed using Chi-square or Fisher's exact test for categorical variables, and Student's t-test for continuous variables. All tests are two-sided and a p-value < 0.05 is considered as significant.

Results：Among patients with *K. pneumoniae* bacteremia, the mean age is 63.7 years and male accounts for 60.4%. In contrast, the mean age is 67.8 years and female are predominant (68.8%) among patients with *K. pneumoniae* isolated from UTI. Patients with diabetes were significantly elder than those without diabetes, mean age 73.2 *vs.* 62.7 among UTI (p <0.01) and 67.7 *vs.* 60.3 years among bacteremia patients (p<0.01), respectively. The distribution capsular serotypes of *K. pneumoniae* strains is similar among patients with or without diabetes except for K2 and K64. These two capsular serotypes are more prevalent in *K. pneumoniae* isolates from patients with diabetes well-controlled, followed by those without diabetes and those diabetics with inadequate control. Regarding virulence factors, the presence of *irp2* from *K. pneumoniae* of UTI was more prevalent in those with diabetes, especially those with inadequate glycemic control (p <0.01). For *K. pneumoniae* strains isolated from bacteremia, the presence of *iucA*, *rmpA*, *rmpA2*, *iroB*, *peg344*, *irp2*, and *ybtS* were more prevalent in those with diabetes and those with inadequate control (p <0.05). Finally, *K. pneumoniae* isolates from UTI with diabetes harbored more antibiotics resistance than those without diabetes. However, the prevalence of antibiotics resistance of *K. pneumoniae* isolates from bacteremia were highest among diabetes with adequate control, followed by no diabetes, and diabetes with inadequate control.

Conclusions：The *K. pneumoniae* isolates had increased virulence factors from patients with diabetes in UTI and bacteremia. However, for diabetic patients with inadequate control, they are more susceptible to *K. pneumoniae* bacteremia, even those are less antibiotics resistant.

Key words：antimicrobial susceptibility, virulence factors, diabetes, urinary tract infection, bacteremia, *Klebsiella pneumoniae*

C221

Humoral and cellular immune responses against circulating SARS-CoV-2 variants following bivalent boosters in hemodialysis patients

血液透析患者施打雙價新型冠狀病毒疫苗引發之變異株體液及細胞免疫反應

Tsai-Chieh Ling[1], Po-Lin Chen[1], Wen-Chien Ko[1], Jen-Ren Wang[2], Wei-Ren Lin[1], Chieh-Hsin Huang[1], Chien-Yao Sun[1], Yu-Tzu Chang[1]

凌采絜，陳柏齡，柯文謙，王貞仁，林威任, 黃絜歆，孫健耀，張育誌

Department of Internal Medicine, National Cheng Kung University hospital[1], and Department of Medical Laboratory Science and Biotechnology[2], College of Medicine, National Cheng Kung University, Tainan, Taiwan

國立成功大學醫學院附設醫院內科部[1]，國立成功大學醫學院醫技系[2]

Background：

There are limited data regarding cellular and humoral immunity against circulating SARS-CoV-2 variants following bivalent boosters in patients with end-stage kidney disease .

Methods：

In this prospective cohort study, we collected blood samples from patients on maintenance hemodialysis before and after booster doses of bivalent mRNA vaccines containing the ancestral SARS-COV-2 and the omicron B.1.1.529 (BA.1 or BA4/5) variant spike sequences. We measured levels of anti-spike protein receptor-binding domain (RBD) antibodies, neutralizing antibodies using pseudovirus and surrogate viral neutralization tests and cellular immune using interferon-gamma release assay, Covi-FERON. Healthy adults planning to receive bivalent vaccines were recruited as the control group.

Results：

One hundred and nine hemodialysis patients were enrolled, in which 28 had previous SARS-CoV-2 infection. Ninety-five and 14 received bivalent vaccines containing BA.1 and BA.4/5 antigens, respectively. Anti-RBD antibody titers increased from 6921 to 36012 U/ml after vaccination, and dropped to 18258 U/ml three months later. The median cPass readings at one month were 97.5%, 87.6%, 94.9% and 93.4% against the ancestral virus, omicron BA.1, BA.2 and BA.4/5, respectively. The median PVNT50 increased from 1760, 600, 120, 307.5, 360 and 277.5 to 5120, 680, 1120, 1040, 720 and 560 against the ancestral virus, omicron BA.1, BF.7, BA.2.75, BQ.1.1 and XBB.1.5, respectively. In control group, the PVNT50 were 5120, 800, 960, 1120, 1120 and 960, respectively. 59.2% patients and 47% health participants had positive T cell responses against Alpha, Beta, Gamma, Delta and Omicron BA.1 in Covi-FERON one month after vaccination.

Conclusions：

Bivalent mRNA bootsers elicited considerable immune responses against SARS-CoV-2 variants in hemodialysis patients.

Key words：Hemodialysis, bivalent vaccine, SARS-CoV-2 variant, neutralizaing antibody, cellular immune

C222

The effects of Nursing Intervention to Promote the Completeness of in COVID-19 Patient Care in the Hemodialysis Room.

Mrs. Tsuei-Wun Chang, Mrs. Yi-Shian Chen, Mrs. Yu-Ting Lin
RN, National Taiwan University Hospital Bei-Hu Branch

Objectives:

Patients with end-stage kidney disease are particularly vulnerable to severe COVID-19 because of the older age and high prevalence of multiple comorbidities, such as diabetes and hypertension. This study aimed to examine the effects of nursing intervention on the completeness rates of COVID-19 Patient Care.

Methods:

This study adopts the quasi-experimental design with pre-post test in 22 nurses at the hemodialysis room. To develop the nursing intervention, the observation study was conducted firstly to identify the cause of the COVID-19 Patient Care incomplete. Nursing intervention aimed to solve the main cause of the completeness rates of COVID-19 Patient Care.

Nursing intervention includes holding flip education training and two-way situation simulation seminars, providing online education and training, establishing a platform for sharing COVID-19-related updates, creating a QR-code accessible COVID-19 reference database, creating a COVID-19 practice manual and specifications, and providing simulation training sessions on wearing personal protective equipment during hemodialysis care.

Results:

The completeness rates of COVID-19 Patient Care from 57.0% to 96.0%.

Discussion/Implications

Through the multiple teaching strategy model, the integrity of COVID-19 Patient Care can be effectively improved, and safer and higher-quality dialysis care services can be provided.

Key Words:

COVID-19, Patient Care, completeness.

C223

Association between Ambient Air Pollutants and Kidney Stone Disease in a Large Taiwanese Population Study

一項大型台灣人口研究中環境空氣污染物與腎結石疾病之間的關聯

Chiu-Yueh Chen [1], Jui-Hsin Chen[1], Hsiu-Chin Mai [1], Szu-Chia Chen[2,3]

陳秋月 [1], 陳瑞忻 [1], 麥秀琴 [1], 陳思嘉 [2,3]

[1]Department of Nursing, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University; [2]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [3]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄市立小港醫院護理部[1] 高雄醫學大學附設醫院腎臟內科[2] 高雄市立小港醫院內科[3]

Background: Kidney stone disease poses a significant health burden worldwide, and its link to environmental factors, particularly air pollutants, remains an area of active research. In this study, we investigated the association between ambient air pollutants and the prevalence of kidney stone disease in a cohort of 121,364 participants from the Taiwan Biobank.

Methods: A total of 7,723 individuals (6.4%) in the cohort reported a history of kidney stone disease, while 113,641 (93.6%) did not. We examined the 10-year-average exposure to benzene, CO, PM2.5, SO2, NO2, and O3 for each participant. Logistic regression analysis was performed, adjusting for confounding variables, to assess the association between air pollutant exposure and kidney stone disease.

Results: After adjusting for confounders, individuals with a one-unit increase in 10-year-average benzene exposure exhibited a 15.8% higher odds of kidney stone disease (odds ratio [OR]: 1.158, 95% confident incidence [CI]: 1.016 to 1.319, p = 0.027). Conversely, a one-unit increase in 10-year-average CO exposure was associated with a 76.5% lower risk of kidney stone disease (OR: 0.235, 95% CI: 0.096 to 0.571, p = 0.001). However, there were no significant associations observed between kidney stone disease and other studied air pollutants, including PM2.5, SO2, NO2, and O3.

Conclusion: Our findings suggest that long-term exposure to benzene may be associated with an increased risk of kidney stone disease, while CO exposure may have a protective effect. These results underscore the importance of considering ambient air quality as a potential contributor to kidney stone disease and call for further research to elucidate the underlying mechanisms of these associations.

Key words: Kidney stone disease; ambient air pollutants; Taiwan Biobank

C224

Association of Benzene Exposure on Gut Microbiota Abundance and Composition in Chronic Disease Patients

苯暴露與慢性病患者腸道微生物群豐度及組成的相關性

Szu-Chia Chen[1,2], Pei-Yu, Wu[1,2], Jiun-Chi Huang[1,2], Hao-Ping Wang[1,2], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳思嘉 [1,2], 吳珮瑜 [1,2], 黃俊祺 [1,2], 王皓平 [1,2], 邱怡文 [1], 張哲銘 [1]

[1]Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital; [2]Department of Internal Medicine, Kaohsiung Municipal Hsiao-Kang Hospital, Kaohsiung Medical University

高雄醫學大學附設醫院腎臟內科 [1] 高雄市立小港醫院內科 [2]

Background: Benzene is a common organic chemical compound widely used in industry and chemical products. However, prolonged exposure to high concentrations of benzene may lead to myelodysplastic syndromes, lymphoma, and leukemia, making it a potential carcinogen. Nevertheless, research on the effects of benzene on gut microbiota remains unclear. This study aims to explore gut microbiome difference in chronic disease patients with varying benzene exposures.
Methods: A total of 184 patients in south Taiwan (117 males and 67 females) diagnosed with chronic diseases, specifically diabetes mellitus (81.5%), hypertension (75.5%), and chronic kidney disease (48.4%), were recruited. Fecal samples were collected from the participants to analyze the composition of the gut microbiota using Illumina sequencing of the 16S ribosomal ribonucleic acid gene. The spatiotemporal variation in benzene concentration was estimated using an integrated Land-Use Regression with ensemble machine learning algorithms (GBoost, CatBoost, and XGBoost). These exposures were measured in spatiotemporal maps of benzene concentration with 50 × 50 m grid resolution. The final benzene exposure concentration was calculated by averaging the cumulative exposure over the course of the past 10 years using proposed ensemble-based model.
Results: The patients were divided into three groups based on the tertile values of the estimated benzene exposure levels. Compared to the low benzene exposure group, the high benzene exposure group had a significantly lower microbial species diversity (Chao1 index and Shannon index). There were no significant differences in beta diversity between among three groups. A distinct microbial community structure was found in the high benzene exposure group, with decreased abundances at the genus level of *Collinsella*, *Barnesiella*, *Odoribacter*, *Ruminococcaceae UCG-004*, *Ruminococcaceae NK4A214 group*, *Negativibacillus*, *Family XIII AD3011 group*, *Anaerotruncus*, *GCA-900066225*.
Conclusion: Exposure to benzene leads to a reduction in gut microbiota abundance and induces alterations in microbial composition among patients with chronic diseases.

C225

Sex Differences in the Impact of Heat Stress on the Renal Function

探討性別差異對熱傷害影響腎功能

Yi-Kong Chen[1], Wei-Yu Su[1], You-Chi Chen[1], Ming-Yen Lin[1], Ping-Hsun Wu[1], Szu-Chia Chen[1], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳逸剛[1], 蘇威宇[1], 陳宥騏[1], 林明彥[1], 吳秉勳[1], 陳思嘉[1], 邱怡文[1], 張哲銘[1]

[1] Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 807, Taiwan;

[1] 高雄醫學大學附設中和紀念醫院 腎臟內科

Background：

Taiwan is a prominent region with a high incidence and prevalence of dialysis cases on a global scale. Consequently, the deceleration of renal function deterioration have emerged as critical healthcare priorities in Taiwan. Heat stress is recognized as a significant risk factor for renal function impairment. However, the differential impact of heat stress between males and females, potentially driven by variations in lifestyle and occupational distribution, remains unexplored.

Methods：

A retrospective cross-sectional analysis was conducted utilizing data from the Taiwan Biobank (TWB). We incorporated records of the Wet Bulb Globe Temperature (WBGT) during noon time (11 am - 2 pm) and work hours (7 am - 5 pm), based on the residential addresses of the participants. We calculated the average WBGT levels for 1 year, 3 years, and 5 years prior to the survey year. The WBGT levels were analyzed using a geospatial-artificial intelligence (Geo-AI) based Ensemble Mixed Spatial Model (EMSM), covering the period from 2010 to 2020.

Results：

A total of 121,317 participants from the TWB were included in this study. Among them, 1053 individuals were identified as belonging to the impaired renal function group (eGFR < 60, as per the CKD-EPI 2021 Equation). The cohort consisted of 35.9% males. We observed that high WBGT average levels for 1 year, 3 years, and 5 years prior to the survey year, during both noon hours and working hours, there was associated with a low eGFR level. However, further stratification by sex revealed that the same results were only significant for noon-hour WBGT in females. On the other hand, the results were significant for both noon hours and working hours WBGT, with a greater effect on low eGFR in males.

Conclusions：

WBGT exhibits a significant correlation with low eGFR. However, when stratified by sex, the correlation retains significance within the male demographic, while showing a weaker association with noon-hour WBGT in females compared to males.

Key words：

Wet Bulb Globe Temperature (WBGT); Heat stress; Renal function; Sex Differences

C226

Assessing the Relationship between Renal Function and Air Pollutants Using Geospatial-Artificial Intelligence (Geo-AI) Techniques

使用 Geo-AI 技術評估腎功能與空氣污染物之間的關係

You-Chi Chen[1], Wei-Yu Su[1], Yi-Kong Chen[1], Ming-Yen Lin[1], Ping-Hsun Wu[1], Szu-Chia Chen[1], Yi-Wen Chiu[1], Jer-Ming Chang[1]

陳宥騏[1], 蘇威宇[1], 陳逸剛[1], 林明彥[1], 吳秉勳[1], 陳思嘉[1], 邱怡文[1], 張哲銘[1]

[1] Division of Nephrology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Kaohsiung 807, Taiwan;

[1] 高雄醫學大學附設中和紀念醫院 腎臟內科

Background：

Taiwan as a prominent region concerning the incidence and prevalence of dialysis globally. Consequently, slowing renal function deterioration have become paramount health priorities in Taiwan. Air pollutants significantly contribute to renal function deterioration.

Methods：

A retrospective cross-sectional analysis was performed utilizing data from the Taiwan Biobank (TWB) alongside records of air pollutants, segmented by the residential locations of the participants. The average levels of air pollutants for 1 year, 3 years, and 5 years preceding the survey year were computed. This data underwent rigorous analysis using a Geospatial-Artificial Intelligence (Geo-AI) anchored Ensemble Mixed Spatial Model (EMSM) spanning the period from 2010 to 2020.

Results：

The study encompassed 121,317 participants from the TWB, with 1,053 individuals identified as having impaired renal function (eGFR < 60). Notable associations were observed between the high SO2, CO, NO2, NOx and the a low eGFR across all periods analyzed. Conversely, O3 displayed a significant opposing effect in the 3-year and 5-year average levels. Surprisingly, a high PM2.5 and PM10 levels correlated with a high eGFR in the 1-year and 3-year averages, but a low eGFR in the 5-year average.

Conclusions：

The air pollutants PM2.5, PM10, NO2, NOx, SO2, CO, and O3 exhibit a notable correlation with renal function.

Key words：

Air pollutants; Renal function; PM2.5, PM10, NO2, NOx, SO2, CO, O3

C227

Analysis of the impact of AI smart medical policy on chronic kidney disease patients in a hospital in southern China

南部某地區醫院慢性腎臟病病患 AI 智慧醫療政策影響研究之分析

Ku-Chung Wang[1], Te-Chuan Chen[2] , Meng-HsuehWu[1],Ching-TanCheng[1], Yueh-Ting Lee[1],Shang-Chin Liao[1] Chlen-Te Lee[1]
王谷鐘[1], 陳德全[2], 吳孟學[1], 鄭晶丹[1], 李岳庭[1], 廖上智[1], 李建德
Kaohsiung Municipal Feng Shan Hospital-Under the management of Chang Gung Medical Foundation、Division of Nephrology[1]
Division of Nephrology,Department of Medicine ,Kaohsiung Chang Gung Memorial[2]
高雄市立鳳山醫院-委託長庚醫療財團法人經營[1] 高雄長庚紀念醫院腎臟科[2]

Background：
本研究針對全球人口數持續成長，且醫療照護服務的成本與效率的相關議題持續受到關注。由於病患對於健康、醫療資訊的接收管道越來越多且暢通，病患的自主意識抬頭，也促使醫療照護服務轉為以「病患為中心」的模式。本研究即根據「以病患為中心」為出發點，探討在 AI 智慧導入醫療照護產業下，對於服務流程的影響與轉變，輔以服務設計的架構切入 AI 智慧醫療發展下，對於醫療照護流程中各利害關係人的影響。

Methods：
本研究以過去文獻所提出的健康照護服務設計規劃模式作為切入的基本架構，探討AI技術政策導入之後，會如何影響其中的投入、服務傳遞系統與產出三個階段。在透過與智慧醫療照護服務流程中的利害關係人—服務使用者（病患）與服務提供者（醫師）針對這些議題進行結構式的深度訪談後，將受訪者針對相關政策議題的想法與建議進一步歸納、AI導入可使部分常規工作與病患分流，將有助於有限的醫護的人力做最有效的投入，投入面向則會轉而著重於醫病互動與信任關係，因為AI智慧醫療下，醫護人員與病患的互動關係是更需要被強調的服務核心，因此，AI智慧醫療的服務設計不應以完全取代醫護專業為核心目的，而是讓醫護專業輔以AI化。

Results：
經分析各國在推動智慧醫療時，也同時重視智慧醫療的科技如何能有效解決醫療體系現況下、或即將遭遇的挑戰，並且強調病人隱私權、資訊安全保障，以及如何建立法規制度、資訊科技標準等。這些國家的經驗與策略，都值得我國未來持續推動智慧醫療發展時之借鏡與參考。台灣在雲端藥歷、健康存摺的推動上甚為成功，過去台灣在醫療資訊的應用程度居亞太國家之領先地位，政府在醫療資訊的推廣上也配合國家整體資訊科技發展政策，而有連續性、漸進式的政策規劃，並逐步達成目標。但儘管過去有輝煌的成果，專家學者不約而同提到，目前政府欠缺推動智慧醫療的明確願景與目標，日益縮減的經費規模也可能危急政府部門在智慧醫療應用上的後續發展。法規限制與健保支付制度是國內推動智慧醫療的主要影響因素。雖然有專家指出，但如何兼顧政府對病患權益保障的要求、以及資通訊產業、醫療業界在實務面希望法規鬆綁的期待，恐是需正視且優先解決的問題原因。

Conclusions：
經由綜合專家學者訪談的建議，台灣在智慧醫療的眾多應用領域中，在照護面的應用極具發展潛力，尤其是可配合政府積極發展長照產業的政策，開發相關應用、協助長照機構的經營管理，或整合急性醫療與長照銜接。另外，由於台灣在生物資訊技術、生物資料庫、高速電腦運算的優勢，也可透過智慧醫療的技術發展個人化醫療、精準醫療，或透過大數據的技術，串連多元資料，協助民眾做治療上的選擇。

Key words：
AI 智慧醫療、AI 醫病共享、醫療雲端政策、生物科技資料庫

C228

Enhancing Information Accuracy and Clinical Decision Precision in the Management of Chronic Kidney Disease Cases through Information System Integration

運用資訊系統整合提升慢性腎臟病個案管理的資訊正確性和臨床決策精準度

Y Lee[1], YP Chen[1], WC Lo[1], YC Pan[1], WH Lee[1]

李昀[1], 陳怡萍[1], 羅婉綺[1], 潘怡君[1], 李文惠[1]

[1]Lotung Po-Ai Hospital

[1]羅東博愛醫院

Background：

Managing chronic kidney disease (CKD) involves handling diverse information present in systems like prescription, case management, and those used by CKD care teams. Information standardization, accuracy, precision, and timeliness are vital for complete care processes, medical decisions, and quality.

Methods：

We established a CKD prescription reminder system using a Data-Driven Decision Support System (DSS). It provides clinical recommendations based on patient data, helping healthcare professionals make informed CKD management decisions. It prompts physicians for necessary care items, including lab tests, nutrition education, medication reconciliation, ESRD treatments shared decision-making, and chronic disease risk management. The system integrates with in-house platforms, ensuring information sharing, equity, and accuracy.

Results：

Verifications of abnormal event registration in the National Health Insurance Information Network decreased significantly over five years, from 26.8 to 2 cases/year. The Declaration of Health Insurance accuracy improved, lab data errors ceased, and CKD care team efficiency increased. Also, the co-management rate of Early-CKD and diabetes cases has reached 70% this year.

Conclusions：

Using Data-Driven DSS to integrate CKD information enhances accuracy, patient safety, and disease management quality. It empowers healthcare professionals through accurate record-keeping and clinical recommendations.

Key words：

Chronic kidney disease, Data-Driven Decision Support System, information integration, information sharing, data accuracy, Clinical Decision Precision.

C229

Involving nursing preventive treatments with machine learning alarming systems to decrease the rates of intradialytic hypotension

結合 AI 風險預測系統及護理介入措施有效降低透析中低血壓發生率

黃惠暄, 莊秋萍, 劉忠峰, 沈郁婷, 陳佳蓉, 楊翼寧
奇美醫院洗腎室護理長[1], 洗腎室護理師[2], 奇美智慧醫療中心主任[3],
AI 工程師[4], 資訊室組長[5], 腎臟科主治醫師[6]

研究目的

在血液透析過程中，有高達 20~30%的末期腎病病人會發生有症狀的低血壓，低血壓會引起器官灌流不足、器官損傷、甚至增加病人死亡率。本研究希望運用 AI 機器學習善於處理大數據與多重複雜問題的優勢，即時監測透析參數和病人相關數據並進行監控，呈現警示和風險數值供醫療團隊參考，進而提早介入護理措施，幫助病人遠離透析中低血壓，提升透析治療的品質與安全。

方法

收集奇美醫學中心血液透析室 2020/9/1 到 2020/12/31 間門診透析之所有病人之病歷數據，共 68,552 筆病人資料，包括透析機拋轉數值、生命徵象、體重變化、基礎特徵值、檢驗數值及病史等 30 個特徵值來預測透析中低血壓，透過多種演算法建立 AI 風險預測系統。護理人員於『透析前』及『透析中』參考 AI 低血壓的風險預測值，依醫療團隊制訂之『透析照護指引流程』給予預防介入措施（例如：提高雙下肢、給氧氣、調整脫水速率及血流速，甚至給輸液或升壓藥等)。過程中定期開會找出執行上的困境、調整程式設計，讓護理人員於第一時間了解預測風險值與血壓變化，再依據病人低血壓症狀的嚴重度，選擇個別化的介入措施，依強度分為一般、介入及緊急處置。利用雙樣本 t、卡方檢定及 ANOVA 等統計方法分析導入 AI 系統與護理介入措施前後低血壓發生率的變化。

結果

經性別、年齡配對後（n：9652），年齡：65.9 歲，性別：女性（44.5%）、男性（55.5%）。在 2021 年 1 至 4 月，無 AI 系統與護理流程介入前，透析中低血壓發生總次數為 22.9%；經 AI 系統介入後，2022 年 1 至 4 月透析中低血壓發生總次數為 20.3%；經 AI 系統與護理流程介入後，2023 年 1 至 4 月透析中低血壓發生總次數降到 17.9%，顯著下降 5%，達統計意義（P-value <0.001）。此外，在低血壓嚴重度方面，2022 年 1 至 4 月當次透析中發生低血壓達 3 次者占 1.3%，到了 2023 年 1 至 4 月當次透析中發生低血壓達 3 次者只剩 0.9%，相較 2021 年 1 至 4 月的 1.5%，減少近兩倍，達統計意義（P-value <0.001）。

結論

本研究結果顯示『AI 低血壓風險預測系統』能掌握病人的透析實況，而個別化的『透析照護指引流程』則能落實預防介入措施，兩者的結合降低了低血壓的發生率和嚴重度，達到『預防勝於治療』，幫助血液透析病人遠離低壓的恐懼。

C230

Analysis of COVID -19 vaccination rate and infection rate among peritoneal inpatients in a southern medical center

南部某醫學中心腹膜透析病人，Covid-19 疫苗接種率與感染率分析

卓秋萍[1], 蔡淑朵[1], 黃惠暄[2], 王憲奕[3]
奇美醫療財團法人奇美醫院 [1]護理師,[2]護理長,[3]內科部副部長

研 究 目 的

「嚴重特殊傳染性肺炎」(COVID-19)是一種危險且高度傳染疾病，由新冠肺炎病毒(SARSCoV-2)所引起。透析病人免疫力低、共病症及高齡族群多，為新冠肺炎感染高危險族群。文獻研究顯示，透析病人感染肺炎，不論重症比例或死亡率皆高於一般人，從無症狀、輕度發燒、咳嗽至重度呼吸困難，大約 30%病人惡化至呼吸衰竭，死亡率為 11~24%，是一般人 10 倍(Kates et al., 2020)。COVID-19 疫苗是阻斷傳染及避免重症最佳武器，醫學研究皆指出，接種 COVID-19 疫苗，可有效降低病毒感染；為此，中央流行疫情指揮中心推動接種計畫，於 2021 年 6 月 6 日將洗腎病人列入 COVID-19 疫苗接種重點對象。

研 究 方 法

研究團隊由 4人組成，經由收集、統計、分析及討論，本院(2021 年 6 月至 2023 年 7 月)腹膜透析病人男女性別、年齡層其疫苗接種率及感染率關係，病人感染 COVID-19 死亡案例與疫苗接種劑數分析，探討 COVID-19 疫苗對於腹膜透析病人降低病毒感染及避免重症有無助益。 案例數共 213 人，女性 126 人(59.2%)，男性 87 人(40.8%)；年齡層分佈 ：60 歲以下 116 人(54.5%)，61 歲以上 97 人(45.5%)。

為強化腎友對接種 COVID-19 疫苗防護認知，藉由製作【透析患者與新冠肺炎疫苗常見問題整理】海報，促使腎友對疫苗接種態度由觀望轉趨積極；隨著疫苗陸續到位，安排符合資格腎友施打 COVID-19 疫苗，第一劑疫苗接種率達 88.3%，第二劑接種完成率 84.7%，第三劑接種完成率 71.6%，第四劑接種完成率 31.3%，第五劑完種率則為 2.9%，已超越世界衛生組織接種目標(第一劑接種涵蓋率 70%、第二劑接種率達 30%)。經實地調查研究，25 人(11.7%)為疫苗猶豫者，除了害怕疫苗副作用外，自覺做好生活防護就能取代疫苗降低感染風險。

研 究 結 果

本院腹膜透析病人 213 位，82 位感染新冠肺炎，感染率 38.5%，其中 8 人二次確診，感染率最高年齡層為 61~70 歲(26 人，31.7%)，其次為 51~60 歲(19 人，23.2%)；感染 COVID-19 間接或直接死亡共 5 人(6.1%)，其中 2 人(8%)未接種疫苗因而感染肺炎死亡；其他 3 人(1.6%)有接種疫苗(分別是 2.3.4 劑)，死因除了肺炎尚合併其他疾病(依序為腹膜炎、糖尿病足及泌尿系統癌症)。

研 究 結 論

經以上資料分析顯示，腹膜透析病人女性約占六成，男性約占四成；年齡層主要集中於 51~70 歲(58%)。全體接種涵蓋率達 88.3%，感染率 38.5%。女性與男性疫苗接種率(88%，89%)及感染率(38%，39%)無明顯差異。61~70 歲接種率 84%，81~85 歲接種率 75%，皆低於全體接種率(88.3%)；不同年齡層接種疫苗後感染率，31~40 歲感染率 48%，41~50 歲感染率 45%，皆高於平均感染率(38.5%)。經數據統計分析，各年齡層之接種率與感染率無明顯負相關，但接種 COVID-19 疫苗，著實可保護慢性病人降低重症風險 。

關鍵字
腹膜透析， COVID-19 疫苗

C231

Machine learning to predict complications after percutaneous native kidney needle biopsy

Hung-Chieh Wu [1,2], Yu-Chen Chiu [1], Wei-Jie Wang [1,3]

[1] Division of Nephrology, Department of Internal Medicine, Taoyuan General hospital, Taoyuan, Ministry of Health and Welfare, Taiwan

[2] Department of Biotechnology, Ming Chuan University, Taipei, Taiwan

[3] Department of Biomedical Engineering, Chung Yuan Christian University, Taoyuan, Taiwan

Objectives：

Risk prediction model for post-biopsy complication have not been developed. The study was aimed to develop and validate a model to predict post-biopsy complication.

Methods：

Participants who underwent percutaneous native kidney biopsy in Taoyuan General Hospital from 2014 to 2023 were enrolled. Demographic data, comorbidities, laboratory data and procedure related characteristics were assessed. We defined post-biopsy minor complication according to macrohematuria, perirenal hematoma and hemoglobin drop. Major complications were defined as those who need intervention. 16-factors machine learning models, such as random forest(RF), logistic regression(LR), K nearest neighbor(KNN), multilayer perceptron(MLP) and sector vector machine(SVM) were used and the 6 most critical risk factors were extracted by feature selection. Model performance were evaluated by area under receiver operating characteristic(AUROC). To avoid overfitting and distorted effect of imbalance data, we also compared accuracy, F1 score, and positive predictive value and K-fold cross validation method.

Results：

From a total of 694 subjects, 561 vs. 133 participants were classified as development vs. validation dataset. The complication rate were 5.7% vs. 9.7%, respectively. After feature selection, bleeding time, creatinine, hemoglobin, proteinuria, parenchymal thickness and liver function test were essential to predict complications. Despite of low sensitivity, RF is the best prediction models according to AUROC (0.943(0.901—0.985) vs. 0.910(0.837—0.982), accuracy (0.973 vs. 0.960) and F1 score (0.727 vs. 0.758). The prediction performance of 6-factors RF model was non-inferior to 16-factors model (AUROC:0.943 vs. 0.900 and 0.910 vs. 0.869, Ps > 0.05).

Conclusions：

The study demonstrated the feasibility of 6-factors RF model to predict post-biopsy complication.

Key words：

Native kidney biopsy, Machine learning, Complication, Joint Commission of Taiwan, Random forest

C232

Discussion on the learning effectiveness of multiple health education materials in blood pressure monitoring for patients with chronic kidney disease.

慢性腎臟病人對多元化衛教工具於血壓監測學習成效探討

Chih-Ying Huang, Pei-Lin Lin, Chin-Yi Huang, Hsou-Li Chu, Shu-Chen Chang , Shu-Yu Chen

黃智英[1], 林沛伶[1], 黃靜宜[2], 朱秀麗[1], 張淑真[3], 陳書毓[4]

[1]Chronic Kidney Disease Education Center, Changhua Christian Hospital,

[2]Teaching and Research Department, Changhua Christian Hospital ,[3]Erlin Christian Hospital,

[4] Department of Nursing, Changhua Christian Hospital.

[1] 彰化基督教醫院慢性腎臟病衛教中心 [2] 彰化基督教醫院教學研究部

[3] 彰化基督教醫療財團法人二林基督教醫院 [4] 彰化基督教醫院護理部

Background：

高血壓是慢性腎臟病(Chronic kidney disease, CKD)常見的合併症，也是導致 CKD 病人腎功能逐漸惡化因素，病人進醫院測量血壓會比家中血壓高俗稱「白袍症候群」，病人回診時提供正確居家血壓值有利於醫師依據數值調整血壓用藥。本研究將探討應用多元化衛教工具對慢性腎臟第三、四階段病人居家血壓監測學習之成效。

Methods：

本研究以中部某醫學中心 111 年 9 月至 112 年 3 月採隨機取樣兩組各 50 位，實驗組觀看 CKD 與居家血壓監測實物真人示範影片衛教，對照組提供 CKD 與居家血壓監測圖示平面衛教單張，配合護理師說明與病人提問，兩組分別接受前測、3 個月後測居家血壓監測認知問卷及技能之評量。所得結構性問卷資料進行分析，比較兩組介入效果於血壓量測知識及技術能力是否有差異。

Results：

實驗組和對照組平均年齡分別為 52.6 ± 12 歲和 56.6 ± 14.6 歲，兩組均以男性居多，併發症糖尿病與高血壓佔 46.0% vs 44%，基本屬性和疾病變項的同質性檢定，教育程度有顯著差異（p=0.012）。比較病人血壓量測知識，實驗組和對照組的前測得分平均值分別為 15.1 ± 2.18 和 14.3 ± 2.45，後測得分平均值分別為 18.1 ± 1.07 和 17.8 ± 2.76，血壓量測技術能力，實驗組和對照組的前測得分平均值分別為 6.2± 1.82 和 6.0± 1.85，後測得分平均值分別為 9.6 ± 1.59 和 9.5 ± 2.05，血壓量測知識及技術能力前、後測效應皆有顯著性差異（P<0.001）。但比較實驗組或對照組對血壓量測知識及技術能力成效則沒有顯著差異（p = .609, p = .646）。

Conclusions：

多元化衛教工具均有助於提升 CKD 第三、第四期病人學習居家自我血壓量測知識及技術能力。衛教教材影片優勢為提供學習者，不受時間和地點的限制可彈性學習。考量護理人力和病人的學習成效，護理師可運用多元化衛教工具協助病人學習居家自我血壓量測技術，以達到血壓控制目標。

Key words：

慢性腎臟病、多元化衛教工具、血壓監測

C233

Applying Digital Information to Construct of an Electronic Whiteboard System for Hemodialysis- Experience in a Medical Center in Southern

應用數位資訊建構血液透析電子白板系統-南部某醫學中心經驗分享

Chen-Wei Chen[1], Hui-Hua Wang[1], Ie-Ching Hu[1], Yi-Hsiang Tsai[3], Cheng-Jen Wang[3], Chin-Chung Tseng [2], Te-Hui Kuo[2]

陳珍緯 [1], 王惠華 [1], 侯玉琴 [1], 蔡宜湘 [3], 王政仁 [3], 曾進忠 [2], 郭德輝 [2]

國立成功大學醫學院附設醫院 [1] 護理部, [2] 腎臟科, [3] 新漢股份有限公司, 台灣

Background：

護理站電子白板系統是導入智慧醫療概念應用於臨床作業模式之一。結合多元化的醫療訊息，包括病人、醫療、護理、檢驗、行政業務等作業所需之資訊。電子白板具備觸控、圖像顯示、水分監測等功能，方便醫護團隊快速取得病人資訊，可提升病人整體性健康照護及降低醫護人員工作負荷，進而分享臨床推行之經驗。1

Methods：

血液透析電子白板系統以保護個資及強化資安設有個人帳密登入。以臨床工作人員的需求項目為建構重點。輸出的資料分為：臨床作業功能項目及行政作業功能項目。操作介面須具實用性、便利性、準確性，藉由資訊化管理，使團隊接受的訊息可以一致，提拱以病人為中心的照護。

Results：

有效減少抄寫時間，利用圖表、數據、顏色等功能，提供醫師查房前快速了解病人狀況，提升醫療人員溝通及工作效率。

Conclusions：

透過電子白板的設計，能自動化拋轉資料的正確性，可即時連結及取得病人相關醫療照護訊息，其可近性及便利性可作為提升臨床照護效益策略之一。

Key words：

護理、電子白板、血液透析、數位資訊

C234

Utilizing AI to promote the work efficiency of newly employees

運用人工智能促進新進護理師之工作效益

Pin-Han Hsia[1], Hsiu-Wen Changchein[1], Hui-Ting Liu [1], Yi-Ting Chen[2,3]

夏賓含 [1], 張簡綉雯 [1], 劉蕙婷 [1], 陳怡婷 [2,3]

[1]Department of Nursing, National Taiwan University Hospital, Taipei, Taiwan

[2]Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital, Taipei, Taiwan

[3]Renal devision, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan

[1] 台大醫院護理部, [2] 台大醫院綜合診療部血液淨化科, [3] 台大醫院腎臟科

Background：

隨著資訊科技的日新月異，以電腦、網路為基礎的數位學習，已是現今教育型態的主流，數位學習同時提供無紙化環保、即時性、學習彈性、互動性、不受時空限制、個別化環境、多元教學資源等優點。故本中心同仁，運用人工智能回覆，建立新進人員工作手札APP，方便透過手機即時查找資訊，以增進工作效益。

Methods：

由 2 位腹膜透析護理師，將紙本內容的新進人員訓練手冊內的圖片及文字電子化，將系統依各項標的分類，可由目錄逐一瀏覽，或是輸入關鍵字直接搜尋，並於 2023 年 2 月 22 日公開教導同仁使用，並與舊式查詢比較效率。

Results：

設置目錄分為六大項，包括 1.訓練和護理，2.NEWS，3.電腦作業，4.SOP&專家制度，5.小兒透析，6.腹膜透析。每大項又細分第二層，第三層，例如 SOP&專家制度可再細分為常規標準流程及專家制度，常規標準流程裡面又分為感染合併症，非感染合併症，透析導管處置，其他處理流程等，使搜尋方便。實際針對同仁做測試，原使用紙本查尋所需開立檢查，翻閱紙本所需時間，平均為 3 分 22 秒，使用智能系統查找，所需時間平均為 20 秒。

Conclusions：

運用智能系統可於 APP 上即時使用且方便查找，實際訪問同仁使用感想，覺得建制內容豐富，但需輸入正確的(一模一樣的)關鍵字，才能獲得需要的訊息，因智慧系統是由人工維護，所以只要有輸入關鍵字查找，後台都可以知道，故可即時新增相關關鍵字於系統中。智慧系統可依工作需求新增資訊及公告新消息，幫助同仁獲得新知及傳遞訊息，不僅是新進護理師可快速熟習，資深同仁也反應方便使用。統計使用期間 2023 年 3 月到 9 月，點擊使用率共 330 次，平均每月點擊 47 次，目前此系統仍持續新增內容編排，是一名符其實的隨身寶典。

Key words：

人工智能，新進人員，工作效益

C235

Intelligent Personalization Management for Peritoneal Dialysis Patient Care
腹膜透析病人照護的智能化個人管理

Shih-Yi Yang[1], Shou-Chieh Wang[1],Chia-Liang Wang[1], Chia-Chu Chang[1], Yu-Fen Huang[1],Jian-Ye Chen[1],Xiang-Yu Wang[1]

楊師怡[1], 王守玠[1], 王家良[1], 張家築[1], 黃毓芬[1], 陳建曄[2], 王祥宇[2]

Division of Nephrology, Kuang Tien General Hospitalg[1]l,Information room, Kuang Tien General Hospital[2]

沙鹿光田醫院腎臟科[1], 沙鹿光田醫院資訊室[2]

背景：

在現今疫情時代及高齡化社會的來臨，透過數位資訊的輔助，整合居家醫療照護、建構在地健康照護網路、發展在宅醫療服務網等。本院自行開發智能視訊系統，提供病人院外透析可隨時連結行動智慧管理系統。藉此智能視訊系統，病人及家屬可以零距離獲得醫療團隊即時且完整以病人為中心的照護。

方法：

依據 ISPD 指引及腎臟醫學會照護品質計劃指標，腹膜炎發生率≦2.0（每 100 人月），血鉀≧3.2mmol/L（其受檢率≧90%、合格率≧80%）。本院於 112 年 8 月建置腹膜透析智能系統 APP 追蹤及改善，其中有六大功能（1）病人透析行事曆，侵入性檢查跨科連結警示通知；（2）每日透析記錄，系統即時回報提醒及智能數據分析；（3）藥物管理，藥水記錄依照處方及每月庫存系統計算當月藥水訂購量；（4）自動化推播衛教資訊，遠距視訊家訪讓病人能即時回饋；（5）檢驗檢查數據即時上傳；（6）Q&A 可透過我的問題和常見問題上傳照片與腹膜透析室聯繫，院方可針對病人問題即時回覆。

結果：

本院於 112 年 8 月建置腹膜透析智能系統 APP，統計 112 年 1-7 月及 112 年 8-10 月區間，腹膜透析病人照護品質提升（1）透過智能個別化自動推播衛教資訊，血鉀平均值 3.80mmol/L 上升至 3.96 mmol/L，低血鉀發生率由 27.50%下降至 22.37%；血磷平均值 4.96mg/dL 下降至 4.67mg/dL（2）建置遠距居家訪視系統與侵入性檢查跨科連結警示通知，腹膜炎發生率由 1.49 降至 0.68（每 100 人月）。（3）病人就醫滿意度由 93.1%上升至 94.8%；病人衛教滿意度由 90%上升至 94%。

結論：

本系統可協助腹膜透析病人順利回歸社區，同時享有即時的醫療服務的新利器，提供腹膜透析病人獲得更加即時的全方位照護。相較過去較被動的照護模式，將每日透析異常、自動推播衛教指導、跨科連結等利用醫病雙向資訊系統化被動為主動，提升自我照護能力。

C236

Constructing monitoring of hemodialysis room evaluation indicators through information application

藉由資訊化應用建構血液透析室評鑑指標之監測

黎媛玲 [1]

[1] 三軍總醫院 腎臟內科 血液透析室

背景：

醫院評鑑不僅僅是醫療機構自我評值也是接受外部同儕審查的過程，基準涵蓋了經營管理、醫療照護二大方向，主要目的在於確保推行病人安全及醫療品質之促進。除醫院評鑑外，各科別亦須定期評核其專科所規範之專業品質指標。現今醫護人員在臨床照護業務繁忙之餘，尚需面對大大小小的訪視稽核，準備各項繁雜的稽核監測資料，工作複雜度日趨增加。

目的：醫院資訊系統已成為醫療體系中重要不可或缺的角色。經由資訊系統的建構，將各項醫療紀錄及儀器管理等導入資訊平台，建構所謂的智慧醫院。藉此可減少人工文書作業、簡化工作流程，藉此更可提升工作效率。

方法：

由血液透析室醫療團隊、醫療資訊管理組及物聯網團隊研發建置血液透析臨床資源整合管理系統，系統中涵蓋資訊管理、個案管理及行政管理三大類。將病人醫療數據全面整合，並規劃各項品質監測指標數值。

成果：

管理者藉由系統資訊化之整合應用，監測各項品質指標，可及時發現異常監測項目，進行追蹤進而有效修正管理。於評鑑訪視期間，直接以臨床資源整合管理系統畫面呈現，隨時切換稽核項目，並以圖表視覺化方式呈現，減少人工翻閱查詢。

結論：

臨床醫護人力不足，在新冠疫情後更趨明顯。醫院評鑑的來臨更造成新一波的離職潮。若透過資訊化應用可減少護理人員不必要之評鑑文書準備作業，亦可減少紙張浪費，在各項 統計資料查詢及管理上更加顯得容易。期許未來，藉由資訊化的導入，建構持續性監測制度並能「簡化」、「優化」、「日常化」來監測醫院醫療品質相關數據 ，讓臨床醫護人員回歸於臨床照護。

關鍵字：評鑑、資訊化、臨床資源整合

C237

A survey on the prevalence of burnout among peritoneal dialysis patients and caregivers in performing peritoneal dialysis

評估腹膜透析患者和其照顧者操作腹膜透析所產生的疲怠及壓力

Yung-An Chen[1], Yi-Ting Chen[1,2], Yu-Hsiang Chou[1], Shuei-Liong Lin[1]

陳永安[1], 陳怡婷[1,2], 周鈺翔[1], 林水龍[1]

[1]Renal Division, Department of Internal Medicine, National Taiwan University Hospital. [2]Division of Blood purification, Department of Integrated Diagnostics & Therapeutics, National Taiwan University Hospital.

[1]台大醫院內科部腎臟科 [2]台大醫院綜合診療部血液淨化科

Objectives: This study's aim is to survey the prevalence and risk factor of burnout in PD patients and their caregivers in performing PD.

Methods: We used two questionnaires the Maslach Burnout Inventory (MBI) and the State-Trait Anxiety Inventory (STAI) to investigate PD patients and caregivers who were the primary operator performing PD. The MBI questionnaire include three main dimensions (emotional exhaustion, depersonalization, and reduced sense of personal accomplishment), 22 items, and a scale of 0-6 to indicate the severity of symptoms. The definition of burnout in MBI is high emotional exhaustion(cutoff score=7.78) and high depersonalization (cutoff score=22.36). The STAI questionnaire consists of state anxiety and trait anxiety, each containing 20 items, and each item is rated on a scale of 1-4. The State anxiety questionnaire is related to a person's current emotional state at the time of perceived threat and is considered to be temporary. The Trait anxiety questionnaire includes persistent stress, worry, and discomfort that individuals experience in their daily lives.

Results: A total of 101 PD operators including PD patients and their caregivers, were enrolled for our study in April 2023. In the MBI questionnaire survey, the mean score of emotional exhaustion score was 4.68 and 22 patients (21.8%) had a high exhaustion score (>7.78); the mean value of depersonalization scale was 13.3 and 9 cases (8.9%) had a high score of cynicism (>22.36); the average value of personal accomplishment was 27.33 and 63 patients (62.4%) had a high Professional Efficacy (>28.2). On the STAI questionnaire, the mean score for state anxiety was 35.5, and 24 patients (23.8%) reported severe anxiety; the average score for trait anxiety was 38.3, and 31 cases (30.7%) met severe anxiety.

Conclusions: In our PD patients, there was a high incidence of emotional exhaustion and severe anxiety but a high personal efficacy. However, after adjusting for PD operators, age, PD vintage, there was no significant correlation between these parameters and the scores in each questionnaire.

C238

The role of *Finegoldia magna*, an anaerobic Gram-positive coccus, in a peritoneal dialysis patient with exit site infection

革蘭氏陽性厭氧球菌 *Finegoldia magna* 在一腹膜透析病人導管出口感染的角色

Hsin-Chun Tsai[1], Hsiu-Lien Hsu[1], Chen-Wei Chen[1], Hsueh-Chi Chou[1], Hui-Ying Lin[1], Pei-Jung Wu[1], Mei-Hsien Wu[1], Yung-Chu Yang[1], Chin-Chung Tseng[2], Ming-Cheng Wang[2], Jo-Yen Chao[2]

蔡幸錞[1]，徐秀蓮[1]，陳珍緯[1]，周雪琦[1]，林惠瑛[1]，吳佩蓉[1]，吳美賢[1]，楊詠筑[1]，曾進忠[2]，王明誠[2]，趙若雁[2]

[1]Department of Nursing; [2]Division of Nephrology, Department of Internal Medicine; National Cheng Kung University Hospital, Tainan, Taiwan

國立成功大學醫學院附設醫院 [1]護理部，[2]內科部腎臟科

目的：

腹膜透析病人導管相關感染分為出口感染和隧道感染。許多微生物會引起感染，包括屬於正常皮膚菌叢的共生菌，若沒有照顧好腹膜透析導管出口，皮膚等保護屏障可能會被破壞，進而引起炎症或感染，嚴重時可能發生腹膜炎或導致導管移除。

方法：

一名 42 歲男性病人，接受腹膜透析治療 5 年，採連續性循環式腹膜透析模式(CCPD)，曾有 *Pseudomonas aeruginosa* 導管出口感染病史，導管袖扣已脫出 4 公分。在回診追蹤時發現導管出口有瘜肉增生，周圍合併紅、腫、疼痛及膿性分泌物，診斷為導管出口感染。分泌物微生物培養初期呈現 *Pseudomonas aeruginosa*，給予有效抗生素 Ciprofloxacin 治療。探究病人穿著習慣及評估導管出口護理和換液技術時，發現輸液連接管未適當固定，因重力牽扯之故，導致導管出口增生瘜肉及發炎。厭氧菌培養於第 14 天發現另一菌種為 *Finegoldia magna*。

結果：

在 Ciprofloxacin 治療下，合併導管出口瘜肉硝酸銀燒灼護理，導管出口分泌物逐漸減少，瘜肉及發炎現象逐漸改善。後續厭氧菌培養呈現的 *Finegoldia magna* 對 Ciprofloxacin 並未顯示有效之藥敏試驗，考量其為人類體表皮膚正常微生物群，雖可造成伺機性感染，但病人臨床上有逐漸改善，故仍維持 Ciprofloxacin 單一抗生素治療，以 *Pseudomonas aeruginosa* 為治療對象。增加導管出口照護次數並以 mupirocin 藥膏局部照護，衛教勿穿著過緊皮帶或褲子，使用醫療用膠帶適當固定導管，執行換液時勿拉扯到導管，避免導管出口處不當壓迫與拉扯而導致發炎與瘜肉增生。第 18 天，導管出口已無分泌物及感染情形，療程共計 31 天。

結論：

Finegoldia magna 為革蘭氏陽性厭氧球菌，是人類體表皮膚正常微生物群的組成之一，常見於皮膚、口腔、胃腸道和泌尿生殖系統表面。曾於慢性潰瘍中常被發現，也曾有相關軟組織感染及心內膜炎等病例報告，通常被認為是伺機性病原體。當發生導管出口感染時，除須進行感染原因調查，積極治療，預防再發生，也須評估此細菌是否為導致感染的致病菌，避免伺機性感染及不必要的抗生素使用，進而導致多重抗藥性細菌的增加和傳播。

關鍵字： Finegoldia magna、peritoneal dialysis、exit site infection

C239

Using guided meditation in the care process of a patient receiving hemodialysis
運用引導冥想在一位接受血液透析病人之護理過程

Hsiao-lan cheng
鄭曉嵐
Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan
三軍總醫院腎臟內科血液透析室

【目的】

血液透析治療雖然透過每週 3 次，每次 4 小時的血液透析治療得以取代腎功能而延長生命，但長期透析也影響病人的生活品質，造成病人生心靈上的影響；生理方面，陌生的醫院環境以及護理人員，會使病人出現血壓偏高的情形；心理方便，穿刺疼痛會使病人出現壓力以及抗拒透析。因此引發筆者探討血液透析患者使用引導冥想是否能改善血液透析病人之生活品質。

【方法】

筆者於 Cochrane、PubMed 資料庫搜尋相關文獻，搜尋關鍵字: guided meditation、Hemodialysis、Renal Dialysis、Renal Dialysis"[Mesh]、Quality of life，限制年代為五年內、全文、最符合臨床問題、研究設計為 RCT 或 SR，閱讀文獻後發現雖然引導冥想對於 VAS 量表測量的壓力程度並沒有顯著降低，但透過臉孔量表和知覺壓力測量的幸福程度有顯著差異，因此與醫師討論後決定採用此方法，在取得個案同意後，請個案挑選自己喜歡的冥想音樂並建立音樂清單，下次透析時聆聽。

【結果】

個案表示先聆聽引導冥想音樂再執行透析管路穿刺時的壓力指數由原本的 7 分下降為 4 分，並表示將來也會推薦給其他病友使用此方法。

【結論】

經文獻查證的結果可得知引導冥想使介入組在幸福感、熱情、靈感、主動性、警覺性、意識、穩定程度、自信、思維清晰度、憤怒控制方面產生了統計上顯著的改善，且引導冥想療法是最常見且低成本的介入措施，故應用此實證結果，個案表示壓力指數有下降，情緒也較平穩，成功降低本個案對於洗腎的抗拒感以及不適感，提升生活品質，使個案獲得更高品質之照護。

關鍵字：血液透析患者、引導冥想、生活品質

C240

Reduce the incidence of hypotension during hemodialysis

降低血液透析過程低血壓發生率

Shu-Juan You, Ying-Fang Zhang, Kai-Ling Yang, Ren-Feng Liu, Ci-yong Du
Yi-Li Lin, Huey-Liang Kuo
游淑娟[1], 張穎方[1], 楊凱玲[2], 劉人鳳[1], 杜慈詠[1], 林憶琍[1], 郭慧亮[2]
[1]Hemodialysis Unit, Department of Nephrology,China Medical University Hospital
[2]Department of Nephrology, China Medical University Hospital
[1] 中國醫藥大學附設醫院腎臟系血液透析室 [2] 中國醫藥大學附設醫院腎臟系

計畫背景:

血液透析治療中低血壓是透析病人最常見的併發症之一，同時，也是造成跌倒高風險的重要因素之一。透析過程中低血壓可能中斷病人治療，導致尿毒素清除率和脫水量不足，降低透析品質，長期下來惡化原有尿毒與心衰竭的症狀造成器官損傷，增加死亡率。因此對病人發生低血壓的原因進行分析，檢討改善措施，提供安全的透析治療。

執行方法:

病人透析過程中血壓下降>30mmHg為本院血液透析室護理照護品質監測項目之一，發生率監測閾值為8.7%，本單位採回溯性統計2022年1月-2023年2月病人透析過程中血壓下降>30mmHg發生率，資料收集期間利用各項查檢表進行實地觀察收集資料，分析病人透析過程中血壓下降>30mmHg原因，擬定改善對策為：促進病人認知與正確執行水分控制、促進護理人員正確評估脫水量，降低病人低血壓的風險、如何正確測量體重衛教宣導等並於對策實施後進行成效分析。

成果評估:

透析過程中血壓下降>30mmHg改善前發生率為17.4%，2022年7月實施對策改善後發生率降為8.5%，結果顯示，病人的水份控制、藥物服用遵從性及正確量體重可經由護理人員床邊衛教、定期播放DVD並舉辦『喝水不乾杯』腎友座談會強化病人認知，並經由再對策整合腎臟及其他專科醫師、藥師及營養師跨團隊共同照護，成效顯著。

姿勢性低血壓是病人跌倒的高風險因素之一，透析過程血壓下降>30mmHg為姿勢性低血壓的前驅因子，本單位設定姿勢性低血壓高危險病人三條件:跌倒評估大於3分、透析過程血壓下降30mmHg、收縮壓<100mmHg且一個月超過3次。藉資訊系統篩選符合條件透析病人進行預警性提示，當結束治療時需再測量一次病人坐姿血壓，紀錄於透析治療安全確認單，降低病人離室前因姿勢性低血壓造成跌倒風險，確保病人安全。

結論:

藉由整合跨團隊共同照護，強化透析病人水份控制、藥物服用遵從性及正確量體重正確認知，透析護理人員持續接受在職教育訓練及落實標準作業流程執行，降低病人透析過程中低血壓發生率，同時避免因姿勢性低血壓造成跌倒風險，確保病人治療過程安全，提升護理照護品質。

關鍵字: 低血壓、跌倒

C241

Shared Decision Making for dialysis modality selection in the outpatients with late chronic kidney disease: outcome analysis

醫病共享決策對門診末期腎臟病友透析模式之選擇：成果分析

An-Bang Wu[1], Chin-Chung Tseng[1], Yu-Chen Kuo[1,2], and Junne-Ming Sung[1]

吳安邦[1], 曾進忠[1], 郭育甄[1,2], 宋俊明[1]

[1] Division of Nephrology, Department of Internal Medicine, National Cheng Kung University Hospital, Tainan, Taiwan [2] Nursing Department, National Cheng Kung University Hospital, Tainan, Taiwan

[1] 成功大學附設醫院內科部腎臟科 [2] 成功大學附設醫院護理部

Background：

Late CKD patients need to choose the dialysis modality as their future renal replacement therapy. The term "Shared Decision Making" (SDM) was first introduced in the 1982 US patient-centered common welfare program to promote mutual respect and communication between medical and disease. The goal of SDM is to enable physician and patients to share existing medical knowledge prior to making medical decisions, in conjunction with the patient's own Preference and value.

Methods：

Patients who received follow up at the nephrology outpatient clinics of National Cheng Kung University Hospital, had eGFR < 15 mL/min/1.73 m2 are eligible for enrollment. They will perform SDM for their further renal replacement therapy at nephrology outpatient clinics. When they faced end stage kidney disease, we analysis the outcome (final dialysis modality) with initial chosen dialysis modality after doing SDM. The study protocol was approved by the Institutional Review Board of National Cheng Kung University Hospital (A-ER-108-407), and adhered to the Declaration of Helsinki.

Results：

Till now, there were 650 CKD patients performed SDM during OPD follow up. 489 patient chose hemodialysis, 116 patients chose peritoneal dialysis, 19 patients chose kidney transplantation and 22 patients chose hospice care. Among them, 482 patients reaching the ESKD and 415 of them used HD, 60 did PD and the other 7 received kidney transplantation.

Conclusions：

By using Shared Decision Making (SDM) for dialysis modality selection, the outpatient clinics CKD patients can determine the future dialysis mode early. Major of them chose hemodialysis as RRT after doing SDM. In the patients choosing peritoneal dialysis as further RRT, some of them would shift to hemodialysis when they faced the end stage kidney disease.

Key words：

Shared Decision Making