台灣腎臟醫學會
107 年度會員大會暨學術演講會

時　間：民國 107 年 12 月 8 日至 9 日
地　點：長庚大學第二醫學大樓

107 年 12 月 8 日(星期六)

特別演講

【CKD】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:00
地點：B1 國際會議廳

從社區出發：慢性腎病高危險群篩檢與防治
Prevention of CKD: from Community Perspective

主持人：蔡啟仁 陳永昌

13:30-14:15 What can we do for CKD prevention in the Community?
吳逸文 醫師
基隆長庚紀念醫院 腎臟科

14:15-14:30 Vitamin D deficiency in northern Taiwan-A Community based Cohort Study
李進昌 醫師
基隆長庚紀念醫院 腎臟科

14:30-14:45 The association between family history of CKD, disease awareness and renal outcome in CKD patients: A community based Cohort Study
許恆榮 醫師
基隆長庚紀念醫院 腎臟科

14:45-15:00 Clinical association between the metabolite of healthy gut microbiota, 3-indolepropionic acid and chronic kidney disease : a community base study
孫樵隱 醫師
基隆長庚紀念醫院 腎臟科

特別演講

【Basic Nephrology】

時間：107 年 12 月 8 日(星期六) 15:30 ~ 17:00
地點：B1 國際會議廳

Pathogenesis and mechanism of renal fibrosis

主持人：宋俊明 陳永銘

15:30-16:00 Physiology and Pathophysiology of Kidney Pericytes
林水龍 醫師
台大醫院 腎臟科

16:00-16:30 Mechanobiology of chronic kidney fibrosis: mechanism of myofibroblast activation
湯銘哲 教授
成功大學醫學院

16:30-17:00 Role of mitochondria
宋俊明 醫師
成大醫院 腎臟科

【Genetics in Kidney Disease】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 16:40
地點：B1 會議廳(一)

主持人：林石化 蔡政道

13:30 ~ 14:00 Advance in Genetic Diagnostic Tools for Precision Medicine in Kidney Disorders : Demonstration from inherited hypokalemic renal tubule channelopathy
楊松昇 醫師
三軍總醫院 腎臟科

14:00 ~ 14:40 Learning from Fabry disease
Screening Tools and Clinical Clues
吳志仁 醫師
馬偕醫院 腎臟科
Genetic diagnosis
簡穎秀 醫師
台大醫院 小兒科

14:40 ~ 15:00 Learning from AD**T**KD
林承叡 醫師
馬偕醫院 腎臟科

15:00 ~ 15:20 Leaning from AD**P**KD
張明揚 醫師
林口長庚醫院 腎臟科

15:20 ~ 15:30 Coffee Break

15:30 ~ 16:00 How to approach inherited renal tubular disorders: from Clinical Clues to Genetic Diagnosis
曾敏華 醫師
林口長庚醫院 小兒腎臟科

16:00 ~ 16:30 The application of next generation sequencing in the diagnosis of pediatric kidney diseases
蔡宜蓉 醫師
台大醫院 小兒腎臟科

16:30 ~ 16:40 Panel Discussion

【Kidney Pathology】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:00
地點：B1 會議廳(二)

腎臟病理切片案例報告
Renal pathology case reports

主持人：徐國雄 陳安

13:30 ~ 13:40 Annual report of Taiwan kidney biopsy registration
張志宗 醫師
中國醫藥大學附設醫院 腎臟科

13:40 ~ 14:00 Minimal change disease with AKI
文美卿 醫師
台中榮民總醫院 病理部

14:00 ~ 14:20 Focal segmental glomerulosclerosis
陳泰迪 醫師
林口長庚醫院 病理部

14:20 ~ 14:40 Membranous glomerulopathy
黃純真 醫師
高雄長庚醫院 病理部

14:40 ~ 15:00 IgA Nephropathy
陳安 醫師
三軍總醫院 病理部

【Epidemiology】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 14:30
地點：B1 會議廳(三)

主持人：黃秋錦

主講人：Peter Kotanko, MD
Adjunct Professor of Medicine, Nephrology
Icahn School of Medicine at Mount Sinai Hospital, New York, USA

題　目：Predictive analytics in hemodialysis: where do we stand?

*本節目由台灣費森尤斯醫藥(股)公司及香港商安馨(股)公司台灣分公司贊助

【TWRDS】

時間：107 年 12 月 8 日(星期六) 15:30 ~ 17:00
地點：B1 會議廳(三)

Annual Report on Kidney Disease in Taiwan: From Data to Action

主持人：黃尚志 許永和

15:30 ~ 15:35 Opening
許志成 教授
國家衛生研究院

15:35 ~ 15:55 Burden of CKD care: current status, challenge, and perspective
林明彥 博士
高雄醫學大學附設中和紀念醫院

15:55 ~ 16:15 Choice of renal replacement therapy: from SDM to Hospice
吳美儀 醫師
衛生福利部雙和醫院 腎臟科

16:15 ~ 16:35 Epidemiology and outcomes of AKI: across cohorts, AKD, and AKI-D
陳佑瑋 醫師
衛生福利部雙和醫院 腎臟科

16:35 ~ 16:55 Medication use in patients with kidney disease: should or should not
鄒居霖 醫師
衛生福利部雙和醫院 腎臟科

16:55 ~ 17:00 Closing
吳麥斯 醫師
衛生福利部雙和醫院 腎臟科

【Pediatric CKD】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:00
地點：1 樓 103 教室

兒童慢性腎臟病知多少
Chronic Kidney Disease in Children

主持人：林清淵 邱益煊

13:30 ~ 14:00　兒童慢性腎臟病之臨床表徵與併發症
Clinical characteristics and prevalence of complications of chronic kidney disease in children
周信旭　醫師
嘉義基督教醫院 小兒腎臟科

14:00 ~ 14:30　簡介台灣兒童慢性腎臟病之三段五級防治
The primary，secondary and Tertiary prevention scheme for children at risk of chronic kidney disease in Taiwan
林清淵　醫師
中國醫藥大學附設兒童醫院 小兒腎臟科

14:30 ~ 15:00　兒童慢性腎臟病防治:我們開始的夠早嗎?
Prevention of Chronic Kidney Disease in Children: Are We Starting Early Enough?
田祐霖　醫師
高雄長庚醫院 小兒腎臟科

【AKI】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:20
地點：1 樓 107 教室

Frontiers in AKI

主持人：陳靖博 吳允升

13:30 ~ 13:35 Opening: Nephrologists should be consulted for all cases of AKI in the ICU.

13:35 ~ 13:50 No, it is not required
黃彥達 醫師
花蓮慈濟醫院 急重症部

13:50 ~ 14:05 We are not sure
哈多吉 醫師
輔仁大學附設醫院 急重症部

14:05 ~ 14:20 Yes , absolutely
蕭志忠 醫師
羅東聖母醫院 腎臟科

14:20 ~ 14:40 Preventing AKI in the ICU: current guideline
張智翔 醫師
林口長庚醫院 腎臟科

14:40 ~ 15:00 Critical Care nephrology :Literature review
賴台軒 醫師
台大醫院 腎臟科

15:00 ~ 15:20 台灣急性腎損傷整體防治計畫說明暨 2000-2015 全國 AKI-D 流行病學
陳進陽 醫師
台北榮民總醫院 腎臟科

【AKI Workshop】

(實物實例-小組討論)

時間：107 年 12 月 8 日(星期六) 15:30 ~ 17:00
地點：1 樓 103、107、108、110 教室

AKI consensus of Taiwan workshop

主持人：陳永昌 陳進陽

15:30 ~ 15:35 Introduction (103 教室)
陳永昌 醫師
基隆長庚醫院 腎臟科

103 教室 Renal replacement therapy (RRT) in acute kidney injury
潘恆之 醫師
基隆長庚醫院 腎臟科

107 教室 Coupled plasma filtration adsorption (CPFA) and polymyxin B hemoperfusion in severe sepsis
黃俊德 醫師
台中榮民總醫院 腎臟科

108 教室 Hematologic, neurologic, renal, rheumatic, and metabolic disorders for therapeutic apheresis
楊雅斐 醫師
中國醫藥大學附設醫院 腎臟科

110 教室 Liver dialysis
黃道民 醫師
台大醫院 腎臟科

【Sonography】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:00
地點：1 樓 108 教室

重點式超音波(POCUS)在腎臟醫學的整合性應用
Integrated Application of Point-of-Care Ultrasound (POCUS) in Clinical Nephrology

主持人：方基存 吳義勇

13:30 ~ 14:00 POCUS as hemodynamic monitoring tools for renal patients
孫仁堂 醫師
亞東紀念醫院 急診部

14:00 ~ 14:30 Utilizing POCUS protocols to approach critical ill renal patients
蔡宏斌 醫師
台大醫院 內科部整合醫學科

14:30 ~ 15:00 Using POCUS as diagnostic tools for ACKD patients with related complications
劉守璿 醫師
林口長庚醫院 腎臟科

【Nutrition】

時間：107 年 12 月 8 日(星期六) 13:30 ~ 15:00
地點：1 樓 110 教室

Post-ICRNM

13:10 ~ 13:20 Opening remarks
唐德成 醫師
台北榮民總醫院 腎臟科

主持人：唐德成
13:20 ~ 13:45 Dysbiotic gut microbiota and uremic toxins: Clinical implications in CKD
楊智宇 醫師
台北榮民總醫院 腎臟科

主持人：李建德
13:45 ~ 14:10 Protein-Energy Wasting in Chronic Kidney Disease
姜至剛 醫師
台大醫院 腎臟科

主持人：林石化
14:10 ~ 14:35 Nutritional Management in CKD
吳家兆 醫師
三軍總醫院 腎臟科

14:35 ~ 14:55 Panel discussion

14:55 ~ 15:00 Closing remarks
唐德成 醫師
台北榮民總醫院 腎臟科

*本節目由台灣費森尤斯卡比(股)公司贊助

Lunch Symposium

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 1】 地點：B1 國際會議廳

主持人：吳志仁 方德昭

12:20 ~ 12:40 An update from technological perspectives on the Body Composition Monitor in HD and PD patients
Dr. Ulrich Moissl
Therapy Program Director for Fluid management and BCM-Body composition monitor

12:40 ~ 13:05 Recent Advances in Research of Body Composition and Outcomes in CKD
洪思群 醫師
台北慈濟醫院 腎臟科

13:05 ~ 13:10 Q&A and Closing

*本節目由台灣費森尤斯醫藥股份有限公司贊助

【Lunch Symposium 2】 地點：B1 會議廳(一)

主持人：吳麥斯

12:20 ~ 13:10 Approaches to Diagnosis and Management in Ahus
Dr. Carla Marie Nester
University of Iowa Stead Family Children's Hospital

*本節目由台灣瑞頌有限公司贊助

【Lunch Symposium 3】 地點：B1 會議廳(二)

主持人：吳寬墩

12:20 ~13:10 The Rise of HDx
Professor Laurent Juilliard
Head of the Department of Nephrology, Hospices Civils de Lyon, Lyon.

*本節目由百特醫療產品股份有限公司贊助

【Lunch Symposium 4】 地點：B1 會議廳(三)

主持人：陳漢湘

12:20 ~13:10 Update treatment of Lupus Nephritis
陳一銘 醫師
台中榮民總醫院 過敏免疫風濕科

*本節目由羅氏大藥廠股份有限公司贊助

Lunch Symposium

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 5】 地點：1 樓 107 教室

主持人：方華章

12:20 ~13:10 SGLT2 inhibitors and renal outcomes in type 2 diabetes --與健康存摺的未來
陳進陽 醫師
台北榮民總醫院 腎臟科

*本節目由台灣百靈佳殷格翰股份有限公司贊助

【Lunch Symposium 6】 地點：1 樓 108 教室

主持人：張浤榮

12:20 ~12:25 Opening

12:25 ~13:00 New PARADIGM in Heart Failure Patients with Renal Impairment
鄭本忠 醫師
高雄長庚醫院 腎臟科

13:00 ~13:10 Discussion

*本節目由台灣諾華股份有限公司贊助

【Lunch Symposium 7】 地點：1 樓 110 教室

主持人：黃尚志 張哲銘

12:20 ~12:45 Benefits of supplemented LPD: From CKD to ESRD
張智翔 醫師
林口長庚醫院 腎臟科

12:45 ~13:00 Sharing of experience in renal nutrition studies
高芷華 醫師
輔仁大學附設醫院 腎臟科

13:00 ~13:10 Discussion

*本節目由台灣費森尤斯卡比股份有限公司贊助

107 年 12 月 9 日(星期日)

時間：8:20 ~ 11:30 **地點：B1 國際會議廳**

International Symposium I 特別演講

【Electrolytes】

08:20 ~ 08:30 Welcome Remarks for International Symposium
盧國城 理事長
陳金順 秘書長
台灣腎臟醫學會

主持人：林石化
08:30 ~ 09:00 A New Look at an Old Issue: the Anti-hypertensive Effect of Potassium-Rich Diet
鄭智仁 醫師
三軍總醫院 腎臟科

International Symposium II
JSDT, KSN, TSN Joint Symposium

09:00 ~ 09:10 Opening Remarks for symposium
楊智偉 院長
長庚大學 醫學院

主持人：林裕峰
09:10 ~ 09:40 Transition from CKD to ESRD—The role of AKI in Taiwan
黃尚志 醫師
高雄醫學大學附設中和紀念醫院 腎臟科

09:40 ~ 09:50 Break

主持人：黃秋錦
09:50 ~ 10:40 Current status of CKD in Korea
Dr. Yon Su Kim
President, Korean Society of Nephrology

Obesity and CKD in Korea
Dr. Jung Tak Park
Yonsei University Hospital, Korea

主持人：陳鴻鈞
10:40 ~ 11:10 Brain atrophy and congnitive impairment in chronic kidney disease
Professor Kazuhiko Tsuruya
Nara Medical University, Japan

International Symposium III
Memorandum of Understanding Signing Ceremony

11:10 ~ 11:20 Closing Remarks
盧國城 理事長
台灣腎臟醫學會

11:20 ~ 11:30 JSDT, KSN, TSN MOU 簽約儀式

Dr. Hidetomo Nakamoto
President, Japanese Society for Dialysis Therapy

Dr. Yon Su Kim
President, Korean Society of Nephrology

盧國城 醫師
台灣腎臟醫學會 理事長

合辦單位 : 財團法人陳萬裕教授學術基金會

【Dialysis】

時間：107 年 12 月 9 日(星期日) 9:30 ~ 11:00
地點：B1 會議廳(一)

血液透析室的感染管制
Infectious control in hemodialysis

主持人：黃政文

09:30 ~ 10:00　透析用 RO 水的管理與監測
Management and Monitoring of water treatment in hemodialysis
許景瑋 醫師
林口長庚醫院 腎臟科

10:00 ~ 10:30　血液透析室病毒性肝炎感染管制措施
Infection Prevention of Viral Hepatitis in Hemodialysis Units
鄔豪欣 醫師
疾病管制署

10:30 ~ 11:00　血液透析病人病毒型肝炎的治療
Treatment of viral hepatitis in hemodialysis patients
劉俊人 醫師
台大醫院 胃腸肝膽科

【AKI】

時間：107 年 12 月 9 日(星期日) 11:00 ~ 11:30
地點：B1 會議廳(一)

主持人：葉育彰 吳允升

主講人：Professor Can Ince
Dept. of Intensive Care, Erasmus Medical Centre. The Netherlands.

題　目：The kidney is out of breath in Acute Kidney Injury

【Smart Healthcare】

時間：107 年 12 月 9 日(星期日) 13:30 ~ 16:30
地點：B1 國際會議廳

第一屆台灣透析醫療資訊系統博覽會

主持人：陳金順 陳進陽

13:30~13:35 台灣腎臟醫學會盧國城理事長致詞

13:35~13:40 財團法人中華民國對外貿易發展協會葉明水秘書長致詞

13:40~14:00 Essential Function of a Dialysis IT System – Perspectives from TSN
陳金順 秘書長
台灣腎臟醫學會

14:00~14:20 Electronic Alert and Multidisciplinary Care for in-Hospital AKI in Taiwan- a National Campaign and Asia-Pacific Regional Outlook
陳進陽 秘書長
亞太腎臟醫學會 AKI Committee

14:20~14:40 以可靠度方法，降低洗腎機維修成本
陳始明 教授
長庚大學 可靠度科學技術研究中心

14:40~15:00 長庚醫院透析資訊系統的現況、挑戰及展望
張智翔 醫師
林口長庚醫院 腎臟科

15:00~15:20 以人工智慧預測透析中之血壓變化
吳志仁 醫師
馬偕紀念醫院 腎臟科

15:20~15:40 台中榮民總醫院血液透析系統智能化經驗分享
吳明儒 醫師
台中榮民總醫院 腎臟科

15:40~15:50 Q&A

15:50~16:30 廠商設計理念分享
馬雅資訊 黃崇益總經理
光田醫院資訊室 悅康科技 林政杰主任
Fresenius Medical Care 黃淇恆處長
Baxter 林志旭處長

合辦單位:財團法人中華民國對外貿易發展協會
協辦單位:長庚大學管理學院

【Transplant】

時間：107 年 12 月 9 日(星期日) 13:30 ~ 15:00
地點：B1 會議廳(一)

腎臟移植新知介紹-腎臟科醫師的觀點
Update for kidney transplantation: Perspective form transplant nephrology

主持人：吳明儒 田亞中

13:30 ~ 14:00 Beyond standard criteria donor: Perspective from Transplant nephrologist on expanding donor and circulatory collapse deceased donor
吳采虹 醫師
台北榮民總醫院 腎臟科

14:00 ~ 14:30 Moving forward to highly sensitized kidney transplantation Across the barrier of ABOi , Donor specifics antibody and Cross Match positive.
游棟閔 醫師
台中榮民總醫院 腎臟科

14:30 ~ 15:00 Combat against the foe in renal recipient: BK virus, HCV and CMV
郭弘典 醫師
高雄醫學大學附設中和紀念醫院 腎臟科

【Ethics】

時間：107 年 12 月 9 日(星期日) 15:10 ~ 16:10
地點：B1 會議廳(一)

主持人：林裕峰 朱宗信

主講人：胡賦強 博士
國際哈佛(統計)科技顧問有限公司負責人

題　目：Will Artificial Intelligence Change Decision-Making Algorithms in Dialysis? Yet, Who Is Responsible When It Goes Wrong?

【Vascular Access】

時間：107 年 12 月 9 日(星期日) 13:30 ~ 16:35　　地點：B1 會議廳(二)

台灣基層透析協會主辦

主持人：鄭集鴻

13:30 ~ 14:00　Present status of dialysis therapy in Japan
中元秀友 理事長
日本透析治療學會

14:00 ~ 14:30　超音波導引下的球囊擴張
Echo-guided PTA
野口智永 醫師
吉祥寺朝日醫院

14:30 ~ 14:50　以流速為基礎的血管通路照護
Access flow-based vascular care
吳重寬 醫師
新光吳火獅紀念醫院

14:50 ~ 15:10　球囊擴張促自體動靜脈瘻管成熟
Ballon-assisted maturation of AVF
游勝越 醫師
林口長庚紀念醫院 心臟血管外科

15:10 ~ 15:30　血管通路的血管腔內治療
Endovascular treatment for vascular access dysfunction
張兼華 醫師
嘉義大林慈濟醫院 心臟血管外科

15:30 ~ 15:50　血管通路的合併症治療
Management of vascular access complications (steal, aneurysm, infection…)
謝炯昭 醫師
高雄醫學大學附設中和紀念醫院 心臟血管外科

15:50 ~ 16:10　血管通路栓塞的即刻救援
Emergent management of AVF or AVG occlusion
甘宗旦 秘書長
台灣血管外科學會

16:10 ~ 16:30　中心靜脈狹窄阻塞的最新治療
Management of symptomatic central vein occlusive disease
林佳勳 理事長
台灣血管外科學會

16:30 ~ 16:35　摸彩
鄭集鴻 理事長
台灣基層透析協會

【Toxicology】

時間：107 年 12 月 9 日(星期日) 13:30 ~ 15:15
地點：B1 會議廳(三)

Target therapy-induced target organ toxicity: focusing on nephrotoxicity

主持人：姜至剛 顏宗海

13:30 ~ 13:35 Opening
姜至剛 醫師
台大醫院 腎臟科

13:35 ~ 14:05 Target therapy in clinical practice: indications and side effect overview
李克仁 醫師
台大醫院 內科

14:05 ~ 14:35 Target therapy induced organ toxicity: dermatologist perspective
詹智傑 醫師
台大醫院 皮膚科

14:35 ~ 15:05 Target therapy induced organ toxicity: nephrotoxicity at a glance
趙家德 醫師
台大醫院 腎臟科

15:05 ~ 15:15 Discussion and Closing Remarks

【SDM】

時間：107 年 12 月 9 日(星期日) 15:30 ~ 16:30
地點：B1 會議廳(三)

從健康識能到醫病共享決策
Health literacy and Shared decision making

主持人：邱怡文

15:30 ~ 15:55　推動台灣慢性腎臟病防治計畫策略之一:從健康識能到醫病共享決策
Strategies to promote prevention of kidney diseases: Health literacy and Shared decision making
黃尚志 醫師
高雄醫學大學附設中和紀念醫院 腎臟科

15:55 ~ 16:10　從腎臟照護出發:健康識能之實務應用
Health Literacy: Practical Application in renal care
蕭佩妮 腎臟照護衛教師
高雄醫學大學附設中和紀念醫院

16:10 ~ 16:25　從腎臟照護出發:醫病共享決策之臨床導入與優化
Advance Care Planning and Shared decision making for CKD patients
蕭仕敏 腎臟照護衛教師
高雄醫學大學附設中和紀念醫院

16:25 ~ 16:30　綜合討論

Lunch Symposium

時間：107 年 12 月 9 日(星期日) 12:20 ~ 13:10

【Lunch Symposium 1】 地點：B1 國際會議廳

主持人：林俊良

12:20 ~ 13:10 從 KDIGO Guideline 最新治療趨勢談磷結合劑的選擇
林承叡 醫師
馬偕紀念醫院 腎臟科

*本節目由賽諾菲股份有限公司贊助

【Lunch Symposium 2】 地點：B1 會議廳(一)

主持人：盧國城

12:20 ~ 12:25 Opening

12:25 ~ 13:05 Cardiac and renal protective effects of urate-lowering therapy: target uric acid for hyperuricemia and gout
Professor Roberto Pontremoli
University of Genoa, Italy

13:05 ~ 13:10 Panel discussion and closing

*本節目由台灣安斯泰來製藥股份有限公司贊助

【Lunch Symposium 3】 地點：B1 會議廳(二)

主持人：吳明儒

12:20 ~ 13:10 Elbasvir/Grazoprevir in the Treatment of HCV-Infected Patients with Severe Renal Impairment
劉振驊 醫師
台大醫院 胃腸肝膽科

*本節目由美商默沙東台灣分公司股份有限公司贊助

【Lunch Symposium 4】 地點：B1 會議廳(三)

主持人：洪冠予

12:20 ~ 13:10 Nutrition Strategy for PEW in CKD Patients
唐德成 醫師
台北榮民總醫院 腎臟科

*本節目由台灣費森尤斯卡比股份有限公司贊助

特別演講

【CKD】-1

What can we do for CKD prevention in the Community?

I-Wen Wu, MD

Department of Nephrology, Chang Gung Memorial Hospital, Keelung, Taiwan

The high incidence and prevalence of End Stage Renal Disease (ESRD) in Taiwan cause impairment of quality of life to patients and significant socio-economic impact in the community. The Chronic Kidney Disease (CKD) is a detectable and treatable disease that deserves especial medical and socio-epidemiological attention to prevent the progression to ESRD. Taiwan has the highest prevalence of ESRD worldwide. The national estimate prevalence of CKD is 11.9%, that is very similar to our present cohort. In spite of vigorous national preventive program to combat the burden of disease; however, most of them were targeted to those patients who have access to the medical system. A significant proportion of asymptomatic patients have been largely neglected from disease prevention. They eventually lost the golden time for lifestyle and medical intervention to revert their renal function loss at early and reversible stage of disease. Reach-out to these patients in the community represents an important task for identification of patients at risk.

Factors inherent to the host and environments are important components for early prevention of disease and these factors can only be approached from population-based cohort studies. Because of the indolent and progressive nature of CKD, exploration of factors associated with the development of progression of disease remains mandatory. In this community study, we established a stable population-cohort, performed screening on the risks of CKD, delivered health knowledge education and provided timely referral to medical system. Habitants aged greater than 20 years of four regions of Northeast Coast of Taiwan (Keelung, Ruenfan, Wanli, Kongliao) were invite to participate in the program. The aims of the present study were: (1) to explore risk factors associated with CKD, (2) to investigate mechanistic mediators for development of CKD and the role of multidisciplinary education on behavioral, physiological, immune and omics aspects, (3) to increase health literacy of habitants and establish multidisciplinary care model in the community, (4) to provide bio-specimen repository for future study.

特別演講
【CKD】-2

Vitamin D deficiency in northern Taiwan-A Community based Cohort Study

李進昌 醫師
基隆長庚醫院 腎臟科

Vitamin D deficiency is more common than previously thought and has become a major public health issue in modern society. Many population-based studies had been performed previously. However, most of the studies are performed in temperate countries. Studies in subtropics regions were less common. Because the prevalence of vitamin D deficiency varied significantly in different countries and populations, investigating the prevalence and associated sociodemographic factors of vitamin D deficiency in subtropics countries is needed.

Therefore, we evaluated the levels of vitamin, questionnaires about personal habit, and also several demographic and laboratory data from a large sample size of non-chronic kidney disease individuals in Keelung, a northern city in Taiwan lies at latitude of 25N08'00”, to examine the prevalence and sociodemographic factors independently associated with vitamin D levels.

We will show the result in this presentation.

特別演講
【CKD】-3

The association between family history of CKD, disease awareness and renal outcome in CKD patients: A community based Cohort Study

許恆榮 吳逸文 孫樵隱 李進昌 陳永昌
基隆長庚醫院 腎臟科

The prevalence of chronic kidney disease (CKD) in Taiwan is high. But awareness of CKD in general population is very low. Timely referral to nephrologists is helpful for those CKD patients with reducing progression and treatment costs. It promotes the purpose for community screening of renal dysfunction. In our community experience, we found the CKD prevalence is around 20%. However, lots of those CKD patients didn't receive regular following up or screening due to personal reasons. The characteristics and clinical prognosis of those CKD patients without awareness of CKD are unknown. Besides, family history of CKD is a risk factor of CKD in the general population. Some reports found the phenomenon of family clustering of CKD. The causes of family clustering are not very clear, but genetic and environmental factors are suspected to contribute to CKD. The characteristics and the clinical prognosis of those CKD patients with family history are unclear. We evaluate the characteristics and clinical outcome of those CKD patients with or without CKD awareness and with or without family history of CKD. We found there are 18.6% (1152/6171) CKD patients. In those CKD patients, the number of patients with awareness of CKD is 123 (10.7%). Those patients with awareness of CKD tend to be male gender, higher prevalence of smoking and NSAID usage, higher co-morbidity of cardiac disease, gout, and gastritis, and lower co-morbidity of hypertension. Besides, higher serum levels of creatinine and intact parathyroid hormone, lower serum levels of hemoglobin are noted in those CKD patients with awareness of CKD. In multivariate logistic regression, we found smoking, co-morbidity of gout and gastritis, and lower eGFR were independently significantly associated with awareness of CKD. In addition, we also evaluate the association between awareness of CKD and CKD progression. We found awareness of CKD is not associated with CKD progression with similar reduction of eGFR (Awareness of CKD Vs. No awareness of CKD: 1.73 ± 12.59 Vs. 2.0 ± 6.32 ml/min/1.73m2/yr, p = 0.450). In the study of those CKD patients with CKD family history, we found patients with family history were younger, higher co-morbidity of dementia, gastritis, and cancer, and lower co-morbidity of hypertension. In multivariate logistic regression, we found younger age, co-morbidity of dementia, gastritis, and cancer were independently significantly associated with family history of CKD. We also found family history of CKD is not associated with CKD progression with similar reduction of eGFR (No family history of CKD Vs. Family history of CKD: 1.78 ± 12.20 Vs. 1.56 ± 7.32 ml/min/1.73m^2/yr, p = 0.927). In conclusion, we found the prevalence of CKD is around 18.6% with low awareness of CKD (around 10.6%) and very low family history of CKD (4.3%) in our community-based study. Awareness of CKD and family of CKD were not associated with CKD progression.

特別演講

【CKD】-4

Clinical association between the metabolite of healthy gut microbiota, 3-indolepropionic acid and chronic kidney disease: a community based study

Chiao-Yin Sun
Department of Nephrology, Chang Gung Memorial Hospital, Keelung, Taiwan

Abstract

Background & Aims: Emerging evidence indicates that gut microbiota serves an important role in the development and progression of chronic kidney disease (CKD). Changes to the gut microbial flora can cause the generation of uremic toxins, which contribute to chronic kidney injury. The aim of the current study was to explore the clinical association between metabolites and CKD.

Methods: Between August 2013 and January 2015, a two-phase case-control study was conducted to analyze the clinical association between metabolites and CKD in a community health program. The first phase of the study was a prospective case-control survey designed for comparing the differences in the metabolome profile of patients with (n=10) and without (n=10) estimated glomerular filtration rate (eGFR) rapid decline (a yearly decline >20%). The second phase of the study was a cross-sectional case-control study, which checked and compared the metabolites, indoxyl sulfate and p-cresol sulfate levels between healthy subjects (n=144) and CKD patients (n=140)

Results: In the first phase of the study, it was revealed that IPA levels of patients with rapid renal function decline were significantly reduced compared with the control patients (n=10 for each group). The second phase furthered checked and compared the IPA, indoxyl sulfate and p-cresol sulfate levels between healthy subjects (n=144) and CKD patients (n=140). The results showed that the average level of indoxyl sulfate (2738.2 vs. 541.0 ng/ml, $P<0.01$) and p-cresol sulfate (1442.8 vs. 1394.6 ng/ml, $P<0.01$) were significantly higher in the CKD patients, while the average level of IPA was significantly higher (49.8 vs. 34.7 ng/ml, $P<0.01$) in the control patients.

Conclusions: Our results suggest that IPA might be an important biomarker and renal protector against the development of CKD.

Key words: 3-indolepropionic acid, chronic kidney disease, gut microbiota.

特別演講

【Basic Nephrology】-1

Physiology and Pathophysiology of Kidney Pericytes

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Renal Division, National Taiwan University Hospital

Abstract

Pericytes are interstitial mesenchymal cells found in many major organs. In the kidney, microvascular pericytes are defined anatomically as extensively branched collagen-producing cells in close contact with endothelial cells. Although many molecular markers have been proposed, none of them can identify the pericytes with satisfactory specificity or sensitivity. The roles of microvascular pericytes in kidneys were poorly understood in the past. Recently, by using genetic lineage tracing to label collagen-producing cells or mesenchymal cells, the elusive characteristics of the pericytes are illuminated. In healthy kidney, the pericytes are found to take part in the maintenance of microvascular stability. Detachment of the pericytes from microvasculature and loss of close contact with endothelial cells are observed during renal insult. Renal microvascular pericytes are shown to be the major source of scar-forming myofibroblasts in fibrogenic kidney disease. Targeting the crosstalk between pericytes and neighboring endothelial cells or tubular epithelial cells may inhibit the pericyte-myofibroblast transition, prevent peritubular capillary rarefaction, and attenuate renal fibrosis. In addition, renal pericytes produce erythropoietin in healthy kidneys by sensing the change of oxygenation and hemoglobin concentration. However, the ability of erythropoietin production decreases in pericytes-derived myofibroblasts in chronic kidney disease, leading to renal anemia. Recent advances on epigenetics create a new field to study erythropoietin gene expression at chromatin level. Demethylating agent has shown the restoration of erythropoietin expression as well as downregulation of α smooth muscle actin in myofibroblasts. Through this talk I would like to share the knowledge in the physiology and pathophysiology of kidney pericytes.

特別演講

【Basic Nephrology】-2

Mechanobiology of chronic kidney fibrosis: mechanism of myofibroblast activation

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Tensional homeostasis of most organs plays very important role for maintenance of organ stiffness and functions. During uncontrolled wound repair process, the tissue stiffness is markedly elevated in various type of fibrosis, such as cancer, organ and tissue fibrosis. Expansion of mesenchymal cell types with massive accumulation of extracellular matrix (ECM) and enhanced myofibroblast activity are the hallmarks of fibrosis-induced augmentation of tissue stiffness. It has been well documented that TGF-β1 triggers an increase in cell stiffness in fibroblast as well as epithelial cells. On the other hand, low matrix stiffness prevented TGF-β1-induced epithelial mesenchymal transition (EMT) in various types of renal epithelial cells. In an attempt to elucidate whether matrix stiffness regulates TGF-β1-induced myofibroblast activation, we examined the mechanobiological mechanisms involved in TGF-β1-induced myofibroblast activation. We found that TGF-β1-induced myofibroblast activation could be observed within 24 hours in NRK49F cells cultured on stiff culture dish or in/on soft collagen gel, but not on polyacrylamide gel. TGF-β1 increased the expression of lysyl oxidase (LOX) mRNA regardless of the culture condition. BAPN (LOX inhibitor) abrogated TGF-β1-induced myofibroblast activation when NRK49F cells were cultured in/on soft collagen gel. TGF-β1-induced increase in collagen gel contraction ability was also abolished by BAPN. These results suggest that upon TGF-β1 stimulation, fibroblasts may augment the stiffness of collagen fibril via modulation of the fibrils, which in turn facilitates the activation of fibroblast. In vivo experiments showed that BAPN treatment also reduced the α-SMA expression and ECM accumulation in UUO-induced kidney fibrosis. Taken together, our studies indicate that ECM stiffening by contractile fibroblast (myofibroblast) plays important roles in pathogenesis of kidney fibrosis.

【Genetics in Kidney Disease】-1

Advance in Genetic Diagnostic Tools for Precision Medicine in Kidney Disorders : Demonstration from inherited hypokalemic renal tubule channelopathy

楊松昇醫師
三軍總醫院 腎臟科

Abstract

Technical advances in genome sequencing and association studies have yielded critical insights into the genetic architecture of kidney diseases. Here, I summarize our key studies in screening inherited hypokalemic renal tubule channelopathy such as Gitelman/Bartter syndrome which may deciphered the genetic basis and provided insights into the mechanisms of kidney tubular disorders.

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【Genetics in Kidney Disease】-3

Autosomal dominant tubulointerstitial kidney disease

林承叡 醫師
馬偕醫院 腎臟科

Autosomal dominant tubulointerstitial kidney disease (ADTKD) is a rare group of genetic disorders with autosomal dominant inheritance characterized by progressive decline in renal function. There are four genes with disease-causing mutations so far: uromodulin (UMOD), renin (REN), hepatocyte nuclear factor 1b (HNF1B) and, most recently, mucin-1 (MUC1). ADTKD have the following characteristics: 1. Inherited in an autosomal dominant manner. Often many family members are affected. 2. Chronic kidney disease develops. Patients with ADTKD have a bland urinary sediment, with minimal blood or protein. A renal ultrasound reveals normal to small kidneys, depending on the stage of chronic kidney disease. Kidney biopsy reveals tubulointerstitial fibrosis that is nonspecific. As chronic kidney disease progresses, patients will develop symptoms of nausea, decreased appetite, fatigue, anemia and fluid retention. 3. Dialysis or kidney transplant is required sometime between the 4th and 7th decade of life. 4. Several types of the disease are associated with elevated uric acid concentrations in blood and gout, which sometimes starts in the teenage years. If clinical information cannot afford a precise diagnosis, genetic testing is necessary and available to diagnose these conditions.

【Genetics in Kidney Disease】-4

Learning from ADPKD

張明揚
Ming-Yang Chang
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Autosomal dominant polycystic kidney disease (ADPKD) is the most common genetic cause of end-stage kidney disease. Modern DNA sequencing diagnostic technologies have identified causative mutations in the family of ADPKD patients in PKD1, PKD2, or GANAB. Advances in the molecular and cellular pathogenesis of ADPKD also lead to the availability of new targeted treatment for ADPKD. Individualized treatment will become necessary to treat those with the rapidly progressive course of the disease and avoid unnecessary side effects. The challenge remains great for predicting outcome in individual patients because of the diverse mutation spectrum and the considerable intra-familial variability due to modifier genes and environmental effects. Recent research suggests that altered metabolism, autophagy, inflammation, oxidative stress, and epigenetic modification could link to cystic pathogenesis in different stages of the disease. These newer cellular pathways will likely provide more novel treatment options in the future.

【Genetics in Kidney Disease】-6

The application of next generation sequencing in the diagnosis of pediatric kidney diseases

I-Jung Tsai, M.D., Ph.D.
Division of Nephrology, Department of Pediatrics
National Taiwan University Children's Hospital

Pediatric kidney diseases have always been diagnosed via conventional clinical approaches, including history taking, physical examination, laboratory data and the image studies, which could provide most of the clinical information and the criteria for diagnosis. However, the related symptoms and signs might be relatively late in the natural course of pediatric kidney diseases. Early and precise diagnosis of these patients may be helpful in the consequent medical treatment and care. Of note, a large part of the pediatric kidney diseases is associated with genetic variants, including glomerular diseases, (familial focal segmental glomerulosclerosis and congenital nephrotic syndrome), tubulopathies (kypokalemia and renal tubular acidosis), cystic kidney diseases (polycysitic kidney disease), ciliopathies and nephronophthisis, Alport syndrome and syndromic disorders related to kidney diseases.

To diagnosis and understanding these diseases may through the discovery of the genotypes before the clinical symptoms and signs. And to generate the genetic profiles with the clinical presentation may improve the diagnosis and treatment of these pediatric patients and even for the parents who prepare to have another babies in the future. Therefore, the early discovery of genetic variation associated with pediatric kidney diseases help to improve the clinical management of these patients. To clarify the molecular mechanisms would help our understanding of the pathogenesis, natural history, and response to therapy of pediatric kidney disease. And this approach underlies the concept of precision medicine in the approaching of the disease.

The next-generation sequencing (NGS) technologies offers for an opportunity to locate these known mutations. NGS technology has advanced at an exponential pace, with the cost per megabase of sequence halving regularly, and this has enabled enhanced diagnosis for genetic diseases. Since the breakthroughs in genomic inquiry over the decades, pediatric nephrology is well positioned to take advantage of this approach to the benefit of our patients. At the same time, to actualize the great benefits of this approach, we have to understand the capabilities and limitations of applying genomic approaches to pediatric kidney disease. Employing target-panel capture and sequencing is performed by NGS and help to examine coding regions, splicing junctions, intron and untranslated region (UTR) and could provide precision medicine for the improvement of pediatric kidney diseases patients' care.

【Kidney Pathology】
Renal pathology case reports-1

Annual report of Taiwan kidney biopsy registration

張志宗 醫師
中國醫藥大學附設醫院 腎臟科

摘要

腎臟病理切片登錄委員會在前理事長陳鴻鈞教授、全體理事、及台中林新醫院徐國雄副院長的努力之下成立，今年已邁入第五年。感謝所有參與登錄醫院同仁們長期的努力參與，也謝謝腎臟病理切片登錄委員會所有委員、腎臟醫學會同仁們、及台中榮民總醫院邱顯富醫師長久以來定期滙整更新登錄資料。我們利用年會的機會向所有台灣腎臟醫學會會員來報告我們登錄的成果，讓大家知道台灣腎臟病人接受病理切片的適應症及切片結果，希望登録的資料能使會員們對台灣腎臟病的流行病學了解有所助益。

【Kidney Pathology】
Renal pathology case reports-2

Minimal change disease with acute kidney injury

文美卿 醫師
台中榮總 病檢部

Minimal change disease (MCD) is characterized by an acute-onset nephrotic syndrome (NS) clinically, manifest as heavy proteinuria, general edema, hypoalbuminemia and hypercholestemia. The pathological examination shows normal glomerulus by light microscopy, negative immune complex/complement deposition, and extensive foot process fusion of podocytes by electron microscopy. It is the most common cause of NS in children, but can also occur in adults, including elderly (aged > 60 year old).

Many literatures have reported cases of acute kidney injury (AKI) occurring in a portion (20-30%) of adult cases in the absence of prior renal disease. AKI is more frequent in elderly patients, but can also affects young adult and children. The kidney biopsy often shows ischemic acute tubular injury (ATI) along with glomerular lesion.

Dialysis maybe required for a period of time until the remission of proteinuria allows the recovery of renal function. Sometimes, the renal function does not recover, and permanent renal replacement therapy is needed.

The main contributing factors for the AKI in patients with MCD are diuretic-induced hypovolemia and the usage of nephrotoxic agents. Recently an effect of endothelin-1–induced vasoconstriction at the onset of proteinuria has been proposed responsible for ischemic ATI.

In patients with AKI, supportive therapy is essential until the remission of MCD, which allows resolution of renal failure.

【Kidney Pathology】
Renal pathology case reports-4

Membranous glomerulopathy

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Membranous nephropathy (MN) is a common cause of the nephrotic syndrome in nondiabetic adults, accounting for up to 1/3 of biopsy diagnoses, approximately 20-30% of cases of nephrotic syndrome in Caucasian adults. A rising incidence has been reported in China, perhaps related to environmental pollution. MN is most often primary (idiopathic), but it also has been associated with a variety of conditions, such as hepatitis B antigenemia, autoimmune diseases (eg, lupus), malignancy, and the use of certain drugs (eg, NSAIDs, gold, and penicillamine). MN may also be seen in conjunction with other glomerular diseases such as diabetic nephropathy and crescentic glomerulonephritis. MN is characterized pathologically by diffuse thickening of the glomerular basement membrane (GBM) on light microscopy, "spikes" on silver stain, diffuse, granular IgG and complement deposition on immunofluorescence, and subepithelial dense deposits on electron microscopy. The immune deposits may develop in situ with circulating IgG directed against endogenous antigens expressed on podocyte foot processes or against circulating cationic or low-molecular-weight antigens that have crossed the anionic charge barrier in the GBM. Antibodies to the M-type phospholipase A2 receptor (PLA2R), a major antigen expressed on podocytes, are found in a high proportion of patients with primary (idiopathic) MN. Antibodies to thrombospondin type-1 domain-containing 7A (THSD7A), another podocyte antigen, have been found in a smaller subset of patients with primary MN. Spontaneous complete remission of proteinuria occurs in 5% to 30% of patients at 5 years. Clinical findings associated with a higher risk of developing ESRD include > 50 y/o age at onset, male gender, daily protein excretion exceeds 8 g/day, and an increased serum creatinine at presentation. Asian ancestry seems to have a better long-term prognosis than other ancestries. A good prognosis is also associated with absence of segmental sclerosis and tubulointerstitial disease on renal biopsy. Progressive MN typically occurs gradually. If patients develop an acute decline in renal function, acute bilateral renal vein thrombosis, drug-induced acute interstitial nephritis, and superimposed crescentic glomerulonephritis should be excluded.

A renal biopsy should perform light microscopic examination including HE, PAS, PAM and Masson’s trichrome stains; immunofluorescence studies for antibodies against at least IgG, IgA, IgM, C1q and C3; and electron microscopy. If above findings are consistent with MN, stain for PLA2R should then be proceeded. If PLA2R is negative, stain for IgG subclasses (IgG1 to IgG4) is recommended. If IgG4 dominant, THSD7A staining is suggested.

Pathologic examination requisition sheets should include relevant clinical data, especially above-mentioned secondary conditions and underlying diseases. The pathologic reports then could establish a MN is PLA2R-related, THSD7A-associated, primary non-PLA2R non-THSD7A-associated, or secondary.

【Epidemiology】

Predictive analytics in hemodialysis: where do we stand?

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Since ancient times, diagnosis, treatment, and prognosis are essential to a physician's work. Patients rightly expect that physicians can assess the most likely course of their disease. Over the centuries, the means of disease prognostication have evolved in parallel to the development of medical sciences, and in the 21st century sophisticated mathematical models and the artificial intelligence are at the center of prognostication. Predictive analytics integrates data with mathematical models, and by doing so generates knowledge that can then be translated into clinical decision making.

Successful predictive analytics comprises of three components: medical knowledge, data, and mathematics. Developments in each of these areas improve success rates. While in the past data were limited to clinical and routine data, we have now access to a range of "omics" data, for example genomic and metabolomic data sets. In addition, data derived from pervasive sensing devices, socioeconomic characteristics, and weather forecast, to name a few, may also be utilized. These high-dimensional data sets require advanced analytic methods for interpretation and knowledge generation. These methods can be broadly categorized into "black box" and "deterministic" approaches. The former comprises of artificial intelligence and machine learning, both utilizing supervised and unsupervised learning approaches. Black-box models allow the creation of predictive models without a priory biological or medical knowledge. However, these methods require large "training" data sets and their predictions are limited to the domains of previously observed outcomes. On the other hand, deterministic models require in-depth understanding of the physiology. These models are usually formulated as systems of ordinary or partial differential equations. More recently, stochastic differential equation models have been applied in that field. Deterministic models require much less data than black-box models. Substantial progress can be expected in all areas that feed into predictive analytics and it is expected that black-box and deterministic models will not only co-exist but also merge in certain applications.

The rapid development of predictive analytics will certainly raise questions around data privacy and legal regulations, such as recently implemented European General Data Protection Regulation. It will be important to strike the right balance between data privacy rights on one hand, and data needs on the other, always keeping in mind that all our efforts are towards the ancient goal of serving our patients.

【TWRDS】-1

Burden of Chronic Kidney Disease Care -Current status, Challenge, and Perspective

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Although the great efforts on chronic kidney disease prevention and care, 2017 Taiwan Annual Report on Kidney Disease still represents that continuously increased trends of prevalence of treated end-stage renal disease (ESRD). The only a few patients with treated ESRD patients (77,920, 3.4‰) contributing to the highest prevalent rate in the world. To bridge the gap between current status and prospect of chronic kidney disease (CKD) prevention or care, this speech summarizes past trend of CKD care from the annual report and poses possible challenges in CKD prevention. Some important points of view are listed below with brief description.

- Medical spends for treated ESRD were stably increasing with the rising prevalent cases (net increase in this population), the rising aging population, and the increasing chronic morbidities that consume large medical resources such as cardiovascular diseases.
- Only a few case (~25%) with advanced CKD in community received appropriate nephrology care that possible due to poly chronic conditions in CKD.
- Although choosing more cost-effectiveness modality may reduce costs, cost ratio of hemodialysis/peritoneal dialysis in Asia countries are not as obvious as those in Wester countries.
- Multidisciplinary care for CKD stage 3b-5 patients would prolong progression to dialysis and reduce risk of mortality, but it may therefore increase patient pool of treated ESRD.
- The number of patients with first-ever dialysis is two times of the number of patients with long-term dialysis in each year which suggests more enhanced understanding of these patients is warranted.

Burden of CKD care has been continuously increased in past decade, the situation of CKD prevention/care becomes more rigorous because of limited medical resources and growth of aging population. Nephrologist should collaborate with other physicians, public health, health policy maker as well as other stakeholders reconsidering that the current preventive strategy is suitable and developing effective guidelines to ensure sustainability of CKD care.

【TWRDS】-2

Choice of renal replacement therapy: from SDM to Hospice

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Chronic kidney disease (CKD) is emerging to be an important public health issue and global concern because of high incidence and prevalence of CKD and end-stage renal disease (ESRD). Previous epidemiologic study showed that the estimated CKD national prevalence is approximately 11.9% with the total burden of more than 2.5 million people in Taiwan. Moreover, Taiwan had the greatest prevalence and incidence of ESRD as usual according to the 2017 United States Renal Data System annual report. The high incidence and prevalence of ESRD may attributed to full coverage in National Health Insurance, relatively high care quality and low mortality, and low transplantation and palliative care rates.

About 95% of ESRD patients received hemodialysis or peritoneal dialysis in 2015; however, dialysis is not the only treatment modality for patients with loss of kidney function. Kidney transplantation can provide better quality of life and survival than those receiving dialysis. For some patients, hospice care may be considered to relieve pain in those with life-limiting illness. From the point of view of public health, the increasing rate of kidney transplantation and hospice care will decrease the incidence and prevalence of dialysis, respectively. A change in policies governing hospice programs is needed for the lives of patients with kidney failure to end better.

The talk model of shared decision making (SDM) is based on “team talk,” “option talk,” and “decision talk,” to represent a process of active listening, collaboration and deliberation. Team talk places emphasis on the need to provide support to ESRD patients by healthcare professionals when they are made aware of choices, and to elicit their goals as a means of guiding decision making processes. Option talk refers to the task of comparing different modalities such as dialysis, kidney transplantation and hospice care, using risk communication principles. Decision talk refers to the task of getting decisions that reflect the preferences of ESRD patients and best external evidence. Patients and their family could fully understand and assess the pros and cons in each available treatment; therefore, patients make their decision for treatment with comprehensively consideration as well as scientific evidence.

To give comprehensive considerations to the quality of life, the optimal treatment, and the cost-effectiveness in public health, SDM is an evidence-based practice for pursuit of precise care. We hope to find ways to reduce the burden of dialysis and to improve quality of care with evidence-based practice.

【TWRDS】-3

Epidemiology and outcomes of AKI: across cohorts, AKD, and AKI-D
急性腎損傷之流行病學及其影響:不同類型之世代追蹤研究，
從急性腎疾病及需透析之急性腎傷害之角度分析

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陳佑瑋[1], 林明煌[2], 許永和[1], 林裕峯[1], 吳美儀[1], 邱怡仁[1], 洪麗玉[1], 鄭彩梅[1], 吳麥斯[1], 許志成[2]

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Acute kidney injury (AKI) has significant impact on mortality and morbidity and it can occur in different settings, including community-acquired, hospital-acquired and intensive care units (ICU). AKI is considered as a syndrome with various etiologies, such as drug-related toxicity, contrast induced AKI (CIAKI), ischemia injury after major cardiac surgery and sepsis-related AKI. Recently, literatures from different countries and different continents have pointed out that relative proportion of etiologies varies significantly in terms of income. AKI patients with different etiologies should be viewed as different cohorts of patients and response to treatments and prognosis may differ. Furthermore, clinical characteristics of AKI patients and practice pattern of critical care evolved along with time and therein the outcome of AKI patients may change. Severity of AKI evolves with time and AKI has been classified into 3 stages according to temporal changes of serum creatinine and urine output as recommended by KDIGO guideline. Dialysis-requiring acute kidney injury (AKI-D) is the most severe form and has worst impact on overall and renal outcome. The patients with similar etiology of AKI may have different fates: complete reversal of AKI, persistent AKI and progression into chronic kidney disease (CKD), which casts large burden on health care system and socio-economic system. Following AKI comes acute kidney disease (AKD), which means renal impairment that perpetuates beyond 7 days before it meets criteria of chronic kidney disease (persistent renal function impairment for 3 months). Lack of awareness on AKI results into persistent use of nephrotoxic agents, inadequate dosage of medications, and unthoughtful contrast use, which all contribute into perpetuation and aggravation of AKI. AKI and AKD are a continuum, and persistent AKI usually results into AKD. Clinical outcome of patients with AKD is not predetermined and can be largely improved by careful and devoted care. By clear definition of AKI, AKD and CKD and further analysis of different cohorts, we can try to delineate the association between modifiable risk factors and outcome, therein to prompt the precision medicine for AKI patients.

Key words: acute kidney injury; acute kidney disease; dialysis-requiring acute kidney disease; epidemiology; outcome; cohort; mortality; survival

關鍵字: 急性腎損傷、急性腎疾病、需透析之急性腎損傷、流行病學、世代追蹤、死亡率、存活率

【TWRDS】-4

Medication use in patients with kidney disease: should or should not

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末期腎臟病患者在接受透析治療的前一年，常因潛在性合併症(如疼痛、糖尿病、心血管疾病和感染性疾病等併發)需使用相關的藥物治療。然而，因腎功能的嚴重衰竭，所以再選擇藥物種類上，常須考量治療上的利與弊，以避免腎功能急速惡化和藥物的嚴重副作用。此次主題是經由國家衛生研究院分析 2011-2015 年 20 歲以上透析患者於透析前一年度使用相關性藥物治療，包含紅血球生成素、降血脂藥物、非類固醇抗發炎藥物和止痛類藥物、以及有輸紅血球等情況。此外，還有高血壓透析患者於透析前一年度使用降血壓類藥物情況，糖尿病透析患者於透析前一年度使用降血糖類等藥物使用量之分析和探討。對於末期腎臟病患者而言，尤其是接受透析治療的前一年，臨床照護者必須小心給予處方種類，除考量藥物臨床療效外，還需考慮如何減少藥物副作用產生，以避免嚴重性併發症發生。

【Pediatric CKD】
兒童慢性腎臟病知多少- 1

Clinical characteristics and prevalence of complications of chronic kidney disease in children

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Little information is available regarding the clinical characteristics and prevalence of complications in children with chronic kidney disease (CKD), especially in early disease stages. The Taiwan Pediatric Renal Collaborative (TAPRC) study is a multicenter, cross-sectional study which enrolled children between the ages of 1 year and 18 years in all stages of predialytic CKD in Taiwan. A total of 757 children were included in the study. The median age at the time of enrollment was 10.6 years; 397 patients (52.4%) were males. A total of 39.0% of the patients were in CKD stage 1, 37.6% were in stage 2, 14.8% were in stage 3, 3.0% were in stage 4, and 5.5% were in stage 5. Nonglomerular renal diseases were the primary cause of CKD, comprising 51.9% of the patients with CKD. The age at the time of disease onset, gender, CKD stage distribution, and proportion of co-morbidities varied between the glomerular and nonglomerular CKD cases. Anemia, hyperlipidemia, hypercalcemia, and hyperphosphatemia were more prevalent in patients with glomerular CKD. The overall prevalence of complications was as follows: uncontrolled blood pressure (BP), 44.1%; anemia, 34.2%; hyperlipidemia, 44.9%; short stature, 10.3%; and failure to thrive, 8.2%. Uncontrolled BP, anemia, and hyperlipidemia were common, even in the early CKD stages. The prevalence of CKD complications increased with the worsening stage of CKD, except in the case of hyperlipidemia.

This study describes the demographic and clinical characteristics of children with CKD, and the results reveal differences in CKD etiology and the prevalence of specific complications according to the stage of CKD. Early recognition and awareness of complications are mandatory for clinicians during the follow-up visits of children with CKD.

【Pediatric CKD】
兒童慢性腎臟病知多少- 2

The primary, secondary and tertiary prevention scheme for children at risk of chronic kidney disease in Taiwan

Ching-Yuang Lin M.D., Ph.D

The mission is to provide the prevention and treatment scheme for children at risk for chronic kidney disease (CKD) and improving dialysis outcomes. The first stage (primary prevention) is for prevention become susceptibility. The second stage (pre-chronic stage) is including screening for pediatric CKD and improvement of health care quality. In chronic phase, we create self-care handbook, treatment guideline to improve patients' self-care ability. For patients with acute renal failure, he provide renal support to bridge to renal recovery or effective treatment. We provide personalized treatment plan for each individual patient according to their needs. We provide all kinds of techniques of renal replacement therapies including conventional hemodialysis, sustained low efficiency daily hemodialfiltration, plasmapheresis, hemoperfusion, plasma exchange and peritoneal dialysis. Besides clinical services, we also actively involved in doing researches including global trials and international collaborative studies. Not only physical development could be retarded in children with chronic illness, progress of chronic illness may also affect negatively on psychological development in those afflicted CKD and ESRD children. Therefore, our team examine their psychological development in term of intelligence and self-concept. Our work could assist pediatric nephrologists and caregivers to understand mental needs of the children with CKD and critical factors influencing their social and psychological development.

The results of our clinical and basic researches have established a good international reputation. Except for regular fellows, we also have visiting scholars from several countries, we were going to continue and expand the program to march toward an outstanding department with international reputation.

【Pediatric CKD】
兒童慢性腎臟病知多少- 3

兒童慢性腎臟病的過去，現在與未來
Chronic Kidney Disease in Children: Past, Present, and Future

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Chronic kidney disease (CKD) is still a significant global burden, despite advances in diagnosis and treatment. In Taiwan, we used to conduct a cohort study recruiting 757 CKD children. A total of 39.0 % of the patients were in CKD stage 1, 37.6 % were in stage 2, 14.8 % were in stage 3, 3.0% were in stage 4, and 5.5% were in stage 5. The prevalence of CKD complications generally increased with the worsening stage of CKD.

Unlike adults, a common cause of pediatric CKD results from congenital anomalies of the kidney and urinary tract (CAKUT). Regardless of the increase in the number of identified CAKUT-causing genes, the underlying genetic cause for most patients with CAKUT remains unknown. Factors associated with CKD progression include anemia, comorbidities with congenital heart disease or hyperuricemia, elevated diastolic blood pressure, and CKD Stage 2 in CAKUT. Thus, early recognition and awareness of complications are mandatory for clinicians during the follow-up visits of children with CKD.

CKD can originate from early life. This concept is framed as the developmental origins of health and disease (DOHaD). Emerging evidence supports the proposition that early-life environmental insults lead to renal programming and increase the risk for developing CKD and its comorbidities in later life. On the other hand, the DOHaD concept opens a new window to offset the programming process in early life to prevent the development of adult kidney disease by so-called reprogramming. The opportunity is here; should we be starting earlier to prevent CKD? Major progress has been made in research on renal programming in animal studies, but many challenges still lie ahead. Hence, there is an urgent need to understand programming mechanisms of CKD and to fill the translational gap between animal models and clinical trials for halting the globally growing epidemic of CKD-related disorders. In the future, it is required to have the critical mass and a more collaborative effort to develop clinical practice guidelines and reprogramming strategies for treatment and prevention of CKD, not just for adults but also for children.

【AKI】
Frontiers in AKI -2

Nephrologists should be consulted for all cases of AKI in the ICU - We are not sure

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腎臟醫學會討論會 議題 重症科醫師需要腎臟科醫師偕同照護

1.https://www.ncbi.nlm.nih.gov/m/pubmed/25882434/?i=18&from=Nephrologist%20ICU%20survival. 重點是 KIDNEY STROKE/ RENAL ANGINA 的觀念!!

2.https://www.ncbi.nlm.nih.gov/m/pubmed/27549908/?i=15&from=Nephrologist%20ICU%20survival. Elixhauser renal failure (ElixRF)五年內增加 8.3-13.3%!!

3.https://www.ncbi.nlm.nih.gov/m/pubmed/23265590/?i=4&from=/28534109/related. 美國研究建議重症醫師在 AKI 會診腎臟科醫師偕同照護/或是後續追蹤!!

4.https://www.ncbi.nlm.nih.gov/m/pubmed/27545634/?i=6&from=/28682569/related. 義大利研究建議重症醫師在 AKI 會診腎臟科醫師偕同照護可以改善預後!

5.https://www.ncbi.nlm.nih.gov/m/pubmed/27380264/?i=2&from=/29169177/related 英國研究沒有提到重症醫師在 AKI 會診腎臟科醫師偕同照護/後續追蹤!!

6.https://www.ncbi.nlm.nih.gov/m/pubmed/30269144/?i=2&from=Nephrologist%20ICU 多國調查沒有顯示重症醫師在 AKI 會診腎臟科醫師偕同照護的好處!

7.https://www.ncbi.nlm.nih.gov/m/pubmed/16326743/?i=2&from=/30269144/related. 義大利研究顯示 AKI 病患中六成由重症醫師/四成由腎臟科醫師開醫囑!!

8.https://www.ncbi.nlm.nih.gov/m/pubmed/23476037/?i=4&from=/30269144/related. 英國研究提到 AKI 中 CRRT 由重症醫師執行/IHD 則由腎臟科醫師照護!

9.https://www.ncbi.nlm.nih.gov/m/pubmed/23254325/?i=25&from=Nephrologist%20ICU%20survival. 多中心研究發現 AKI 開始洗腎的條件每個國家地區不同!

10.A nephrologist should be consulted in all cases of acute kidney injury in the ICU: yes. 2017
A nephrologist should be consulted in all cases of acute kidney injury in the ICU: no. 2017
A nephrologist should be consulted in all cases of acute kidney injury in the ICU: we are not sure. 2017

【AKI】
Frontiers in AKI -3

Nephrologists should be consulted for all cases of AKI in the ICU - Yes, absolutely

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Acute kidney injury (AKI) is a common medical entity associated with negative short-term and long-term outcome. The incidence rate of AKI among critically ill patients admitted to the intensive care unit (ICU) might be as high as 50%. Even mild AKI is related to long-term mortality, as well as the elevated risk of chronic kidney disease and major cardiovascular events in ICU survivors.

Whether a nephrologist should be consulted for all cases of AKI in the ICU is debated for a long time. In this debate session, I will summarize the updated knowledge and evidence in the sections of "current situation regarding the nephrologist involvement in the ICU," "the role of nephrologist in ICU," "the benefits of nephrologist consultation in critical AKI patients," and "nephrologists consultation in all AKI patients."

Nephrologists play three important roles (clinician, educator and program leader) in the ICU, which were essential for a good quality of patient care. Several previous studies showed the delayed nephrology consultation was linked with worse outcomes in patients with AKI. Even documentation of severe AKI was found to be associated with better 30-day mortality rates among hospitalized patients. Thus I support the nephrologist consultation in AKI patients admitted in the ICU.

【AKI】
Frontiers in AKI -5

Critical Care nephrology : Literature review

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We performed a systematic literature reviews for study newly published in 2017-2018. The search strategies were to identify key studies including acute kidney injury, critical care nephrology and renal replacement modality, preferably large-scaled randomized controlled trials and high quality meta-analysis. The focused categories included renal replacement therapy timing and modalities, diagnostic and prognostic biomarkers development, fluid and nutrition management, vasopressor use and new treatment strategies. We also examined specific territories such as contrast nephropathy, septic acute kidney injury, post cardiac surgery and critical illness. We will also introduce some promising ongoing large trials regarding critical care nephrology.

【AKI Workshop】
108 教室

Therapeutic apheresis usage in glomerulonephritis

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Rapidly progressive glomerulonephritis (RPGN) is a clinical syndrome manifested by progressive loss of renal function over a comparatively short period of time (days, weeks or months) and by features of glomerular disease in the urine. It is most commonly characterized morphologically by extensive crescent formation. This histologic finding is a common finding in the older adult presenting with acute nephritis.

Crescent formation appears to represent a nonspecific response to severe injury to the glomerular capillary wall. Rents are induced in the glomerular capillary wall, resulting in the movement of plasma products, including fibrinogen, into Bowman's space with subsequent fibrin formation, the influx of macrophages and T cells, and the release of proinflammatory cytokines, such as interleukin-1 and tumor necrosis factor-alpha. Thus, crescents may be seen with any form of severe glomerular disease, including lupus nephritis and postinfectious glomerulonephritis, disorders that can usually be diagnosed from the history and typical immunofluorescence and electron microscopic findings.

The stage of active inflammation is often followed by the development of fibrocellular and fibrous crescents. Collagen deposition is due to fibroblast proliferation that is driven by fibroblast growth factors. Transforming growth factor-beta is also thought to play an important role. This transition is important clinically because fibrous crescents represent a stage of the disease that is not likely to respond to immunosuppressive therapy.

RPGN is usually due to one of three broad mechanisms of glomerular injury: Anti-GBM antibody disease, Immune complex, and Pauci-immune. Treatment of RPGN include pulse corticosteroids, cyclophosphamide, or rituximab, and in some settings, plasmapheresis.

Taiwan national health insurance covered the expense of plasmapheresis due to RPGN. However, the dose, duration, evidence level were not well defined. In this section, we would like to review plasmapheresis usage in different kinds and different stage of RPGN including exchange dose, frequency and evidence according to published studies.

【Sonography】

重點式超音波(POCUS)在腎臟醫學的整合性應用-2

Utilizing POCUS protocols to approach critical ill renal patients

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由於人口快速老化，健保朝向價值導向的整合式照護方向，還有 2019 年 9 月全面實施醫師合理工時制度，促使政策推動醫院整合醫學制度。同時 2018 年 10 月，美國腎臟醫學會理事長 Mark D Okusa 教授揭櫫腎臟科研修醫師新興領域，為 hospitalist nephrology(腎臟整合醫學)，必須面對夜間值班或重症照護時，及時診斷處置病人的壓力，因此執行整合照護超音波(PoCUS)的勝任能力導向訓練，為其重要核心能力。

美國醫院整合醫學會已將 PoCUS 列入研修醫師訓練之必要課程，並擴展到侵入性處置與緩和療護應用。本演講將介紹目前 PoCUS 應用在重症腎臟病人的狀況，尤其將 RUSH, FALLS 與 BLUE protocols 交互應用，讓醫師可以第一時間正確處置不穩定病人的生命徵象，促成更好的醫病共享決策模式，未來推廣到各透析院所時，可以更加提升我國腎臟整合醫學團隊的核心照護能力!

【Sonography】

重點式超音波(POCUS)在腎臟醫學的整合性應用-3

Using POCUS as diagnostic tools for ACKD patients with related complications

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In this session, the speaker will introduce several key questions when using POCUS in patient with acute on chronic kidney disease and demonstrate the ultrasound images and videos of four patients with acute on chronic kidney disease.

■Key questions when using POCUS in patient with ACKD

(A)Post-renal (**obstruction or not?**)

Kidney => hydronephrosis

Urinary bladder => urinary retention (BPH, neurogenic bladder)

(B)Pre-renal (**fluid replacement or not?**)

Peritoneal free fluid => extracellular fluid sequestration?

IVC => fluid depletion? (IVC diameter & collapsibility index)

Heart => LV failure? cardiac tamponade?

Lung => acute pulmonary edema? pleural effusion? (BLUE protocol)

(C)Intrinsic (**chronic parenchymal change or not?**)

Renal size

Renal cortical thickness and echogenicity

【Nutrition】

Post-ICNRM - 1

Dysbiotic gut microbiota and uremic toxins: Clinical implications in CKD

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Emerging evidence suggests that intestinal dysbiosis plays an important role in host inflammation locally and systemically. Such pathological condition is even more prevailing in patients with chronic kidney disease (CKD). Of note, indoxyl sulfate (IS), a gut-derived uremic toxin, is notorious for its pro-inflammatory feature in CKD patients. IS accumulates in the body as the urinary excretion of uremic toxins is impaired, and further worsens the kidney function in a vicious cycle to CKD. Dietary restriction in vegetables, fruits and yogurt leads to the predominance of indole-producing intestinal microbial flora and further exaggerates the accumulation of IS in CKD patients. Recently, interventional studies have shown that circulating IS can be reduced by dietary prebiotic and/or probiotic supplements. However, further randomized controlled trials are warranted to examine whether such beneficial effect of dietary prebiotic/probiotic supplements could be extrapolated to better hard outcomes in CKD population. In this talk, I would also like to emphasize the importance of achieving sufficient intake of dietary fiber by proper vegetable pre-treatment and accurate fruit selection, instead of directly avoiding these potassium-rich yet fiber-rich and base-producing foods.

【Nutrition】

Post-ICNRM - 2

Protein-Energy Wasting in Chronic Kidney Disease

姜至剛
Chih-Kang Chiang
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Protein-energy wasting (PEW), a term proposed by the International Society of Renal Nutrition and Metabolism (ISRNM), refers to the summation of multiple nutritional and catabolic alterations in chronic kidney disease (CKD) and end-stage renal disease (ESRD) patients, and associate with adverse outcome. To increase awareness, identify research needs, and provide the basis for future work to understand therapies and consequences of PEW, the prevalence, diagnosis and pathophysiology of PEW syndrome has been developed by ISRNM.

The underlying etiology includes, but is not limited to, metabolic acidosis intestinal dysbiosis; systemic inflammation with activation of immune and RAAS axis; anabolic hormone resistance; energy expenditure elevation; and uremic toxin accumulation. In addition to insufficient food consumption due to poor appetite and dietary restrictions, uremia-induced alterations such as increased energy expenditure, persistent inflammation, acidosis, and multiple endocrine disorders that render a state of hypermetabolism leading to excess catabolism of muscle and fat.

Thorough understanding the pathogenesis PEW in CKD and ESRD patients will undoubtedly facilitate the design and development of more effective strategies to optimize protein nutrition and improve outcomes

【Nutrition】

Post-ICNRM - 3

Nutritional Management in CKD

吳家兆 醫師
三軍總醫院 腎臟內科

Elevated protein catabolism and protein malnutrition are common in patients with chronic kidney disease (CKD). The underlying etiologies include metabolic acidosis, intestinal dysbiosis, systemic inflammation, activation of complements, and renin-angiotensin-aldosterone (RAAS) axis, anabolic hormone resistance, energy expenditure elevation and uremic toxin accumulation. Individuals with CKD may also have multiple comorbidities, including hypertension, type 2 diabetes mellitus, and cardiovascular disease, all of which are amenable to treatment via changes in nutrition. Understanding the pathogenesis and etiology of protein malnutrition in CKD patients will facilitate the design and development of more effective strategies to optimize nutritional management. Indeed, many patients with CKD experience fatal cardiovascular events before needing renal replacement therapy. Further, as CKD progresses, nutrition planning plays an important role in slowing down kidney function decline.

The initial clinical practice guidelines for nutrition in CKD were created by the National Kidney Foundation’s Kidney Disease Outcome Quality Initiative (K/DOQI). Another source of nutrition guidance is Kidney Disease: Improving Global Outcomes (K/DIGO). Recently, a consensus statement on prevention and treatment of protein energy wasting in CKD was proposed by the International Society of Renal Nutrition and Metabolism. Nutrition interventions in CKD are largely driven by the clinical judgments of physicians and renal dietitians. Nutrition interventions for CKD should establishing overall healthful dietary patterns, promoting fluid, electrolytes, and mineral balance, preventing dyslipidemia, and protein-energy wasting syndrome as well as maintaining appropriate body composition. This review integrates known information and recent advances in the area of nutritional management in CKD.

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 1】

An update from technological perspectives on the Body Composition Monitor in HD and PD patients

Dr Ulrich Moissl

With the introduction of a new body composition model by Chamney et al. in 2007, the technique of bioimpedance spectroscopy was moved to the next level: for the first time it was possible to determine an accurate, quantitative number for fluid overload in Liters, based on universal tissue hydration parameters (valid in all human subjects irrespective of age, gender, ethnicity, body composition and co-morbidities). This model forms the basis of the BCM--Body Composition Monitor, which is a supplementary diagnostic tool to the clinician's clinical assessment.

In the years since then many further steps were taken: the underlying model equations were transparently published, and validation studies were performed in several hundred patients of different comorbidities, and several thousand healthy individuals. Large clinical trials, some of them randomized controlled, established evidence of the link between fluid overload and morbidity and mortality. The most recent evidence comes from the large BCM database, showing e.g. that the risk of chronic fluid overload is even greater than that of increased blood pressure in >20.000 chronic HD patients (Zoccali et al, JASN 2017). Today, BCM is used regularly in >50,000 patients in the Fresenius NephroCare network.

This talk intends to give an overview of the "second phase" of BCM development. It addresses some technological advances, the pitfalls when performing a good quality measurement, the use in pediatrics and recent validation data in Asian population. It also addresses application in other fields than dialysis, like nutrition and CKD 3-4.

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 1】

Recent Advances in Research of Body Composition and Outcomes in CKD

Szu-Chun Hung

Division of Nephrology, Taipei Tzu Chi Hospital

Higher body mass index (BMI) is associated with better survival among patients with chronic kidney disease (CKD), a phenomenon referred to as the “obesity paradox”. This observation may be due to the limitations of BMI as a measure of adiposity. Because BMI does not consider the muscle wasting commonly seen in CKD, a considerable number of CKD patients with sarcopenia would be misclassified as normal per the BMI definition of obesity. Confounding by a sicker reference population of lower BMI may help explain the obesity paradox. We have shown recently that the protective effect of higher BMI on mortality may come primarily from higher lean body mass. In fact, BMI more closely reflects lean body mass than fat mass. Therefore, more sophisticated measures of adiposity are needed to determine whether obesity, defined by the World Health Organization (WHO) as abnormal or excessive fat accumulation that presents a risk to health, is actually associated with greater survival in CKD. In this talk, we will propose a new approach for characterizing CKD patients with excess adiposity using percent body fat (%BF) to BMI ratio (%BFBMIR). This new index incorporates both fat mass and fat free mass and may be particularly useful for the identification of CKD patients with sarcopenic obesity. Individuals with higher %BFBMIR are associated with higher mortality and may warrant special clinical attention. We will also present several recent results on the impact of obesity on CKD progression in patients with preexisting CKD and explore the association between body composition, dietary patterns, and gut microbiota.

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 2】

Approaches to Diagnosis and Management in aHUS

Dr. Carla M. Nester
University of Iowa Stead Family Children's Hospital

Abstract

Atypical hemolytic uremic syndrome (aHUS) is a rare, life-threatening disease, which can affect patients of all ages. aHUS is clinically very similar to the other major TMAs: Shiga toxin–producing Escherichia coli (STEC)-HUS, thrombotic thrombocytopenic purpura (TTP), and disseminated intravascular coagulation (DIC). The signs and symptoms of all the TMAs overlap, complicating the differential diagnosis. Because aHUS shares many of the presenting characteristics of the other thrombotic microangiopathies, and confirmatory genetic results are not available at the time of presentation, the diagnosis relies heavily on the recognition of a clinical syndrome consistent with the diagnosis in the absence of signs of an alternate cause of thrombotic microangiopathy. Previously when TMA occurred the only management is plasma exchange/plasma infusion (PE/PI), however, plasma exchange/plasma infusion (PE/PI) in aHUS may improve hematologic parameters temporarily but not long-term outcomes. since PE/PI may transiently maintain normal levels of hematologic measures but does not treat the underlying systemic disease. Nowadays, the efficacy and safety of eculizumab, a terminal complement inhibitor and the only approved treatment for aHUS, were first established in two prospective, multicenter clinical studies, followed by prospective, multicenter studies in pediatric and adult populations. As there is an effective treatment, it is important to recognize and appropriate management in aHUS. Here Dr. Nester will present the current complement knowledge to improve outcomes on aHUS.

時間：107年12月8日(星期六) 12:20 ~ 13:10

【Lunch Symposium 3】

The Rise of HDx

Professor Laurent Juilliard
Head of the Department of Nephrology, Hospices Civils de Lyon, Lyon.

Expanded hemodialysis (HDx) has emerged as a promising solution to improve hemodialysis effectiveness, as it can achieve a similar removal of small and conventional molecules, and can even potentially enhance the removal of large middle molecules, all under standard HD facilities and protocols. This is resulting from the membrane pores design, combined with the unique internal architecture of the THERANOVA dialyzer.

After defining the HDx therapy and its unique operational mechanisms, the present will summarize the existing clinical experience and feedback, and end up with a discussion as to the most promising applications, such as rhabdomyolysis or cardiovascular diseases.

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 4】

Update treatment of lupus nephritis

陳一銘 醫師
台中榮民總醫院 過敏免疫風濕科

全身性紅斑狼瘡（systemic lupus erythematosus）是好發於育齡婦女的一種全身性自體免疫疾病，這類患者中每 10 位就有 6 人會發生狼瘡性腎炎（lupus nephritis），中、重度的狼瘡性腎炎患者若未積極治療，可能進展為慢性腎病變甚至腎衰竭。過去傳統狼瘡性腎炎的治療主要為合併使用高劑量類固醇和靜脈投與 cyclophosphamide，但此藥對生殖細胞有毒性作用，可能引發早發性卵巢衰竭，對於育齡婦女而言並不是良好的治療選擇。

狼瘡性腎炎的大型臨床試驗 － ALMS 證實 mycophenolate mofetil（MMF）用於急性期誘導或慢性期維持治療的臨床效益，在急性期誘導治療方面，MMF 的治療反應率和腎炎緩解率皆與 cyclophosphamide 相當；慢性期維持治療方面，腎病再惡化的比例明顯低於 azathioprine。不論是作為急性或慢性期的治療，MMF 治療的安全性皆優於 cyclophosphamide 或 azathioprine，而且因副作用而中斷治療的情形少。此外，多項綜合性分析研究也證實 MMF 用於狼瘡性腎炎治療的療效和安全性優於 cyclophosphamide 或 azathioprine。因此，美國風濕病學會（American College of Rheumatology, ACR）、歐洲對抗風濕性疾病聯盟（European League Against Rheumatism, EULAR） 和國際腎臟病學會（International Society of Nephrology）診療指引，一致將 MMF 列為第 III、IV、V 型狼瘡性腎炎第一線治療選擇。

於生物製劑興起的世代，臨床試驗中仍採用 MMF 作為背景療法，也有學者不論是認為 LN 的第一線誘導治療或維持治療，應優先選用 MMF。目前 MMF 已核准用於狼瘡腎炎的前導及維持治療，期望讓台灣的狼瘡性腎炎患者有更多治療選擇，除了能夠減少慢性腎衰竭機會同時保存生育功能，可減少病患家庭、社會及全民健保之長期負擔。

時間：107 年12 月8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 5】

SGLT2 inhibitors and renal outcomes in type 2 diabetes

陳進陽醫師

台北榮民總醫院

Abstract

Diabetic kidney disease (DKD) is the leading cause of end-stage kidney disease in the United States and the world alike, and there is a great unmet need for treatments to reduce DKD development and progression. Inhibition of sodium/glucose co-transporter 2 (SGLT2) in the proximal tubule of the kidney has emerged as an effective antihyperglycemic treatment, leading to regulatory approval of several first-generation SGLT2 inhibitors for the treatment of type 2 diabetes. In follow-on clinical trials for the cardiovascular safety of the SGLT2 inhibitors, secondary effects to prevent or reduce albuminuria and decline in estimated glomerular filtration rate spurred further investigation into their potential application in DKD.

We summarize the current understanding of mechanisms by which SGLT2 inhibitors block glucose reabsorption in the proximal tubule and improve systemic glucose homeostasis, the hypothesized mechanisms for kidney-protective effects of SGLT2 inhibition, and current recommendations for use of this class of antihyperglycemic agents in diabetic patients with low estimated glomerular filtration rates. Results of ongoing clinical trials in patients with DKD are eagerly awaited to expand knowledge of how SGLT2 inhibitors might be used for prevention and treatment.

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時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10
【Lunch Symposium 6】

New PARADIGM in Heart Failure Patients with Renal Impairment

鄭本忠醫師
高雄長庚醫院 腎臟科

各類心臟疾病的臨床症狀，最終都會趨向於心臟衰竭。由於醫學進步，慢性腎臟病患壽命延長，患有心臟衰竭的比例越來越高，其臨床表現包括運動耐力不全、呼吸困難、端坐呼吸甚至併發肺水腫造成呼吸衰竭。慢性腎臟病患者合併有貧血、高血壓和水分蓄積時，都會加重心臟衰竭的症狀。進入透析治療時，心臟衰竭更是病患不好的癒後指標，增加透析病人的死亡率。

過去的研究亦證實腎功能不佳是心血管疾病的重要危險因子，慢性腎臟病的病人有比較高的心肌梗塞、心衰竭發生率而且心臟血管相關死亡率亦較高，根據研究統計，約四至五成腎衰竭患者都死於心血管疾病，比起沒有腎臟疾病的人高出了數倍。

由上述內容可知，心臟及腎臟疾病在臨床上兩者間有著緊密的關係。西元 2008 年由義大利學者 Ronco 等人根據心臟和腎臟的急性或慢性功能變化可能導致另一器官的急性或慢性器官失調將心腎症候群區分為五種類型。

第一型：急性心腎症候群，「急性」的心臟功能惡化導致腎功能損傷。約有二到四成因急性心臟衰竭住院的病人發生急性腎損傷或腎衰竭。這些患者也會有比較高的死亡率及較長的住院天數。第二型：慢性心腎症候群，「慢性」的心臟功能異常導致腎功能損傷，常見於慢性鬱血性心衰竭患者。第三型：急性腎心症候群，「急性」的腎功能惡化導致心臟功能損傷。如急性腎衰竭導致心肌病變。第四型：慢性腎心症候群，「慢性」的腎功能惡化導致心臟功能損傷。慢性腎臟病是心血管疾病的重要危險因子，慢性腎臟病病人比起正常人有較高心肌梗塞、心臟衰竭的罹患率。第五型：續發性心腎症候群，其他的系統性疾病(例如敗血性休克或血管炎等疾病)導致心臟或腎臟功能損傷。

心腎症候群發生的原因及致病機轉，就如前面所列的五種類型，十分的複雜，過去傳統上的觀點為腎臟灌流壓下降導致灌流不足(單一因子)，但是後續的研究發現還有許多的可能原因如藥物、顯影劑或其他腎毒性物質，腎素血管張力素醛固酮系統及交感神經系統的過度活化，氧化壓力傷害，體液滯留引發單核球的活化釋放細胞激素及貧血等等(多重因子)。

新的心臟衰竭治療藥物 ARNI 的誕生，已證實無可顯著降低 20%心臟衰竭死亡及 21%的心衰竭住院, 效果不受心臟衰竭患者有無 CKD 影響, 相較於傳統治療 Enelapril 可延緩 GFR 的下降, 為心臟衰竭合併慢性腎病變的患者新的治療選擇。

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 7】

Benefits of supplemented LPD: From CKD to ESRD

張智翔 醫師
林口長庚醫院 腎臟科

Patients with chronic kidney disease (CKD) experience altered physical conditions in many respects, including proteinenergy wasting (PEW), mineral bone disorder, chronic inflammation, and uremic toxin accumulation. Previous studies have demonstrated that the metabolism of protein is involved in most of these adverse changes, especially the uremic toxin accumulation. Thus, a diet therapy with restricted protein intake has been investigated as a way to retard the progression of CKD and ameliorate uremia symptoms. However, these studies have not yielded unequivocally beneficial results, and concerns of malnutrition have been raised regarding prolonged protein restriction without any nutritional supplementation in patients near dialysis, who already have a higher risk of PEW.

In recent decades, supplemented ketoanalogues of essential amino acids have been extensively used in patients on low-protein diets (sLPDs) (0.6–0.8 g/kg body weight per day) or very low-protein diet (sVLPDs) (0.3–0.4 g/kg body weight per day). In vivo, via the transamination effect, ketoanalogues of essential amino acids can utilize circulating amino groups to transform themselves into essential amino acids to reduce possible malnutrition in those on a low-protein diet. Although many compelling results have been reported for sLPD and sVLPD in the retarding of renal function decline and postponing dialysis, a post hoc analysis of the MDRD study indeed demonstrated a slightly increased mortality rate in the sVLPD group after 10 years. This section is going to discussion the benefit and harm of sLPD in CKD patients and share the recent findings.

時間：107 年 12 月 8 日(星期六) 12:20 ~ 13:10

【Lunch Symposium 7】

Sharing of experience in renal nutrition studies

高芷華 醫師
輔仁大學附設醫院 腎臟科

腎臟病病人的飲食方式會影響其疾病的進展與預後，因此「腎臟營養」一直以來都是醫學研究的重要主題。除了飲食和各種電解質的研究外，目前最常見的研究之一是低蛋白飲食與腎臟疾病的相關研究，面向包括使用或不使用酮酸胺基酸對尿蛋白、營養狀況及腎功能惡化速度的影響等，值得探討。

【Plenary Lecture】

A New Look at an Old Issue: the Anti-hypertensive Effect of Potassium-Rich Diet

Chih-Jen Cheng, M.D., Ph.D.
Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

It has long been appreciated that potassium salt administration lowers blood pressure since the early 20th century. In the past decades, large-scale trials, including INTERSALT, DASH, and PURE, have confirmed the anti-hypertensive effect of potassium-rich diet. Conclusively, high dietary potassium intake inversely correlates with blood pressure, and the anti-hypertensive effect is emphasized in people who have high dietary salt intake, hypertension, and old age. Conversely, severe depletion of potassium in the diet caused sodium and water retention in a dietary sodium-dependent fashion.

Several mechanisms have been proposed to explain the anti-hypertensive effects of dietary potassium. Among them, potassium-induced natriuresis is most commonly mentioned and supported by many studies. However, how dietary potassium induces natriuresis remains a decades-old question until recently. We have made some contributions to understand the physiology of potassium-induced natriuresis. With-no-lysine (WNK) kinases are the emerging regulators of sodium and potassium transport in the distal nephron. Unlike aldosterone, WNKs stimulates sodium reabsorption and inhibits potassium excretion. Dietary potassium alters the ratio of full-length WNK1 over kidney-specific WNK1, which in turn regulates distal sodium and potassium transporters to adapt chronic dietary potassium intake. Recent studies identify an intracellular chloride-sensing mechanism of WNKs. We confirmed that chloride-sensing regulation on WNK4 plays a critical role in NCC regulation by extracellular potassium in the distal convoluted tubule.

In short, this lecture will elaborate on the updated knowledge and mechanistic understandings of the decades-old issue—the anti-hypertensive effect of potassium-rich diet.

2018 TSN Annual Meeting, Japan-Korea-Taiwan CKD Joint Symposium
Dec. 9, 2018, Linko CGMC, Linko, Taiwan

Transition from CKD to ESRD—The role of AKI in Taiwan

Shang-Jyh Hwang, M.D.
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Nephrology Division, Department of Medicine, KMU Hospital, Kaohsiung, Taiwan.

Taiwan has high incidence and prevalence of dialysis End-stage Renal Disease (ESRD) for years. To retard the growth of ESRD populations and to promote kidney health, through the collaborations among Government, Nephrology Society, Professionals, Taiwan launched series of projects for prevention of kidney diseases and care of CKD patients in the past 15 years.

The establishment of an integrated care program within clinics/hospitals with planned care goal, pathway, and treatment guidelines for caring different stages of CKD patients markedly improved the quality of care, slowed the rate of GFR deterioration and the time into dialysis. It also had better preparations at time of dialysis initiation, better survival after dialysis, and less medical expenses over the periods. Taiwan NHI launched Pre-ESRD care project for stage 3b-5 patients in 2007 and Early CKD project for stage 1-3a in 2011. Both projects provided patient education and management, which were reimbursed by NHI.

A significant portion of incident dialysis patients came from event of acute kidney injury due to various systemic diseases, especially cardiovascular and infectious diseases. AKI superimposed on CKD could result in patient death or worsening the renal function to ESRD. Patients suffered from acute kidney injury, no matter recovered or not, always had poor prognosis and cost consuming. Medical expenses spent on AKI were increasing progressively. This issue will become more and more important in the near future, not only in patient care but also the financial burden.

It is an encouraging achievement of CKD prevention project collaborated by government, academic societies, and civilian organizations. We are looking forward to seeing the further stabilization in ESRD incidence and prevalence in Taiwan, and also willing to share our experience in prevention of CKD in the past years.

Current status of CKD/ESRD in Korea

Yon Su Kim
President, Korean Society of Nephrology
Vice President, Seoul National University Hospital

The prevalence of CKD among adults is estimated to be 8.0-10.6% in Korea and the average annual growth rate is 8.2%, indicating that over 4.5 millions may have the disease and its prevalence has been increasing sharply. However, less than 5 percent of individuals with CKD were aware of their disease in its earlier stages, while the awareness rate of individuals in the later stages was around 65%. CKD is also an important issue in Korea in terms of mortality, quality of life, and medical cost. The incidence and prevalence of ESRD are continuously increasing in Korea, however, new PD patients has decreased since 2006. Comparative analyses of survival among dialysis modalities using the database from the claims administrative data and prospective multicenter cohort study show the similar overall survival rates between the modalities. Therefore, Individualized and tailored selection for dialysis modality is needed to deliver the possible benefit to individual patients. Further clinical studies with various design should be performed to guarantee evidence-based, patient-oriented selection of dialysis.

Adiposity and Kidney

Jung Tak Park
Professor, Yonsei University Hospital

The prevalence of chronic kidney disease is growing worldwide. Epidemiologic studies show that the number of patients with chronic kidney disease is increasing in parallel with the world wide obesity epidemic, suggesting a causal relationship between adiposity and kidney disease. In addition, recent laboratory investigation results have proposed mechanisms that could explain this clinical phenomenon. These mechanisms include altered renal hemodynamics caused by glomerular activation of sympathetic nervous and renin–angiotensin systems which leads to glomerular hyper filtration. Increased circulating levels accompanied by insulin resistance also have been found to play direct toxic effects to renal cells. In addition, not only abdominal fat but also fat deposition in the kidney has been noticed to induce toxic effects. Moreover, adipokines released from distant adipose cells have been also noticed to play roles in renal cellular pathology. In spite of the increasing research regarding the relationship between adiposity and renal function, several aspects are still not fully elucidated. During this talk, some of these issues would be discussed. These include the different effects of adipose tissue on kidney regarding to the location of adiposity, the effect clinical significance of muscle to fat ratio on renal function, and the association between fat intake and chronic kidney disease development.

Brain atrophy and cognitive impairment in chronic kidney disease

Kazuhiko Tsuruya
Department of Nephrology, Nara Medical University

It is well known that brain atrophy progresses rapidly and prevalence of cognitive impairment is high in patients with chronic kidney disease (CKD). We reported previously that brain atrophy was accelerated in those on hemodialysis partially due to sudden fall in blood pressure during hemodialysis (Yoshimitsu T, et al. Clin Nephrol, 2000; Mizumasa T, et al. Nephron Clin Pract, 2004), whereas there are no reports on brain atrophy in patients on peritoneal dialysis. It was reported that gray matter volume ratio (GMR) in the brain decreased with aging, whereas white matter volume ratio (WMR) did not decrease in the analysis of brain MRI data using statistical parametric mapping (SPM) (Taki Y, et al. Neurobiol Aging, 2004). Thus, we performed brain MRI in patients with non-dialysis dependent CKD (NDD-CKD) and end-stage renal disease on peritoneal dialysis (ESRD-PD), analyzed the images using SPM, and compared the decline rate of GMR between patients with NDD-CKD and ESRD-PD. The results showed that annual decline rate of GMR was significantly greater in patients with ESRD-PD than NDD-CKD (Tsuruya K, et al. Am J Kidney Dis, 2015) even after adjusting for potential confounding factors. Furthermore, we examined the association of brain atrophy with cognitive dysfunction using trail making test (TMT) and demonstrated the significant association between GMR and TMT scores (Tsuruya K, et al. PLoS One, 2015) in the multivariable regression analysis. The previous reports suggest that non-traditional risk factor such as albuminuria, anemia, hyperhomocysteinemia, uremic toxins, and oxidative stress, as well as traditional risk factor such as aging, diabetes, hypertension, and dyslipidemia (Lu R, et al. Nat Rev Nephrol, 2015).

Thus, we examined the mechanism of cognitive impairment in CKD using CKD mice induced by subtotal nephrectomy by focusing on oxidative stress. CKD mice showed spatial working memory dysfunction, which was evaluated using radial arm water maze test, and pyknotic nuclei change and accumulation of 8-hydroxy-2'-deoxyguanosine (8-OHdG) in the hippocampus of the brain, whereas these findings were not found in the sham-operated mice. These findings of uremic encephalopathy in CKD mice were ameliorated by the treatment with tempol (TMP), an antioxidant drug (Fujisaki K, et al. Nephrol Dial Transplant, 2014). Next, we examined the effect of renin-angiotensin system (RAS) inhibition against the cognitive impairment in CKD. All uremic encephalopathy symptoms were ameliorated in CKD mice treated with telmisartan similarly to the treatment with TMP (Haruyama N, et al. Life Sci, 2014). These findings provided evidence that uremia is associated with spatial working memory dysfunction in mice and that treatment with antioxidants and RAS inhibitors protects against cerebral oxidative stress and improves cognitive dysfunction in uremic mice, suggesting their potential usefulness for the treatment of cognitive dysfunction in CKD.

【Dialysis】
Infectious control in hemodialysis -2

Infection Prevention of Viral Hepatitis in Hemodialysis Units

鄔豪欣 醫師
疾病管制署

Infection is the most common cause of hospitalization and the second most common cause of mortality among hemodialysis (HD) patients. HD patients were recognized as a high risk group for blood-borne viral hepatitis, including hepatitis B and hepatitis C. The re-enforcement of infection prevention measures is the most important factor to prevent the nosocomial transmission of viral hepatitis in HD patients, including hand hygiene, environmental/equipment cleaning/disinfection, patient placement, immunizations, medication safety and injection practices, and education, etc.

【Dialysis】

Infectious control in hemodialysis -3

血液透析病人病毒性肝炎的治療
Treatment of viral hepatitis in hemodialysis patients

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WHO proposes “Global targets to be achieved if viral hepatitis is controlled by 2030”: (1) 90% reduction in new cases of chronic hepatitis B and C; (2) 80% of treatment eligible people with chronic hepatitis B and C be treated; and (3) 65% reduction in hepatitis B and C-related deaths. To achieve the goals proposed by WHO, awareness of the liver diseases in general population, accessibility to medical care for patients infected with hepatitis B or C, availability of effective antiviral therapies, and affordability of the patients and the government will be of tough and priority issues to be resolved worldwide including Taiwan. Through decades of development, there are several new and potent antiviral agents available for the treatment of chronic hepatitis B or C. As for chronic hepatitis C virus (HCV) infection, in the era of interferon-free direct acting antivirals (DAAs), international guidelines (including AASLD, EASL and WHO) suggest that treatment is recommended for all patients with chronic HCV infection, except those with short life expectancies that cannot be remediated by treating HCV, by transplantation, or by other directed therapy. The main difficulty for the generalization of DAAs is the high cost. In contrast, for chronic hepatitis B virus (HBV) infection, we do not have agents for the cure of the virus infection. Thus, different treatment recommendations exist regarding the indication, duration and stopping criteria for patients with HBeAg-positive or -negative chronic hepatitis B.

The advent of DAAs has revolutionized the therapy of HCV, including patients with advanced chronic kidney disease. Two regimens based on DAAs have been recently approved for the antiviral therapy of HCV in patients with CKD stage 4/5: elbasvir/grazoprevir and glecaprevir/pibrentasvir. Such regimens have been provided with high efficacy and safety, according to the results given by C-SURFER and EXPEDITION-4, respectively. Sofosbuvir, a non-structural 5B polymerase inhibitor, is the backbone of many anti-HCV drug regimens, and has significant renal excretion. As a result, the use of sofosbuvir is not recommended in patients with an eGFR <30 mL/min/1.73m^2. As for chronic viral hepatitis B in patients receiving hemodialysis, treatment with oral nucleoside/tide analogues (NA) results in effective viral suppression, reduced hepatic complications and improved patient survival. NAs are cleared by the kidneys and therefore their dosage has to be adjusted in all patients with impaired renal function.

【Ethics】

Will Artificial Intelligence Change Decision-Making Algorithms in Dialysis? Yet, Who Is Responsible When It Goes Wrong?

胡賦強

國際哈佛(統計)科技顧問有限公司負責人

Abstract

Will artificial intelligence (AI) change decision-making algorithms in dialysis? Yes, it will. It is just a matter of time. When the dream of autonomous cars comes true in human society, AI becomes truly real and it will definitely go to wherever it can play its role, including hospitals and clinical practice. In this talk, we discuss a few examples first to show where AI may change the decision-making algorithms in dialysis (Zheng, Liu, Georgescu, Xu, and Comaniciu, 2017; Hueso, Vellido, Montero, Barbieri, Ramos, *et al*., 2018). Next, we clarify some common myths about the power of AI—Will AI degrade human intelligence (HI)? Will AI take human's job away and then raise the unemployment rate? And, will AI defeat human in the end? Finally, we address the ethical issues—Who is responsible when AI goes wrong? As a caution, AI must collaborate with HI because it is created by human—not God.

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【Vascular Access】-1

Present status and future of dialysis therapy in Japan

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Vice-director of Saitama Medical University Hospital
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Background: Japan has the most rapidly growing elderly population in the world and now faces the reality of soon becoming a super-aging society in the future. At the same time, the younger tax-paying population in Japan is dwindling. Therefore, it is likely that the country's financial resources will not be able to sustain the escalating costs of medical care in the elderly. The phenomenon of burgeoning medical expenses in aging societies is a worldwide problem, so the future of health care in Japan is likely to represent the global future of medical care. The Japanese population on dialysis is also growing and aging, and being able to provide cost-effective care for these patients in the future is an important issue.

Recent reports have outlined the present conditions and future prospects of Japanese patients on dialysis. Japan currently has the most rapidly aging population in the world and its dialysis population is also aging rapidly.

Summary: Patients on dialysis in Japan have a extremely good prognosis, probably because of the national health insurance system with efficient introduction of patients to dialysis, creation of a good arteriovenous shunt, an adequate patient education system, management by skilled medical, nursing, and technical staff, and good hygiene. However, although many patients are receiving hemodialysis in Japanese facilities, fewer patients are receiving peritoneal dialysis (PD) or undergoing transplantation. PD is home-based, and so offers a high degree of freedom and patient satisfaction, particularly for the elderly. The government is aware of the progress made in the fields of PD and transplantation, and in 2018 revised the reimbursement policy for fees for medical service in accordance with the goal of implementing an "integrated community-based health care system".

Key message: PD is an option for elderly patients and should be considered as a strategy for management of renal disease in Japan's super-aging society.

Keywords: Japan, peritoneal dialysis, renal transplantation, integrated community-based care system, elderly

【Vascular Access】-2

Echo-guided PTA

the center director Tomonaga Noguchi MD
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Zenjinkai group is a hemodialysis facility based in Tokyo and Kanagawa prefecture. Our group run Kichijoji Asahi Hospital in Tokyo, Yokohama Daiichi Hospital in Yokohama, and 70 clinics for hemodialysis. We treat 7,600 hemodialysis patients. We have a vascular access center in each hospital. Vascular Accesses of 756 patients at Kichijoji Asahi Hospital. Vascular Accesses of 4993 patients at Yokohama Daiichi Hospital are treated in 2017. At Kichijoji Asahi Hospital, where I am the center director, 75% of VA treatment occupies VAIVT (25% is surgery), 93% of which are Ultrasound-Guided PTA. We believe ultrasonic guidance rather than angiography is the standard treatment for PTA. Ultrasound-Guided PTA is not applicable for cases with calcified lesions and lesions in the central vein, but the number of cases is not many.

Ultrasound-Guided PTA will include some of the advantages.

We think Ultrasound-Guided PTA have benefit for patients with contrast agent allergy, patients with residual renal function, and patients who need repeated PTA. It is also useful for cases where sheath placement is difficult, cases where angiography is difficult to visualize lesions (complex shaped veins, thrombus obstruction etc). When treating thrombus obstruction, we treat surgical thrombectomy with Ultrasound-Guided PTA in combination. In presentation, I will show you the actual procedure video. I will also describe our treatment strategy and results in our hospital.

【Vascular Access】-3

Access flow-based vascular care

Chung-Kuan Wu, M.D.

Vascular access is a lifeline of hemodialysis (HD) patients. Vascular access function and patency are crucial for the optimal management of HD patients. The leading cause of vascular patency for an arteriovenous fistula (AVF) and arteriovenous graft (AVG) is venous stenosis as a result of intimal hyperplasia. Severe venous stenosis increased risk of thrombosis. The morphologic change of venous stenosis leads to hemodynamic change of vascular access including low vascular access flow (Qa). These hemodynamic change can cause dysfunction of vascular access such as low actual blood flow, recirculation, low Kt/V and increase of clearance gap (CL-gap). Hence, regular measurement of Qa is regarded as an important way of vascular surveillance to early detect vascular dysfunction. According to KDOQI guidelines, vascular intervention should be necessary if the Qa of AVF less than 400-500 mL/min, or the Qa of AVG less than 600 mL/min, or the Oa less than 1000ml/min that has decreased by more than 25% over 4 months.

Qa is associated with cardiac function. High Qa level, Qa more than 1800 ml/min, can induce high-output cardiac failure and steal syndrome. Therefore, high Qa level reminds us to notice these clinical symptoms. Flow reduction by banding or other methods are necessary if patients with high Qa level and clinical symptoms of heart failure and steal syndrome.

An optimal Qa level has still been unknown. Our study demonstrated a Qa level of <1000 mL/min is an independent risk factor for both short-term and long-term all-cause mortality in chronic HD patients. Physicians should be vigilant when the Qa is <1000 mL/min in chronic HD patients. In addition, intraoperative measurement of the Qa can be applied for surgical creation of AVF. Our study demonstrated one-year primary and secondary patency rates are significant lower in new created AVF with a Qa level of <200 mL/min. These enhance the surgical efficiency and maximize the usefulness of autogenous AVF.

【Vascular Access】-4

Ballon-assisted maturation of AVF

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林口長庚紀念醫院 心臟血管外科

There are three categories of vascular access to delivering hemodialysis- central venous catheters(CVCs), prosthetic arteriovenous grafts (AVGs), and autogenous arteriovenous fistulas (AVFs).Compared with CVC and AVGs, AVFs has obvious benefits including low thrombosis and infection rates, fewer hospital admissions for access revision, and lower healthcare related costs. Therefore, The National Kidney Foundation recommends that AVFs be the preferred vascular access for long-term hemodialysis.

The creation of a functional AVF is hampered by the relatively high failure to mature (FTM) rate. The calcified and non- compliant arteries and sclerotic veins might be the cause of FTM, resulting in low arteriovenous (AV) bloodflow and impaired vessel diameter increase. Balloon-assisted maturation (BAM) defined as balloon angioplasty to treat above vascular lesions and facilitate AVFs maturation.Between 2015 and 2016 at Chang Gung Memorial Hospital, we performed 268 BAM procedures preformed in 209 consecutive patients.

According our experience, BAM is benefit for the patients with marginal vessels who previously would have received poly-tetrafluoroethylene (PTFE) graft

【Vascular Access】-5

Endovascular treatment for vascular access dysfunction

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血液透析通路是末期腎臟病患者賴以生存的生命線，通路如果出現功能不良的情況會影響病患正常透析的治療時程。傳統開放手術有傷口大且病患可能暫時需要使用導管透析以等待廔管復原的缺點。腔內治療具有傷口小、恢復快且不影響正常透析的優勢，從 1980 年後逐漸成為第一線的治療選擇, 發展至今陸續有氣球擴張手術, 支架置放手術, 甚至塗藥氣球手術. 本次課程將依序介紹各類血管腔內手術作法與適應症.

【Vascular Access】-6

Management of vascular access complications (steal, aneurysm, infection…)

謝炯昭 主任
高雄醫學大學附設中和紀念醫院 心臟血管外科

Thrombosis and infection are the most common vascular access dysfunctions and thrombosis is the most common cause of vascular access loss. Thrombosis and infection occur more frequently in arteriovenous grafts and dialysis catheters than in arteriovenous fistulae. The Dialysis Outcomes and Practice Patterns Study reports that AVG are 3.8 times more likely to require thrombectomy and 3.0 times more likely to require access intervention than AVF.

【Vascular Access】-7

Emergent management of AVF or AVG occlusion

Chung-Dann Kan MD. PhD.
National Cheng Kung University

AV access management is important issue for uremic with hemodialysis patients. After the long term usage of the AV access, sometimes, the patients will encounter the situation of AV access occlusion. How to proper managing this condition is important for both patient and physicians. Here, I will report our managing strategies for various AV access acute occlusion treatment.

【Vascular Access】-8

Management of symptomatic central vein occlusive disease

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ABSTRACT

Endovascular intervention is the mainstay treatment for symptomatic central vein stenosis or occlusion to salvage the vascular access in hemodialysis patients. To date, poor results have been proved in percutaneous transluminal angioplasty and bare mental stent treatment. Thus stent-grafts emerge a promising alternative but had demonstrated variable rates of patency in the literatures due to no site specific device. In this study, we investigated the efficacy of stent-graft treatment using abdominal aortic aneurysm (AAA) contra-lateral leg endoprosthesis for symptomatic central vein disease. From 2013 Dec. to 2016 Dec., 39 hemodialysis patients with symptomatic central vein stenosis or occlusion who were treated with AAA contra-lateral leg endoprosthesis were entered into this retrospective study. The primary and secondary patency of target site and circuit, modes of patency loss, and risk factors for intervention were analyzed. Our experience will be presented.

【Toxicology】-3

Target therapy induced organ toxicity: nephrotoxicity at a glance

趙家德 醫師
台大醫院 腎臟科

The incidence of malignancy rises worldwide accompanying the increase in longevity and exposure to known and unknown carcinogens. We now have a wide range of pharmacologic treatments against different types of malignancies, including chemotherapy, radiotherapy, hormonal therapy, and isotope-based therapy. Targeted therapy, defined by the National Cancer Institute of United States as “treatment that harnesses drugs or other substances to identify and attack specific types of cancer cells with less harm to normal cells”, works through the blockade of the action of certain enzymes, proteins, membrane-bound or cytosolic receptors, or other molecules involved in the growth and dissemination of cancer cells. Members of targeted therapy that are commonly used include proteasome inhibitors, vascular endothelial growth factor (VEGF) and its receptor (VEGFR) antagonists, epidermal growth factor receptor (EGFR) antagonists, mammalian target of rapamycin (mTOR) inhibitors, programmed death (PD) and its ligand (PDL-1), cytotoxic T lymphocyte-associated antigen 4 (CTLA-4) inhibitors, and tyrosine kinase inhibitors (TKIs). These agents are active against a variety of cancer such as myeloma, metastatic colorectal cancer, non-small cell lung cancer, renal cell carcinoma, melanoma, etc, as treatment for refractory cancer or as first-line treatment.

Side effects, mild or severe, are not uncommon when we administer treatment for patients with cancer. Nephrotoxicity of chemotherapeutic agents remains an important issue limiting the efficacy of these treatments. There are now more and more oncologists and hematologists resorting to targeted therapies to treatment patients with cancer, citing the benefit of fewer side effects and ease of administration of targeted therapy. However, emerging evidence suggests that targeted therapy also exhibit nephrotoxicity, with a distinct spectrum of nephrotoxic presentations as compared to conventional chemotherapeutic agents. In this special talk, we will briefly introduce the concept of nephrotoxicity associated with targeted therapy and their clinical features that may remind both nephrologists and general practitioners of the potential downside of these promising agents.

時間：107 年 12 月 9 日(星期日) 12:20 ~ 13:10

【Lunch Symposium 1】

從 KDIGO Guideline 最新治療趨勢談磷結合劑的選擇

林承叡 醫師
馬偕紀念醫院 腎臟科

根據研究顯示，病患血中的鹼性磷酸酶與血磷濃度過高，能夠預測長期洗腎患者的死亡風險。洗腎病患鈣化的比例相當高，將近一半的病患都有此問題。這些鈣化的現象與血磷有關，血磷可說是健康的沉默殺手，初期沒有任何不適表現，長久下來不但傷及血管，還可能影響骨頭造成退化，病患往往等到後期出現疼痛等症狀時發現，然而這個時期再控制血磷已經為時較晚。

KDIGO guideline 提出鈣化篩檢的重要性，在台灣醫療院所雖然每個月會幫洗腎病患檢測血磷值，但並沒有定期檢測鈣化情形。所以，進一步控制血磷是非常重要的課題。洗腎的過程只能去除掉部分的磷，若病患血磷持續上升，就必須借助降磷劑的使用。

KDIGO guideline 2017 在磷的標準上也加入了日本的資料，高血磷會增加洗腎病患血管鈣化的風險，研究發現，高血磷對血管的危害並沒有人種的差異，目前廣泛被使用的鈣片若用於血鈣已偏高的病患反倒會加重其鈣化的機率，此時評估改用非鈣的磷結合劑，是另一個優良選擇。

時間：107 年 12 月 9 日(星期日) 12:20 ~ 13:10

【Lunch Symposium 2】

Cardiac and renal protective effects of urate-lowering therapy: target uric acid for hyperuricemia and gout

Professor Roberto Pontremoli
University of Genoa, Italy

Abstract

Over the last several years, evidence has been accumulating that increased serum uric acid (sUA) levels and gout are associated with subclinical organ damage a greater risk of cardiovascular and renal events. Several pathogenetic mechanisms have been shown to link sUA to the development of vascular damage.

Patients with gout-hyperuricemia often have co-morbidities such as cardiovascular disease, renal failure and metabolic syndrome components. Some studies, but not all, have suggested that hyperuricemia and gout are associated with increased risk of myocardial infarction, renal failure and death primarily because of increased risk of cardiovascular events. Therefore, knowledge of the effects of urate-lowering therapy (ULT) on co-morbidities, in particular cardiovascular events and chronic kidney disease, is crucial.

Preliminary studies have suggested that XOI (allopurinol and febuxostat) reduces of uric acid might be associated to renal and cardiovascular protection, especially in high risk subgroups. In the lecture, we will explore the ULT role in cardiac and renal protective effects from a nephrology viewpoint

時間：107 年 12 月 9 日(星期日) 12:20 ~ 13:10

【Lunch Symposium 3】

Elbasvir/Grazoprevir in the Treatment of HCV-Infected Patients with Severe Renal Impairment

Chen-Hua Liu, MD, PhD
National Taiwan University Hospital

Hepatitis C virus (HCV) infection is prevalent in patients with severe renal impairment. Numerous epidemiologic studies have shown the HCV infection is independently associated with the severe of renal impairment. Among the patients with end-stage renal disease (ESRD), the prevalence rates are about 2-4 times higher than those with normal renal function. ESRD Patient with HCV infection on maintenance dialysis have significantly higher rates of mortality and morbidity than those without HCV infection. Furthermore, HCV-infected who receive renal transplantation have poorer overall patient and graft survival rates if they remain viremic after renal transplantation.

In the era of IFN-based therapies, the sustained virologic response (SVR) rates of applying peginterferon plus ribavirin (RBV) are suboptimal, ranging about 40-50%. Furthermore, high rates of treatment-emergent adverse events (TEAEs) often compromise the patients' safety and quality of life, making this kind of therapy less appealing to the treating physicians. The recent introduction of direct acting antiviral agents (DAAs) has made a paradigm shift in the care of HCV, based on the excellent efficacy and safety profiles, short treatment duration and low pill burden. Among the various regimens approved for daily practice, elbasvir/grazoprevir (EBR/GZR), which comprises HCV NS3 protease inhibitor and NS5A inhibitor, is potent and safe, and can be taken only 1 table per day for 12 weeks as the form of fixed-dose combination. In addition, the potential drug-drug interactions (DDIs) are low, which may facilitate the patients' safety and compliance. The pivotal phase III C-SURFER study aiming at treatment of HCV genotype 1 (HCV-1) infection by EBR/GZR for 12 weeks in patients with chronic kidney disease (CKD) stage 4 or 5 showed that the overall SVR rate was 99%, irrespectively of age, sex, baseline viral load, subgenotype, hepatic fibrosis stage CKD stage or on-treatment virokinetics. Furthermore, few patients experienced TEAEs, making EBR/GZR to be the excellent choice for HCV-1 infection, which is the most prevalent genotype in the world. Following the encouraging results, the effectiveness and safety of multiple real-world Eastern and Western studies also confirmed the excellent performance of EBR/GZR in the treatment of HCV-1 infection.

The long-term prognosis, including persistent aviremic state, overall survival rate and the quality of life are improved after SVR by antiviral therapies. Furthermore, the waiting list for renal transplantation would be prioritized in patients who achieve SVR. Based on the great improvement for the care and treatment of HCV by potent DAAs, particularly EBR/GZR, the gold of mini-elimination would be feasible in patients with severe renal impairment, particularly for dialysis patients. Further efforts should be done between nephrologists and hepatologists to early eliminate HCV infection in this special setting.

時間：107 年 12 月 9 日(星期日) 12:20 ~ 13:10

【Lunch Symposium 4】

Nutrition Strategy for PEW in CKD Patients

唐德成主任
台北榮民總醫院　內科部腎臟科

根據調查，30-40%第三及第四期慢性腎臟病人有蛋白質能量耗損(protein-energy wasting，簡稱PEW)的情況，是造成慢性腎臟病人死亡的危險因子。
慢性腎臟病人在飲食上有許多限制，可能會因蛋白質攝取量限制過嚴或者腎臟病惡化產生厭食，若同時有熱量攝取不足，引起身體組織蛋白質的分解，產生過多的含氮廢物，造成腎臟負擔，進而加速腎臟惡化。蛋白質能量損耗是慢性腎臟病人重要的死亡預測因子之一，故**攝取足夠的熱量**，以能維持正氮平衡，為慢性腎臟病人照護的重要處置目標,也是避免患者產生營養不良的關鍵。

K/DOQI 建議，60歲以下慢性腎臟病人每天應攝取 35 kcal/kg 熱量，60歲以上病人的熱量攝取應維持在30-35 kcal/kg。維持低蛋白飲食(LPD)則是0.6- 0.8 g/kg/day 的蛋白質，除了蛋白質量要控制之外，蛋白質種類也要注意，建議攝取高生物價蛋白質，蛋白質來源至少有一半以上來自雞蛋、牛奶、魚類、肉類等動物性蛋白質及黃豆蛋白這類高生物價蛋白質。

為了減緩腎臟功能喪失，慢性腎臟病人須降低蛋白質的攝取，但同時要維持足夠熱量攝取，因此增加優質脂肪以補充熱量是一重要議題。臨床試驗證實,以ω-3PU- FAs補充熱量，可降低血清TG及LDL-C濃度及降低心血管疾病的風險。在攝取適當熱量的情況下，**補充 EPA 及 DHA 可降低心血管疾病發生及死亡率**，此保護心臟的作用與其降低血清 TG 濃度的作用有關。 慢性腎臟病人容易產生Malnutrition-Inflammation-Atherosclerosis syndrome (MIA syndrome)。營養不良時，病患體內炎症愈嚴重，則其血管內皮細胞功能愈差，動脈粥狀硬化愈嚴重，形成惡性循環，病人心血管相關疾病叢生，建議補充EPA及DHA可降低心血管疾病發生及死亡率。

慢性腎臟病人應維持適當BMI及腰圍，KDOQI 建議血清白蛋白每1-3個月定期追蹤。如果慢性腎臟病人在第3期末營養狀況開始惡化，第4期食慾不振相對明顯，可請專業醫療人員評估使用慢性腎臟病營養配方做營養介入，來預防營養不良，降低PEW的發生率。