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在挑戰中尋找契機：慢性腎臟病治療新里程與轉譯醫學前沿進展

New Milestones in Chronic Kidney Disease Treatment and Breakthroughs

時　　間：114 年 6 月 29 日(星期日) 08:30~12:00
地　　點：臺北榮民總醫院 致德樓第二會議室

08:30-08:35	***Opening Remarks***	唐德成部長 Der-Cherng Tarng
	座長：楊智宇 醫師 (Chih-Yu Yang)	
08:35-09:15	新目標，新希望-IgA 腎病治療新進展 Recent Advances and Updates in the Treatment of IgA Nephropathy	謝靜遠主任 Jing Yuan Xie (中國)
09:15-09:55	慢性腎病照護策略最新進展 Advancing Strategies for CKD Care	蔡尚峰主任 Shang-Feng Tsai
10:00-10:25	***Coffee Break***	
10:25-10:30	***Opening of the Second Session***	林志慶主任 Chih-Ching Lin
	座長：黎思源 醫師 (Szu-yuan Li)	
10:30-11:10	單側腎切除後腎臟代償增生機轉 Signaling Mechanisms in Renal Compensatory Hypertrophy Revealed by Multi-Omics	Hiroaki Kikuchi (日本)
11:10-11:50	慢性腎臟病與飲食控制：調節腸道微生物群及其對疾病進展的影響 Chronic Kidney Disease and Dietary Management: Regulation of Gut Microbiota and Its Impact on Disease Progression	吳柏姍主任 Po-Shan Wu

Recent advances and updates in the treatment of IgA nephropathy

新目標，新希望 -IgA 腎病治療新進展

Jing Yuan Xie

謝靜遠

Department of Nephrology, Institute of Nephrology, Shanghai Ruijin Hospital; Shanghai Jiao Tong University School of Medicine, Shanghai, China

上海瑞金醫院 腎臟科；上海交通大學 醫學院 腎臟病研究所

IgA nephropathy (IgAN) is a common cause of chronic kidney disease, particularly in Asia, and is a leading cause of end-stage kidney disease (ESKD) in high-risk patients. The disease is driven by increased production of galactose-deficient IgA1 (Gd-IgA1), primarily originating from the gut. Nefecon (TARPEYO), a novel oral delayed-release formulation of budesonide, is designed to target mucosal immunity in the gut—specifically the gut-associated lymphoid tissue such as Peyer's patches—to reduce Gd-IgA1 production, a key pathogenic driver in IgAN.

While previous clinical trials have demonstrated Nefecon's efficacy in patients with moderate kidney function, its impact on those with more advanced renal impairment remains unclear. To address this gap, we conducted a real-world study evaluating the safety and efficacy of Nefecon in 11 patients with primary IgAN and significantly reduced kidney function. All patients were on stable renin-angiotensin system blockade prior to treatment, and outcomes were compared to a matched control group receiving standard care. The primary endpoints included changes in proteinuria, kidney function, and safety over a 9-month treatment period.

Nefecon treatment was associated with a notable reduction in proteinuria, with more significant improvement than the control group. Kidney function remained generally stable throughout the treatment course, and proteinuria slope analysis further supported the drug's antiproteinuric effect. The drug was well tolerated, with common but manageable side effects and no serious or unexpected adverse events reported.

These findings suggest that Nefecon may be a viable treatment option for IgAN patients with advanced kidney disease. Although the short-term results are promising, further studies with longer follow-up are needed to confirm its long-term renal protective effects and safety in this high-risk population.

Advancing strategies for CKD care

慢性腎病照護策略最新進展

Shang-Feng Tsai
蔡尚峰
Department of Digital Medicine,Taichung Veterans General Hospital, Taichung, Taiwan, ROC
臺中榮民總醫院 數位醫學部

Anemia is a common and serious complication of chronic kidney disease (CKD), affecting both dialysis and non-dialysis patients. It significantly impairs quality of life, increases the risk of cardiovascular morbidity and mortality, and represents a major challenge in the comprehensive management of CKD. While traditional treatment with erythropoiesis-stimulating agents (ESAs) and iron supplementation has been the mainstay of care, these approaches come with limitations and potential safety concerns. In recent years, a new class of oral agents—hypoxia-inducible factor prolyl hydroxylase inhibitors (HIF-PHIs)—has emerged, offering an innovative and potentially safer strategy for correcting anemia in CKD.

Vadadustat works by stabilizing hypoxia-inducible factor (HIF), thereby stimulating the transcription of endogenous erythropoietin and enhancing iron utilization through multiple mechanisms. This mode of action mimics the body's natural response to hypoxia, promoting a more physiologic erythropoietic process. Importantly, vadadustat also improves iron metabolism by increasing the expression of genes involved in iron absorption and transport, such as transferrin and divalent metal transporter-1 (DMT1), while reducing levels of hepcidin, a key inhibitor of iron availability. Clinical trials evaluating vadadustat in both dialysis-dependent and non–dialysis-dependent CKD populations have shown it to be effective in maintaining hemoglobin levels within target ranges. In patients on dialysis, vadadustat has demonstrated non-inferiority to darbepoetin alfa in terms of efficacy. In non-dialysis patients, although efficacy was comparable, cardiovascular safety signals differed slightly depending on geographic regions and patient subgroups. These findings highlight the importance of individualized treatment considerations and the need for further real-world data.

One of the major advantages of vadadustat is its oral administration, which offers a convenient and less invasive option compared to injectable ESAs. This can be particularly beneficial in non-dialysis patients who are managed in outpatient or home-based settings. In addition, vadadustat may reduce the dependence on intravenous iron, thereby simplifying treatment protocols and potentially lowering the risk of iron overload and infection. As the treatment landscape for CKD-related anemia continues to evolve, vadadustat represents a promising step forward. It aligns with the current paradigm shift towards more holistic, patient-centered care—focusing not just on correcting lab values but also on improving long-term outcomes and quality of life. With its oral route, physiologic mechanism of action, and potential for better iron handling, vadadustat offers a novel tool in our therapeutic arsenal. This presentation will explore the pathophysiological rationale, key clinical trial data, and practical considerations for integrating vadadustat into CKD anemia management. It will also address remaining challenges, including patient selection, monitoring strategies, and potential future directions. Ultimately, unlocking the full potential of vadadustat requires not only clinical insight but also a commitment to advancing individualized, evidence-based care in nephrology.

Signaling mechanisms in renal compensatory hypertrophy revealed by multi-omics

單側腎切除後腎臟代償增生機轉

Hiroaki Kikuchi

Department of Nephrology, Tokyo Medical and Dental University, Tokyo, Japan

日本東京醫科齒科大學 腎臟內科

After unilateral nephrectomy, compensatory hypertrophy occurs in the remaining kidney. This phenomenon has significant clinical relevance, but its molecular mechanisms remain unclear. In this study, a unilateral nephrectomy model in male mice was used, combined with multi-omics analyses, to explore the signaling pathways associated with compensatory renal hypertrophy. The results showed that the lipid-activated transcription factor peroxisome proliferator-activated receptor alpha (PPARα) participates in regulating cell size within proximal tubule cells and may be a key factor in promoting compensatory hypertrophy. Using various methods, including ATAC-seq, RNA-seq, quantitative proteomics, and renal lipidomics, it was found that PPARα activity increased within proximal tubules following unilateral nephrectomy. The PPAR family consists of ligand-activated nuclear hormone receptors belonging to the steroid receptor superfamily. Although multi-omics data support the activation of PPARα after unilateral nephrectomy, a direct causal role in the process of cellular hypertrophy could not be immediately established. PPARα was found to be a critical molecule in regulating kidney size and align with the compensatory renal hypertrophy mechanisms revealed by the multi-omics analyses. The findings were also compared and discussed in relation to existing literature.

Chronic kidney disease and dietary management: Regulation of gut microbiota and its impact on disease progression

慢性腎臟病與飲食控制：調節腸道微生物群及其對疾病進展的影響

Po-Shan Wu

吳柏姍

Division of Clinical Nutrition, Department of Dietetics& Nutrition,Taipei Veterans General Hospital, Taipei, Taiwan, ROC

臺北榮民總醫院 營養部 臨床營養科

The gut microbiome is a complex ecosystem of microorganisms, consisting of a variety of bacteria that can have both beneficial and harmful effects on human health. In recent years, the microbiome has garnered significant attention for its pivotal role in various aspects of health and disease. In the context of chronic kidney disease (CKD), an increase in urea concentration can lead to significant changes in the intestinal microbiota. These alterations can promote the production of gut-derived toxins and impair the intestinal epithelial barrier, both of which contribute to the acceleration of kidney injury. A range of strategies have been proposed to address this pathway and prevent further kidney damage in CKD. The purpose of this session is to summarize the role of the gut microbiome in CKD, tools used to study this microbial population, and attempts to alter its composition for therapeutic purposes.