Oral Presentation (Chinese)

December 14, 2024 (Saturday) 09:00 ~ 10:30　　　**Venue：Room 3 (第二講堂)**

【Oral-4】　　Chair(s)：陳呈旭/ Cheng-Hsu Chen、李佳蓉/ Jia-Jung Lee

09:00—09:12
Association of Coronavirus Disease 2019 with Renal Outcomes in Patients with Type 2 Diabetes Mellitus
Tzu-Shan Huang [1], Ho-Hsiang Chang[2], Jo-Yen Chao[1], Wei-Ren Lin[1], Yu-Hsuan Lee[3], Huang-Tz Ou[3], Wei-Hung Lin[1]
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09:12—09:24
Impacts of Right Ventricular Pacing Burden on Renal Outcomes in Patients with CKD and Permanent Pacemaker Implantation.
Shang-En Yeh[1], Chih-Hen Yu[1*], An-Bang Wu[1], Ju-Yi, Chen[2], Chin-Chung Tseng[1], Junne-Ming Sung[1*]
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09:24—09:36
Association between Renal Function and White Matter Hyperintensities in Patients with Chronic Kidney Disease
Feng-Ching Shen[1,2], Yi-Ting Lin[3,4], Ming-Yen Lin[1], Teng-Hui Huang[1], Mei-Chuan Kuo[1,4], Yi-Wen Chiu1,4, Shang-Jyh Hwang[1,4], Ping-Hsun Wu[1,4]
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09:36—09:48
Prognostic Factors Predicting 30-Day Mortality from Ischemic Stroke in Patients with End-Stage Kidney Disease Undergoing Dialysis
Ming-Yuan Ko[1], I-Kuan Wang[1,2]; Tung-Min Yu[2,3]; Tzung-Hai Yen[4,5]; Wei-Chun Wang[6]; Jiann-Shing Jeng[7]; Jiunn-Tay Lee[8]; Yu Sun[9]; Li-Ming Lien[10,11]; Chih-Hsin Muo[12]; Ping-Chin Lai[1]; Fung-Chang Sung[13,14]; Taiwan Stroke Registry Investigator
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09:48—10:00   5. Kidney Outcomes after Transcatheter Aortic Valve Implantation: A Prospective Cohort Study in Taiwan
Li-Chun Lin[1], Ming Ching Lee[2], Chun-Fu Lai[1]
[1] National Taiwan University Hospital, Taipei, Taiwan, [2] Country Hospital, Taipei, Taiwan

10:00—10:12   6. Exploring the Effectiveness of Implementing Focused Ultrasound Skills in Reducing Arteriovenous Fistula Puncture Failure Rates in Hemodialysis
Ya-Ping Chang[1,2], Jo-Mei Huang[1,2], Yuan-Yang Hsu[1,2], Hsin-Yu Liao[1,2], Hsiao-Ting Liao[1,2], Mei-Chen Chou[1,2], Tzu-Yu Chen[1,2], Nai-Chi Kuo[1,2], Ing-Heng Hii[3], Chen-Hao Li[4]
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Association of coronavirus disease 2019 with renal outcomes in patients with Type 2 diabetes mellitus
第二型糖尿病患者感染新型冠狀病毒肺炎後之腎功能與心血管疾病預後探討

Tzu-Shan Huang [1], Ho-Hsiang Chang [2], Jo-Yen Chao[1], Wei-Ren Lin[1], Yu-Hsuan Lee[3], Huang-Tz Ou[3], Wei-Hung Lin[1]
黃子珊 [1], 張賀翔 [2], 趙若雁 [1], 林威任 [1], 李郁萱 [3], 歐凰姿 [3], 林威宏 [1]
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Background：

COVID-19 significantly impacts various organs beyond the respiratory system, particularly in Type 2 diabetic(T2D) patients. However, the long term renal outcomes remains unkown.

Methods：

We used National Cheng Kung University Hospital Academic Research Database to identify T2D patients from 2018/1/1-2022/12/31. Patients with T2D infected with COVID-19 between 2020/1/1-2022/6/30 were the COVID group, and the rest individuals who were diagnosed T2D in 2018 were classified as comparison group. Propensity score balanced group characteristics. Primary outcomes included persistent eGFR <15 mL/min/1.73m² and eGFR reductions of 30%, 40%, and 50%. Cox regression assessed the association between COVID-19 and outcomes, presenting hazard ratios with 95% confidence intervals.

Results：

The study corhort analyzes 867 COVID-19-positive and 867 COVID-19-negative T2D patients after matching. Though it was not stastically different, the COVID-19-positive group showed a higher risk in both eGFR reduction of 30% (HR: 1.245, 95% CI: 0.954–1.621) and all-cause mortality (HR: 1.614 95% CI: 0.945–2.757).

Conclusions：

COVID-19 in T2D patients is associated with increased early mortality and higher risk of early eGFR reductions. Further research is needed to confirm these long-term risks.

Key words：

COVID-19, Diabetes mellitus, Renal outcomes

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Impacts of Right Ventricular Pacing Burden on Renal Outcomes in Patients with CKD and Permanent Pacemaker Implantation.
右心室起搏負荷對於慢性腎病併有永久心臟節律器患者的腎臟預後之影響

Shang-En Yeh[1], Chih-Hen Yu[1*], An-Bang Wu[1], Ju-Yi, Chen[2], Chin-Chung Tseng[1], Junne-Ming Sung[1*]
葉尚恩 [1]，余志恆 [1*]，吳安邦 [1]，陳儒逸 [2]，曾進忠 [1]，宋俊明 [1*]
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Background

Among patients implanted with permanent pacemaker, increased right ventricular (RV) pacing burden is notorious of increasing risk of pacemaker-induced cardiomyopathy (PICM) and other adverse cardiovascular outcomes. However, the effects of RV pacing burden on renal outcome among patients with CKD and permanent pacemaker implantation remain unexplored.

Methods

In this prospective cohort study, adult patients ($\geq$ 18 years old) who were already recruited in our pre-ESRD cohort at the time of permanent pacemaker implantation, and received pacemaker implantation during 2015~2021 were enrolled. The RV pacing burden, recorded from the pacemaker interrogation data, was averaged and transformed logarithmically, referred to as "LogVPP%". RV pacing burden >20% was regarded as high RV pacing burden according to previous studies. The primary outcome was defined by the composite of decline in eGFR more than 40% from baseline, decline in estimated glomerular filtration rate (eGFR) to less than 15 ml/min/1.73 m^2, end-stage renal disease, and death from renal causes. Secondary outcome included all-cause mortality, cardiovascular mortality and other composite outcomes. Survival analysis was conducted.

Results

A total of 117 patients were enrolled in our study, 81 of them having sick sinus syndrome and 36 of them having high-degree AV block as the indication of pacemaker implantation. The median follow-up duration was 4.8 years, and the mean RV pacing percentage was 33.6%. The baseline eGFR had a mean value of 33.1 ± 16.9 mL/min/1.73m², with 57% (67 individuals) on CKD stage 3, 28% (33 individuals) on CKD stage 4, and 15% (17 individuals) on CKD stage 5. Our analysis revealed a statistically significant association between higher LogVPP% and an increased incidence of the primary composite outcome (HR: 1.454, 95% CI: 1.026–2.061, p = 0.036). Patients with an RV pacing percentage greater than 20% had a markedly higher risk of experiencing the primary composite outcome compared to those with an RV pacing percentage below 20% (HR: 1.945, 95% CI: 1.036–3.640, p = 0.038). The detrimental effects of increased LogVPP% were particularly pronounced among patients with advanced CKD (eGFR less than 30 ml per minute per 1.73 m2) at baseline, and patients with sick sinus syndrome being the indication of permanent pacemaker implantation.

Conclusion

Among patients with CKD undergone permanent pacemaker implantation, the higher LogVPP% is associated with a significantly greater risk of a composite of decline in eGFR more than 40% from baseline, decline in eGFR to less than 15 ml/min/1.73 m^2, end-stage renal disease and death from renal causes.

Key words: Ventricular pacing, pacemaker, CKD, renal outcome

Association between Renal Function and White Matter Hyperintensities in Patients with Chronic Kidney Disease
慢性腎病患者腎臟功能與腦部磁振造影白質變化的關聯性

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Background：

Patients with chronic kidney disease (CKD) and ongoing renal function impairment exhibit cognitive deficits. White matter hyperintensities (WMHs), markers of small vessel disease and predictors of cognitive dysfunction, are detectable via brain magnetic resonance imaging (MRI). The Fazekas scale, highlighting parenchymal alterations, provides a quantitative assessment of WMHs. The relationship between renal function status and WMHs severity in CKD patients, however, remains to be elucidated.

Methods：

We conducted a cohort of 1,738 CKD patients at Kaohsiung Medical University Hospital. WMHs were graded using the Fazekas scale, with distinct evaluations for periventricular WMHs and deep WMHs. The severity of CKD was classified by the KDIGO guidelines by eGFR (the Modification of Diet in Renal Disease [MDRD] formula) and the Urine albumin-creatinine ratio (UACR).

Results：

An increase in eGFR is associated with decreased periventricular WMHs with an OR of 0.987 (95% confidence interval [CI]: 0.979-0.994, $p < 0.001$). Compared to patients in UACR stage 1 and the KDIGO low to moderate risk group, those with UACR stage 3 and the KDIGO very high-risk group exhibit a significant increase in periventricular WMHs, with ORs of 1.645 (95% CI: 1.066-2.540, $p = 0.024$) and 1.832 (95% CI: 1.184-2.840, $p = 0.007$), respectively. However, renal function deterioration is not associated with increase deep WMHs severities.

Conclusions：

Renal function impairment is associated with increased severity of periventricular WMHs but not deep WMHs in patients with CKD.

Key words：

Fazekas scale; White matter hyperintensities; Brain MRI; eGFR; UACR; KDIGO risk categories

Prognostic factors predicting 30-day mortality from ischemic stroke in patients with end-stage kidney disease undergoing dialysis

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Background：

This study investigated the prognostic factors associated with 30-day mortality from ischemic stroke in patients on dialysis, using the Taiwan Stroke Registry data.

Methods：

From the registry data, we identified 1316 ischemic stroke (IS) patients with end stage kidney disease (ESKD) undergoing dialysis between 2006 and 2013. Patients deceased within 30-days from IS were identified and compared with survivors. The Cox proportional hazards regression was used to estimate hazard ratios of death associated with demographic status and clinical conditions.

Results：

The 30-day mortality after the acute IS was 2.60 per 1000 person-days (N = 84, 6.38%). The mortality risks were not significantly different between males and females, but increased with age. The significant predictors of deaths included IS due to cardioembolism or undetermined etiology, atrial fibrillation, body mass index (BMI) < 20 kg/m^2, serum total cholesterol level ≥ 160 mg/dL or <120 mg/dL, hemoglobin (Hb) levels < 12 g/dL, and Glasgow coma scale (GCS) < 8 at admission.

Conclusions：

Atrial fibrillation, BMI < 20 kg/m^2, serum total cholesterol level ≥ 160 mg/dL or < 120 mg/dL, and GCS score < 8, Hb < 12 g/dL at admission, and IS due to cardioembolism or undetermined etiology are associated with 30-day mortality from IS in ESKD patients.

Key words：

End-stage kidney disease; ischemic stroke, mortality; risk factors.

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Kidney outcomes after transcatheter aortic valve implantation: a prospective cohort study in Taiwan

經導管主動脈瓣植入後的腎臟預後：台灣的一項前瞻性隊列研究

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Background:

Chronic kidney disease is an independent risk factor of adverse outcomes after transcatheter aortic valve implantation (TAVI). TAVI may bring better renal outcomes while comparing to the conservative treatment. This study aimed to examine the change of estimated glomerular filtration rate (eGFR) decline rate in patient receiving TAVI.

Methods:

This prospective observational cohort study included all patients undergoing TAVI at National Taiwan University Hospital from January 2013 to March 2022. Patients on maintenance dialysis prior to TAVI were excluded. Participants were categorized into two groups based on their pre-TAVI eGFR: ≥60 and <60 mL/min/1.73m^2. eGFR slopes within the two years before and after TAVI were calculated using a linear mixed-effects model.

Results:

A total of 319 patients were enrolled, with a mean (± standard deviation (SD)) age of 82.6 ± 6.9 years and 47.9% being men. Of these, 65.8% had hypertension, 56.0% had moderate to severe aortic valve regurgitation, and 76.7% had NYHA 3 or 4 heart failure. The mean baseline serum creatinine was 1.0 ± 0.06 mg/dl, with 58.9% having eGFR ≥ 60 ml/min/1.73m^2. Linear mixed-effects model showed the eGFR slopes two years before and after TAVI were -5.46 and -4.27 mL/min/1.73 m^2 per year (P = 0.362), respectively, in patient with pre-TAVI eGFR < 60 mL/min/1.73m^2 and +3.42 and -7.02 mL/min/1.73 m^2 per year in patient with pre-TAVI eGFR ≥ 60 mL/min/1.73m^2 (P <0.001).

Conclusions:

This study reveals significant mid-term kidney outcomes in patients undergoing the TAVI procedure. It highlights the need for vigilant monitoring of kidney function and stimulate future researches potentially leading to improvements in patient care and outcomes.

Key words:

Transcatheter aortic valve implantation, kidney

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Exploring the Effectiveness of Implementing Focused Ultrasound Skills in Reducing Arteriovenous Fistula Puncture Failure Rates in Hemodialysis
導入重點式超音波於降低血液透析動靜脈瘻管穿刺失敗率

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Background：

血管通路是病人第二條生命線，每次透析需要扎針兩次，一年至少需扎針 312 次，穿刺的過程對於病人除了疼痛感外，還有可能造成許多合併症，不當的穿刺或穿刺失敗皆會造成血管通路傷害，且亦造成護病關係的磨擦及不信任。重複穿刺失敗對病人產生痛苦導致恐懼、焦慮，造成病人負擔。2022 年同期穿刺失敗率為 0.46%，而單位 2023 年 1-6 月透析業務及失敗件數統計，平均穿刺失敗率上升為 1.01%。因此進行全面品質改善，期望降低血液透析病人動靜脈瘻管穿刺失敗率。

Methods：

首先成立讀書會透過系統性文獻搜尋及期刊閱讀，運用學習理論學習【重點式超音波】導引技術並利用自製擬真訓練模型進行練習。設計個人化血管地圖透過超音波檢視達精準繪圖及精準下針；運用 TRM 手法建構困難穿刺並啟動支援人員協助；建立跨單位討論會進行個案討論及透過重點式超音波輔助確認問題，早期轉介異常瘻管，降低瘻管失能風險。

Results：

1. 成功培訓重點式超音波導引穿刺種子教師 4 位，操作超音波輔助成功上針為 277 人次，成功率 98.57%(277/281)。

2. 導入 TRM 手法建構困難穿刺啟動支援人員協助流程，救援達 100%

3. 血液透析病人動靜脈瘻管穿刺失敗率從 1.01%降低至 0.58%。

4. 透過超音波檢視已建立穿刺隧道共(6 位)，降低穿刺疼痛。

病人整體滿意度升至 94.86%

Conclusions：

護理師遇到困難穿刺瘻管時，可利用【重點式超音波引導穿刺技術】提高技術信心，提升病人對血液透析治療的信心，降低病人恐懼、增進護病關係、及協助維持良好的透析品質。

Key words：

重點式超音波導引、動靜脈瘻管穿刺、困難穿刺