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Perspectives on implementing precision medicine in diabetic kidney disease

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Diabetic kidney disease (DKD) is a leading cause of chronic kidney disease and end-stage renal disease, posing significant global health and economic burdens. Traditional management of DKD relies on standardized approaches, which often fail to account for the complexity of individual patient profiles.

Precision medicine leverages individualized patient data—spanning genetic, proteomic, metabolic, and clinical information—to optimize diagnosis, risk assessment, and therapeutic interventions. However, translating this paradigm into clinical practice presents significant challenges and opportunities.

This presentation focuses on the practical aspects of integrating precision medicine into DKD management. Key themes include the role of genetic and epigenetic biomarkers in risk stratification, the integration of multi-omics data with machine learning for predictive modeling and the design of personalized treatment regimens using tools such as pharmacogenomics.

By examining real-world implementation strategies and overcoming barriers, this presentation aims to guide healthcare providers, researchers, and policymakers toward a sustainable and patient-centered precision medicine framework for DKD.