50th Anniversary

Nephrology Society of Thailand
Annual Meeting

Program & Abstract Book

'Building Sustainable Kidney Health Care for the Future'

Along with APSN Continuing Medical Education (CME) Joint Symposium
In collaboration between the Nephrology Society of Thailand (NST)
and Asian Pacific Society of Nephrology (APSN)
Theme 'Breakthrough in Management of Kidney Disease 2026'
August 7, 2026; 13.00-17.00

สมาคมโรคไตแห่งประเทศไทย (50 ปี)

งานประชุมใหญ่ประจำปี 2569

Building Sustainable Kidney Health Care for the Future

วันที่ 6 - 9 สิงหาคม พ.ศ. 2569

ณ บางกอกคอนเวนชันเซ็นเตอร์ เซ็นทรัลเวิลด์ ชั้น 22

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ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์	ที่ปรึกษา
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วิทยากร

วิทยากรต่างชาติ

Prof. Masaomi Nangaku (Japan)
Prof. Hyeong Cheon Park (Korea)
Prof. Fariz Safhan Mohd Nor (Malaysia)
Prof. Rosnawati Yahya (Malaysia)
Prof. Reiko Inagi (Japan)
Prof. Jin-Shuen Chen (Taiwan)
Prof. Jia-Jung Lee (Taiwan)

วิทยากรไทย

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ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์
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รศ.นพ.โอภาส ไตรตานนท์
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ศ.นพ.เกื้อเกียรติ ประดิษฐ์พรศิลป์
ศ.นพ.ยิ่งยศ อวิหิงสานนท์
ดร.พว.กฤษดา แสวงดี
ผศ.นพ.สดุดี พีรพรรัตนา

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น.ต.นพ.กำปั่นทอง ตั้งวีระพงษ์
น.ท.นพ.ณัฐพล ปัทมินทร์
น.อ.หญิง พญ.วรรวรรณ ชัยลิมปมนตรี
นพ.กมล โฆษิตรังสิกุล
นพ.เจนวิทย์ วงศ์บุญสิน
นพ.ปองปราชญ์ พัวพัฒนกุล
นพ.พีรภัทร ธนาพงศธร
นพ.อดิศร ปทุมารักษ์
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ผศ.นพ.ไกรสูรย์ ล้อมจันทร์สุข
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พญ.ศรินยา บุญเกิด

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พล.อ.นพ.ถนอม สุภาพร
พล.อ.อ.นพ.ทวีพงษ์ ปาจรีย์
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รศ.พญ.พรรณธิพา ต้นสวรรค์
รศ.พญ.สิริภา ช้างศิริกุลชัย
ศ.เกียรติคุณ นพ.ดุสิต ล้ำเลิศกุล
ศ.เกียรติคุณ พญ.ธัญญารัตน์ ธีรพรเลิศรัฐ
ศ.คลินิก พญ.ประไพพิมพ์ ธีรคุปต์
ศ.ดร.นพ.เกรียงศักดิ์ วารีแสงทิพย์
ศ.ดร.นพ.ณัฐชัย ศรีสวัสดิ์
ศ.นพ.ขจร ตีรณธนากุล
ศ.นพ.ชัยรัตน์ ฉายากุล

วิทยากรไทย

ศ.นพ.มล.ชาครีย์ กิติยากร
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ศ.นพ.อดิศว์ ทัศณรงค์
ศ.พญ.ธนันดา ตระการวนิช
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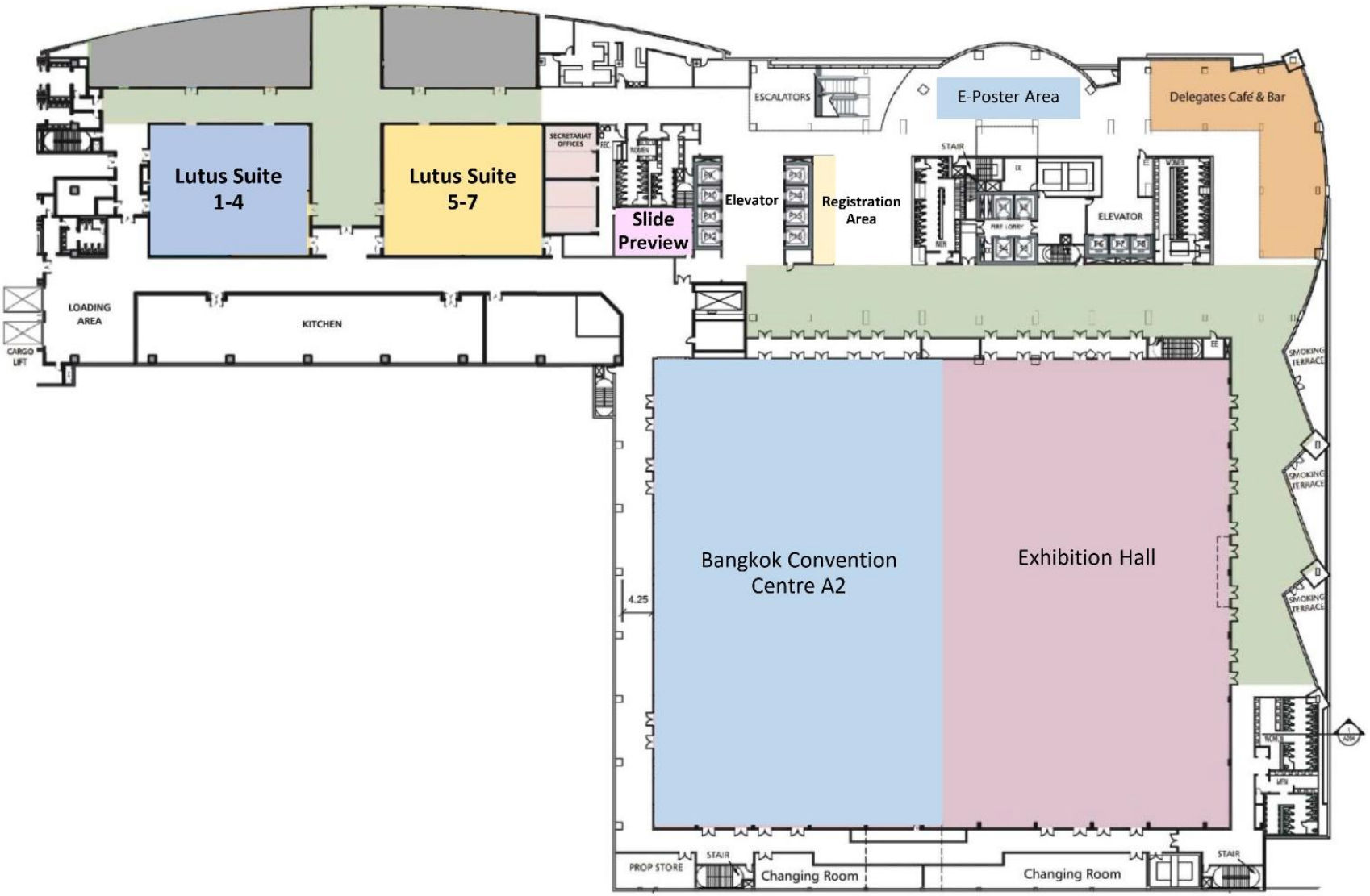
ศ.พญ.สินี ดิษฐบรรจง
พ.อ.นพ.คงกระพัน ศรีสุวรรณ

Floor Plan


Lutus Suite 1-4
Lutus Suite 5-7
SECRETARIAT OFFICES
Slide Preview
Elevator
Registration Area
ESCALATORS
E-Poster Area
Delegates Café & Bar
STAIR
ELEVATOR
LOADING AREA
CARGO LIFT
KITCHEN
SMOKING TERRACE
Bangkok Convention Centre A2
Exhibition Hall
4.25
PROP STORE
STAIR
Changing Room
Changing Room
STAIR

Scientific Program

วันพฤหัสบดีที่ 6 สิงหาคม พ.ศ. 2569		
เวลา	Bangkok Convention Centre A2	Lotus Suite 5-7
13.30–15.00 น.	**เกณฑ์การตรวจศูนย์รับรองมาตรฐานการฟอกเลือดด้วยเครื่องไตเทียม (ศรต.) updated ปี 68** Chair: ผศ.นพ.สดุดี พีรพรรัตนา ▪ นพ.วุฒิเดช โอภาศเจริญสุข ▪ รศ.(พิเศษ) พญ.วรางคณา พิชัยวงศ์ ▪ ผศ.นพ.สดุดี พีรพรรัตนา	S01: Acute Kidney Injury: Advances in Mechanisms and Management Chair: ศ.ดร.นพ.ณัฐชัย ศรีสวัสดิ์ Unexplained Rapidly Progressive Kidney Failure: Diagnostic Algorithm ▪ น.ท.นพ.ณัฐพล ปัทมินทร์ AI and Novel Biomarkers for Real-time AKI Prediction and Management ▪ นพ.พีรภัทร ธนาพงศธร The Art of KRT in AKI: Precision, Timing and Personalization ▪ นพ.อดิศร ปทุมารักษ์
15.00-15.30 น.	Break	
15.30-17.00 น.	**การเสวนาเรื่อง “แนวทางการพัฒนาคุณภาพและสิทธิประโยชน์การบำบัดทดแทนไตในปี 69”** Chair: ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์ ▪ นพ.วุฒิเดช โอภาศเจริญสุข ▪ ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์ ▪ รศ.นพ.อรรถพงศ์ วงศ์วิวัฒน์ ▪ พญ.ลลิตยา กองคำ	S02: Glomerular Diseases: Precision Medicine in Action Chair: รศ.นพ.ขวัญชัย ไพโรจน์สกุล Steroid-Minimizing Strategies in GN ▪ ผศ.นพ.ภูมิ ณรงค์เกียรติคุณ Refractory Lupus Nephritis: Integrating Biological Agents ▪ นพ.ปองปราชญ์ พัวพัฒนกุล Update on Hereditary Glomerulopathy: From Genes to Targeted Therapy ▪ ผศ.นพ.ไกรสูรย์ ล้อมจันทร์สุข

วันศุกร์ที่ 7 สิงหาคม พ.ศ. 2569	
เวลา	**Bangkok Convention Centre A2**
08.45-09.00 น. 09.00-09.15 น.	**Opening Ceremony** ▪ นพ.วุฒิเดช โอภาศเจริญสุข วิดีโอนำเสนอประวัติและผลงานของสมาคมโรคไตแห่งประเทศไทย
09.15-10.45 น.	**Special Symposium: Collaborative Efforts to Improve Kidney Disease Management in Thailand: Insights from Past-Presidents** **กล่าวถึงประวัติสมาคมฯ ช่วงแรกเริ่ม และการพัฒนางาน ตรต.** ▪ ศ.กิตติคุณ นพ.เกรียง ตั้งสง่า **บรรยายเรื่องแนวทางป้องกันและชะลอการเสื่อมของโรคไตเรื้อรัง** ▪ ศ.เกียรติคุณ พญ.ธัญญารัตน์ ธีรพรเลิศรัฐ **บรรยายเรื่องแนวทางการเชื่อมต่องานวิชาการกับระบบสาธารณสุขของประเทศ** ▪ ศ.เกียรติคุณ นพ.ดุสิต ล้ำเลิศกุล **บรรยายเรื่องการพัฒนางานฝึกอบรมอายุแพทย์โรคไต, ประชุมวิชาการ และ TRT** ▪ พล.อ.ท.นพ.อนุตตร จิตตินันทน์ **บรรยายเรื่องการจัดประชุมวิชาการนานาชาติ และความร่วมมือกับสมาคมโรคไตในภูมิภาคเอเชียแปซิฟิก** ▪ ศ.ดร.นพ.เกรียงศักดิ์ วารีแสงทิพย์ **บรรยายเรื่องการขยายกิจกรรมการป้องกันโรคไตเรื้อรัง** ▪ รศ.นพ.สุรศักดิ์ กันตชูเวสศิริ **เชิญอดีตนายกสมาคมโรคไตแห่งประเทศไทย ร่วมกล่าวแสดงความยินดีสมาคมโรคไตฯ ครบรอบ 50 ปี** ▪ ศ.กิตติคุณ นพ.วิศิษฏ์ สิตปรีชา ▪ พล.ต.หญิง อุษณา ลุวีระ) **กล่าวคำกลอนในวาระที่สมาคมโรคไตฯ ครบรอบ 50 ปี** ▪ ศ.นพ.สมชาย เอี่ยมอ่อง ▪ ถ่ายรูปหมู่ ▪ **Moderator:** พ.อ.นพ.อดิสรณ์ ลำเพาพงศ์ / รศ.(พิเศษ) พญ.วรางคณา พิชัยวงศ์
10.45-11.15 น.	Break
11.15-11.45 น.	**Plenary Lecture – Climate, Kidneys and the Next Decade (ENG)** **Speaker:** Masaomi Nangaku (Japan) **Introducer:** Vuddhidej Ophascharoensuk (Thailand) **Moderator:** Worawon Chailimpamontree

เวลา	Bangkok Convention Centre A2	Lotus Suite 5-7	Lotus Suite 1-4
12.00-13.00 น.	Educational Symposium **บริษัท แอ๊บบอต ลาบอแรตอรีส จำกัด**Beyond Standard of Care: Closing the Residual Risk Gap in CKD Patients ▪ ผศ.นพ.สาธิต คูระทอง ▪ รศ.ดร.นพ.ขจรศักดิ์ นพคุณ Moderator: **นพ.วุฒิเดช โอภาศเจริญสุข**	Educational Symposium **บริษัท ไทยเมจิฟาร์มาซิวติคัล จำกัด** Beyond the Visible: Unveiling Silent CV Risk and Pruritus Burden in CKD ▪ พ.อ.ศ.นพ.บัญชา สถิระพจน์ ▪ ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์ ▪ นพ.มาโนช รัตนสมปัตติกุล ▪ รศ.นพ.วันจักร พงษ์สิทธิศักดิ์ Moderator: **พ.อ.ศ.นพ.บัญชา สถิระพจน์**	
13.00-14.30 น.	S03: Comprehensive Strategy to Improve CKD Outcomes Chair: ศ.พญ.ธนันดา ตระการวนิช Delaying the Inevitable: Cost-Effective Strategies in Modern DKD Management ▪ พ.อ.ศ.นพ.บัญชา สถิระพจน์ Nutrition + Non-pharmacological Therapy to Improve CKD Outcomes ▪ รศ.พญ.ปิยวรรณ กิตติสกุลนาม Management Transition (เน้น Medication/Diet) from Advanced CKD to Dialysis ▪ พญ.ปาจารีย์ กฤษณพันธุ์	APSN CME Course: Breakthrough in Management of Kidney Disease 2026-1 (ENG) Chair: Konggrapun Srisuwan (Thailand) 13.00 – 13.05 Opening Remarks ▪ Vuddhidej Ophascharoensuk (President of Nephrology Society of Thailand) 13.05 – 13.10 Introduction of APSN ▪ Hyeong Cheon Park (President of APSN) 13.10 – 13.35 Rethinking Diabetic Kidney Disease: Advancing Combination Therapy in DKD ▪ Hyeong Cheon Park (Korea) 13.35 – 14.00 ANCA Vasculitis: 2026 Update ▪ Rosnawati Yahya (Malaysia) 14.00 – 14.25 Choosing the Right Path: Tailoring IgA Nephropathy Treatment ▪ Pantipa Tonsawan (Thailand) 14.25 – 14.40 Q & A	Oral Presentation 1: Acute Kidney Injury, Chronic Kidney Disease, Miscellaneous Chair: ▪ **ผศ.นพ.สาธิต คูระทอง** ▪ **รศ.นพ.อาคม นงนุช** **กรรมการ** ▪ ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์ ▪ พ.ท.หญิง พญ.นฤตยา วโรทัย ▪ พ.ต.ท.นพ.ดลวัฒน์ แสงพานิชย์ ▪ ร.อ.หญิง พญ.กวิตา จินตนาปราโมทย์
14.30-15.00 น.	BREAK		

เวลา	Bangkok Convention Centre A2	Lotus Suite 5-7	Lotus Suite 1-4
15.00-16.30 น.	**S04: Past, Present and Future of Kidney Transplantation in Thailand** Chair: พล.อ.นพ.ถนอม สุภาพร The Milestones: How Thailand Became a Regional Leader ▪ ศ.นพ.ยิ่งยศ อวิหิงสานนท์ Expanding Donor Pool ▪ พญ.กรทิพย์ ผลโภค Antibody-Mediated Rejection 2026: Diagnosis and Treatment Update ▪ รศ.นพ.ณัฐวุฒิ โตวนำชัย	**APSN CME Course: Breakthrough in Management of Kidney Disease 2026-2 (ENG)** Chair: Sinee Disthabanchong (Thailand) 15.00 – 15.25 AKI to CKD Transition: Mechanisms and Clinical Implications ▪ Nuttha Lumlertgul (Thailand) 15.25 – 15.50 Genetics and Kidney Disease: What Nephrologist Should Know? ▪ Janewit Wongboonsin (Thailand) 15.50 – 16.15 CKD-MBD: Moving Beyond PTH Target ▪ Fariz Safhan Mohd Nor (Malaysia) 16.15 – 16.30 Q & A	**Oral Presentation 2: Transplantation, Glomerular Disease, Risk Management & Quality Improvement in Kidney Care, Electrolytes, and Acid-base Disorders** Chair: ▪ **รศ.ดร.พญ.พรเพ็ญ แสงถวัลย์** ▪ **รศ.ดร.นพ.ขจรศักดิ์ นพคุณ** **กรรมการ** ▪ รศ.พญ.พรรณธิพา ต้นสวรรค์ ▪ พ.ท.หญิง พญ.นฤตยา วโรทัย ▪ พ.ต.ท. นพ.ดลวัฒน์ แสงพานิชย์ ▪ ร.อ.หญิง พญ.กวิตา จินตนาปราโมทย์

วันเสาร์ที่ 8 สิงหาคม พ.ศ. 2569			
เวลา	**Bangkok Convention Centre A2**	**Lotus Suite 5-7**	**Lotus Suite 1-4**
08.00-09.00 น.	**ปาฐกถา เกียรติยศ ศ.กิตติคุณ นพ.วิศิษฏ์ สิตปรีชา** **The Art of Asking Better Questions: Mentorship, Research, and Lifelong Learning in Nephrology** ▪ ศ.นพ.เกื้อเกียรติ ประดิษฐ์พรศิลป์ **กล่าวเชิญผู้แสดงปาฐกถา:** รศ.(พิเศษ) นพ.พิสุทธิ์ กตเวทิน **Moderator: รศ.นพ.โอภาส ไตรตานนท์**		
09.00-10.00 น.	**Plenary Symposium: Transforming Kidney Care in Thailand: Powering Change Through Global Collaboration (ENG)** **Speakers:** ▪ Masaomi Nangaku (Japan) ▪ Hyeong Cheon Park (Korea) ▪ Kriang Tungsaga (Thailand) **Moderator: Talerngsak Kanjanabuch (Thailand)**	**การบริหารอัตรากำลังการพัฒนาสมรรถนะและกำหนดอัตรากำลังพยาบาล** Panel Discussion: Work force Management and Competency Dialysis Nurse in Thailand-1 ▪ ดร.พว.กฤษดา แสวงดี ▪ พว.สุชาดา บุญแก้ว ▪ พว.นิภา อัยยสานนท์ ▪ พว.ภัทรนันท์ แพทย์วงษ์ **Moderator:** พว.ดรุณี จันทร์เลิศฤทธิ์	
10.00-10.30 น.	Break		
10.30-11.00 น.	**Fellow Graduation Ceremony** (พิธีมอบโล่จบการศึกษา) ▪ นพ.วุฒิเดช โอภาศเจริญสุข	Panel Discussion: Work force Management and Competency Dialysis Nurse in Thailand-2 ▪ ดร.พว.กฤษดา แสวงดี ▪ พว.สุชาดา บุญแก้ว ▪ พว.นิภา อัยยสานนท์ ▪ พว.ภัทรนันท์ แพทย์วงษ์ **Moderator:** พว.ดรุณี จันทร์เลิศฤทธิ์	
11.00-11.50 น.	**การประชุมประจำปีสมาคมโรคไตแห่งประเทศไทย** ▪ นพ.วุฒิเดช โอภาศเจริญสุข ▪ ศ.คลินิก พญ.ประไพพิมพ์ ธีรคุปต์ ▪ ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์		

เวลา	Bangkok Convention Centre A2	Lotus Suite 5-7	Lotus Suite 1-4
12.00-12.45 น.	Educational Symposium **บริษัท แอสตร้าเซนเนก้า (ประเทศไทย) จำกัด** From Early Intervention to Advanced Care: Optimizing Cardiorenal Protection and Hyperkalemia Management ▪ นพ.พีรภัทร ธนาพงศธร ▪ รศ.นพ.นัฐสิทธิ์ ลาภปริสุทธิ Moderator: **พ.อ.ศ.นพ.บัญชา สถิระพจน์**	Educational Symposium **บริษัท แกล็กโซสมิทไคล์น (ประเทศไทย) จำกัด** Nephrology Court: The Judgment on Herpes Zoster Vaccination in CKD Care ▪ ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์ ▪ พ.อ.หญิง ผศ.พญ.เนาวนิตย์ นาทา ▪ พญ.ศรินยา บุญเกิด Moderator: **ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์**	
12.45-13.30 น.	Educational Symposium **บริษัท เบอริงเกอร์ อินเกลไฮม์ (ไทย) จำกัด** Discover the Top Mart Secret of SGLT2i for CKD ▪ ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์ ▪ รศ.นพ.นัฐสิทธิ์ ลาภปริสุทธิ Moderator: รศ.ดร.นพ. ขจรศักดิ์ นพคุณ	Educational Symposium **บริษัท มิตซูบิชิ ทานาเบะ ฟาร์มา (ไทยแลนด์) จำกัด** What's New in KDIGO 2026? Updated Recommendations for Diabetes and CKD ▪ รศ.นพ.กิตติ์รวี กฤษฎิ์เมธาภาคย์ ▪ น.ต.นพ.กำปั่นทอง ตั้งวีระพงษ์ Moderator: พ.อ.ศ.นพ.บัญชา สถิระพจน์	
13.30-15.00 น.	**S06: The Evolution of Dialysis: From Life Support to Sustainable Life Quality** Chair: **พล.อ.ท.นพ.กลศร ภัคโชตานนท์** The Concise Story of Hemodialysis Through Clinical Trials ▪ รศ.นพ.อาคม นงนุช High-Volume HDF: Is it the New Gold Standard for Everyone? ▪ ศ.นพ.ขจร ตีรณธนากุล Predictive Analytics in Hemodialysis: From Intradialytic Complications to Outcomes ▪ รศ.นพ.วันจักร พงษ์สิทธิศักดิ์	**S07: Bridging Basic Sciences to Innovation in Nephrology (ENG)** Chairs: Chairat Shayakul (Thailand), Pornpen Sangthawan (Thailand) Organelle Stress and Crosstalk in Kidney Disease ▪ Reiko Inagi (Japan) Precision Medicine in CKD ▪ Chagriya Kitiyakara (Thailand) Therapeutic Targets in AKI: What's New in 2026 ▪ Fariz Safhan Mohd Nor (Malaysia)	**Oral Presentation 3: Fellow Research Award** Chair: ▪ **ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์** ▪ **รศ.นพ.ภัทรวิน ภัทรนิธิมา** **กรรมการ** ▪ ศ.เกียรติคุณ พญ.ธัญญารัตน์ ธีรพรเลิศรัฐ ▪ รศ.นพ.อนิรุธ ภัทรากาญจน์ ▪ ศ.พญ.ศิริรัตน์ อนุตระกูลชัย ▪ ศ.พญ.สินี ดิษฐบรรจง
15.00-15.30 น.	Break / Poster Presentation		

เวลา	Bangkok Convention Centre A2	Lotus Suite 5-7	Lotus Suite 1-4
15.30-17.00 น.	**S08: Green Nephrology in Action: Building Sustainable Dialysis Units and Kidney Care Systems** **Chair: ศ.ดร.นพ.อดิศว์ ทัศณรงค์** Dialysis and the Planet: Understanding the Hidden Cost ▪ ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์ Green Nephrology: Energy Efficiency in Hemodialysis Unit (Eco-Dialysis: Balancing High-Quality with Resource Conservation) ▪ รศ.พญ.กรชนก วารีแสงทิพย์ Lean kidney care in War Conflict ▪ พล.อ.อ.นพ.ทวีพงษ์ ปาจรีย์	**S09: Asian Nephrology Forum: Current State of Kidney Disease Management in Asia (ENG)** **Chairs: Jin-Shuen Chen (Taiwan)** **Pongsathorn Gojaseni (Thailand)** Transforming Kidney Care in Asia-Pacific: Policy, Innovation, and Regional Collaboration ▪ Hyeong Cheon Park (Korea) CKD Care and Policy in Taiwan: Lessons for the Region ▪ Jia-Jung Lee (Taiwan) Health Related Quality of Life of Dialysis Patients in Malaysia ▪ Rosnawati Yahya (Malaysia) Current Situation of Kidney Health Policy in Thailand ▪ Warangkana Pichaiwong (Thailand)	**Oral Presentation 4: Kidney Replacement Therapy (HD, PD)** **Chair:** ▪ **รศ.พญ.สิริภา ช้างศิริกุลชัย** ▪ **พญ.วรรณิยา มีนุ่น** **กรรมการ** ▪ รศ.นพ.ภัทรวิน ภัทรนิธิมา ▪ ผศ.พญ.ทัศน์พรรณ ศรีทองกุล ▪ ดร.พญ.กุลยา ตรรกวาทการ ▪ นพ.วัทธิกร พิชิตพร

วันอาทิตย์ที่ 9 สิงหาคม พ.ศ. 2569			
เวลา	Bangkok Convention Centre A2	Lotus Suite 5 - 7	Lotus Suite 1 - 4
08.00-09.30 น.	S10: Shared Decision-Making in Advanced Kidney Diseases Chair: ผศ.พญ.ไกรวิพร เกียรติสุนทร Conservative Kidney Management (CKM) Pathway When Less is More for Thai Elderly ▪ ศ.นพ.เกื้อเกียรติ ประดิษฐ์พรศิลป์ Case-based Approach/ Case Sharing Beyond the Numbers: Integrating Patient Values into Advanced CKD Care ▪ พว.นิภา อัยยสานนท์ Algo-Web-Based Assisted Shared Decision Making ** ▪ ศ.พญ.ศิริรัตน์ อนุตระกูลชัย	S11: Frontiers in Nephrology Chair: พ.ต.ท.หญิง พญ.ปัณฑิตา ศรหิรัญ Transforming CKD Care in the New Era: A Comprehensive Review ▪ ผศ.ดร.พญ.สมกัญญา ตั้งสง่า Monoclonal Gammopathy of Renal Significance: Role of Nephrologist ▪ นพ.โสพส จาตุรพิศานุกูล Frontiers in Renal Nutrition: Shaping the Future of Kidney Care ▪ พ.ต.นพ.ปรมัตถ์ ธิมาไชย	S12: Electrolytes Clinical Case Seminar Chair: พญ.ลัดดาพร วงษ์ลือชัย Metabolic Acidosis in the ICU: (To Bicarb or Not to Bicarb?) ▪ ผศ.นพ.อรรถพงศ์ ผ่องพิทักษ์ชัย How Low Can Sodium Go Refractory Hyponatremia: Steps of Approach ▪ น.ต.หญิง พญ.กมลวรรณ ภัคโชตานนท์ The Forgotten Electrolyte: Magnesium ▪ พ.อ.หญิง ผศ.พญ.เนาวนิตย์ นาทา The Silent Alkalosis: Is It Just a Number or a Real Threat? ▪ รศ.นพ.กิตติ์รวี กฤษฎ์ีเมธาภาคย์
09.30-10.00 น.	Break		
10.00-11.30 น.	S13: Peritoneal Dialysis: Current Status and Future Challenges Chair: รศ.นพ.กิตติ์รวี กฤษฎ์ีเมธาภาคย์ Incremental PD: Affordable, Sustainable, and Patient-Friendly ▪ พญ.ศรินยา บุญเกิด Assisted PD: Expanding PD for an Aging Society ▪ รศ.นพ.สุชาย ศรีทิพยวรรณ APD and Icodextrin: Luxury or Necessity for Sustainable PD in Thailand ▪ รศ.พญ.สิริภา ช้างศิริกุลชัย	Nephrology Tournament 2026 ▪ พ.อ.หญิง ผศ.พญ.เนาวนิตย์ นาทา ▪ นพ.โสพส จาตุรพิศานุกูล ▪ พ.ต.ท.หญิง พญ.ปัณฑิตา ศรหิรัญ ▪ พญ.สรัสวันต์ คณานุรักษ์ ▪ ร.ต.นพ.จิรณัฐ ศรีสวัสดิ์	S14: Next-Gen Nephrology: Transforming Kidney Care in the Next Decade Chair: ผศ.นพ.จิรายุทธ จันทร์มา The Gut–Kidney Axis: A New Therapeutic Frontier ▪ น.อ.นพ.พงศธร คชเสนี AI in Nephrology: Transforming Innovation to Clinical Reality ▪ ดร.พญ.กุลยา ตรรกวาทการ Wellness Medicine and Kidney Care: Hype or Evidence-Based? ▪ น.ต.นพ.กำปั่นทอง ตั้งวีระพงษ์ Emerging Therapies of Kidney Diseases: From Bench to Bedside and Beyond ▪ นพ.กมล โฆษิตรังสิกุล

เวลา	Bangkok Convention Centre A2	Lotus Suite 5 - 7	Lotus Suite 1 - 4
11.30-12.15 น.	Educational Symposium **บริษัท แอสตร้าเซนเนก้า (ประเทศไทย) จำกัด** TMA Rush Hour: Early Recognition and Rapid Complement Intervention in aHUS ▪ นพ.เจนวิทย์ วงศ์บุญสิน ▪ พ.อ.ศ.นพ.บัญชา สถิระพจน์ Moderator: **นพ. วุฒิเดช โอภาศเจริญสุข**	Educational Symposium **บริษัท โนโว นอร์ดิสค์ ฟาร์มา (ประเทศไทย) จำกัด** Reversing Stage of Disease in Focus: Transforming Clinical Practice Today and Tomorrow ▪ ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์ ▪ รศ.นพ.นัฐสิทธิ์ ลาภปริสุทธิ ▪ รศ.นพ.วันจักร พงษ์สิทธิศักดิ์ Moderator: **ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์**	
12.15-13.00 น.	Educational Symposium **บริษัท ไทยโอซูก้า จำกัด** Escape the Restriction: Rethinking SIAD Management for Better Outcomes ▪ รศ.นพ.นัฐสิทธิ์ ลาภปริสุทธิ ▪ พ.อ.หญิง ผศ.พญ.เนาวนิตย์ นาทา Moderator: **รศ.ดร.นพ.ขจรศักดิ์ นพคุณ**		
13.00-15.00 น.	S15: Nephrology Year in Review Chair: **รศ.นพ.โอภาส ไตรตานนท์** Critical Care Nephrology ▪ รศ.นพ.ธรรมพร เนาว์รุ่งโรจน์ Hemodialysis ▪ ผศ.นพ.สุรเชษฐ์ วงษ์นิ่ม Peritoneal Dialysis ▪ ศ.นพ.เถลิงศักดิ์ กาญจนบุษย์ Transplantation ▪ รศ.ดร.นพ.ขจรศักดิ์ นพคุณ Glomerular Disease ▪ ผศ.พญ.รัตนา ชวนะสุนทรพจน์ Chronic Kidney Disease ▪ ผศ.นพ.สาธิต คูระทอง		

ORAL PRESENTATION 1

วันที่: 7 สิงหาคม 2569 (13.00 – 14.30 น.) **Chairman:** ผศ.นพ.สาธิต คูระทอง
ห้อง: Lotus Suite 1-4 **Co-chairman:** รศ.นพ.อาคม นงนุช
เวลาในการนำเสนอ: 12 นาที แบ่งเป็น นำเสนอ 8 นาที และ กรรมการซักถาม 4 นาที

เวลา	ผู้นำเสนอผลงาน	Abstract Title
13.00-13.15 น.	**Sarit Poowitayaphant** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	Clinical Performance of Automated Urine Sediment Scoring System for Early AKI Detection and Prediction Outcome
13.15-13.30 น.	**Thonyaporn Arunsang** Faculty of Medicine Ramathibodi Hospital, Mahidol University	Reduced Hip Bone Mineral Density in Chronic Kidney Disease Stage 3 association with Risk of Sustained Decline in Kidney Function
13.30-13.45 น.	**Poom Nithiaphinyasakul** Maharat Nakhon Ratchasima Hospital	Hot Climate and the Incidence of Metformin-Associated Lactic Acidosis: Evidence from a Five-Million Population-Based Study in Northeastern Thailand
13.45-14.00 น.	**Jathurong Kittrakulrat** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	A Randomized Controlled Trial Comparing the Efficacy and Safety of Thiazide Diuretics, Calcium Polystyrene Sulfonate, and Sodium Zirconium Cyclosilicate in Treating Hyperkalemia in Chronic Kidney Disease
14.00-14.15 น.	**Patharasit Jindapateep** Faculty of Medicine, Thammasat University	Nephrologist Follow-Up Reduces Recurrent Acute Kidney Injury in Post-Acute Kidney Injury Survivors: An IPTW-Weighted Cohort Study
14.15-14.30 น.	**Kwanchai Pirojsakul** Faculty of Medicine Ramathibodi Hospital, Mahidol University	Prevalence of Chronic Kidney Disease and Hypertension in Thai Adolescents: The Thai National Health and Examination Survey, VI and VII (2019-2025)

ORAL PRESENTATION 2

วันที่: 7 สิงหาคม 2569 (15.00 – 16.30 น.) **Chairman:** รศ.ดร.พญ.พรเพ็ญ แสงถวัลย์
ห้อง: Lotus Suite 1-4 **Co-chairman:** รศ.ดร.นพ.ขจรศักดิ์ นพคุณ
เวลาในการนำเสนอ: 12 นาที แบ่งเป็น นำเสนอ 8 นาที และ กรรมการซักถาม 4 นาที

เวลา	ผู้นำเสนอผลงาน	Abstract Title
15.00-15.15 น.	**Pichaya Suwan** Faculty of Medicine, Siriraj Hospital, Mahidol University	Efficacy of mTOR Inhibitors in the Management of BK Virus Infection after Kidney Transplantation: Outcomes and Safety
15.15-15.30 น.	**Supawas Thawornkaew** Faculty of Medicine, Chulalongkorn University	Integrating Vascular Injury into Risk Prediction: Renal Thrombotic Microangiopathy in Lupus Nephritis Outcomes
15.30-15.45 น.	**Uraiwan Parinyasiri** Department of Internal Medicines, Songkhla Hospital	When the Water Stops: Dialysis at Risk During Urban Flooding in a Middle-Income Country With a PD-First Policy
15.45-16.00 น.	**Teerawat Sriwalosakul** Faculty of Medicine, Chiang Mai University	Resolution of Infection in Sepsis Kidney Transplant Recipients Following Immunosuppressant Reduction: A Randomized Controlled Trial (Preliminary Analysis)
16.00-16.15 น.	**Chonlamark Rattanakom** Department of Medicine, Phramongkutklao Hospital and College of Medicine	The Effects of Pemafibrate on Markers of Renal Disease Progression in Kidney Transplant Recipients: A Randomized Controlled Trial
16.15-16.30 น.	**Chayanan Santithanmakorn** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	Graft Survival in Different Kidney Allograft Rejection Phenotypes: An Analysis of 2,166 Biopsies

ORAL PRESENTATION 3

วันที่: 8 สิงหาคม 2569 (13.30 – 15.00 น.) **Chairman:** ศ.ดร.พญ.ปวีณา สุสัณฐิตพงษ์
ห้อง: Lotus Suite 1-4 **Co-chairman:** รศ.นพ.ภัทรวิน ภัทรนิธิมา
เวลาในการนำเสนอ: 12 นาที แบ่งเป็น นำเสนอ 8 นาที และ กรรมการซักถาม 4 นาที

เวลา	ผู้นำเสนอผลงาน	Abstract Title
13.30-13.45 น.	**Thanawat Sevaphai** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	Efficacy and Safety of Fibrin Sealant in Reducing Post-Biopsy Perinephric Hematoma in Percutaneous Kidney Biopsy: An Open-Label Randomized Controlled Trial (KIDNEY-SEAL)
13.45-14.00 น.	**Pacha Sinthornkasem** Faculty of Medicine, Siriraj Hospital, Mahidol University	Comparing the Efficacy of Heparin-locked and Peritoneal Flushing for Preventing Peritoneal Dialysis Catheter Blockage: Randomized Control Trial
14.00-14.15 น.	**Nattapakorn Mai-on** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	Hypotension Prediction Index-Guided Hemodynamic Management to Prevent Intradialytic Hypotension in the Intensive Care Unit: A Randomized Crossover Trial (HyPIR-ICU)
14.15-14.30 น.	**Patsakorn Saragganda** Department of Medicine, Phramongkutklao Hospital and College of Medicine	The Efficacy of Intermittent Fasting Combined with Renal-Specific Low-Protein Supplementation in Reducing Albuminuria among Overweight Patients with Diabetic Kidney Disease
14.30-14.45 น.	**Wannee Jiamjaipaiboon** Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital	Comparative Effects of Ferric Citrate and Sevelamer on Protein-Bound Uremic Toxins in Pre-Dialysis Chronic Kidney Disease with Hyperphosphatemia: A Randomized Controlled Trial
14.45-15.00 น.	**Seuppong Naka** Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force	Effect of Intradialytic Exercise on Serum FGF23 Levels and Left Ventricular Structure and Function in Hemodialysis Patients: A Randomized Controlled Trial Pilot Study

ORAL PRESENTATION 4

วันที่: 8 สิงหาคม 2569 (15.30 – 17.00 น.) **Chairman:** รศ.พญ.สิริภา ช้างศิริกุลชัย
ห้อง: Lotus Suite 1-4 **Co-chairman:** พญ.วรรณิยา มีนุ่น
เวลาในการนำเสนอ: 12 นาที แบ่งเป็น นำเสนอ 8 นาที และ กรรมการซักถาม 4 นาที

เวลา	ผู้นำเสนอผลงาน	Abstract Title
15.30-15.45 น.	**Sitanun Chinangkulpiwat** Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force	Effects of Spironolactone on Residual Kidney Function in Incremental Hemodialysis Patients: A multicenter Randomized Controlled Trial (SPARE-RKF Trial)
15.45-16.00 น.	**Kanapol Amornpituk** Faculty of Medicine Ramathibodi Hospital, Mahidol University	Evaluation of Venous Congestion in Patients with End-Stage Kidney Disease Undergoing Hemodialysis: VExUS Assessment
16.00-16.15 น.	**Jirapat Vamananda** Faculty of Pharmaceutical Sciences, Chulalongkorn University	Optimal Meropenem Dosing Regimens in Patients Receiving Combined Continuous Kidney Replacement Therapy and Hemoadsorption: A Monte Carlo Simulation
16.15-16.30 น.	**Pakpum Kuwijitsuwan** Faculty of Medicine Ramathibodi Hospital, Mahidol University	Isolated Frailty Independently Predicts Mortality in Peritoneal Dialysis: A Multicenter Prospective Comparison with Sarcopenia and Protein-Energy Wasting
16.30-16.45 น.	**Amonrat Ekpanithanpong** Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force	The Efficacy of High Dialysate Magnesium on Parathyroid Hormone in ESKD Patient: A multicenter Randomized Controlled Trial
16.45-17.00 น.	**Thammayut Supsamanwong** Faculty of Medicine, Siriraj Hospital, Mahidol University	Effectiveness of Intraluminal Thrombolytic Lock Therapy Using 1 mg versus full dose 2 mg r-tPA for Hemodialysis Catheter Dysfunction: A Multicenter, non-inferiority Randomized Controlled Trial

POSTER LIST

ACUTE KIDNEY INJURY

Comparative Accuracy and Precision of Spot Urine Ratios vs. 24-hour Collection for Protein and Albumin during the Acute and Resolved Phases of Acute Kidney Injury

Banpot Suwatronnakorn

Faculty of Medicine, Chulalongkorn University

Clinical Characteristics, Etiology and Clinical Outcomes of Acute Kidney Injury in Systemic Sclerosis

Sarassawan Kananuraks

Department of Medicine, Khon Kaen Hospital

Urinary Non-Albumin Protein-to-creatinine Ratio as an Accessible Marker for Early Sepsis-associated Acute Kidney Injury: A Prospective Observational

Kriengkrai Iamcheerangkoon

Faculty of Medicine, Vajira Hospital, Navamindradhiraj University

Factors Associated with Serum Creatinine Elevation in HIV Patients Receiving Dolutegravir-Based Antiretroviral Therapy

Nuttapol Jintanadilok

Department of Internal Medicine, Police General Hospital

Development and Validation of a Risk Score for Contrast-Associated Acute Kidney Injury post-CT Scans in Hospitalized Patients

Peerasit Sae-Lim

Faculty of Medicine, Prince of Songkla University

CHRONIC KIDNEY DISEASE

Diagnostic Performance of Percentage Changes in Cardiac Troponin T Levels for Acute Myocardial Infarction in Patients with Chronic Kidney Disease.

Papimon Sophark

Faculty of Medicine Vajira Hospital, Navamindradhiraj University

Predictors of Albuminuria Reduction Efficacy with SGLT2 Inhibitors in Patients with Chronic Kidney Disease

Supanut Yampradit

Department of Internal Medicine, Police General Hospital

Efficacy of Calcium Polystyrene Sulfonate in Preventing RAASi Discontinuation in High-Risk CKD Patients: A Retrospective Cohort Study

Tanwaporn Phatpituk

Faculty of Medicine, Thammasat University

Impact of Pharmacist-Led Medication Reconciliation on Drug-Related Problem Detection in Patients with Chronic Kidney Disease

Busaya Kulabusaya

Faculty of Medicine, Siriraj Hospital, Mahidol University

Efficacy of CURcumin, in Addition to Standard of Care, on Inflammatory markErs among Patients with Chronic Kidney Disease: A Randomized Controlled Trial (CURE-CKD2)

Natsha Teepprasan

Faculty of Medicine, Chiang Mai University

Timing of Arteriovenous Fistula Creation and Clinical Outcomes of Central Venous Catheter Insertion in ESRD Patients: A Retrospective Multicenter Observational Study (Preliminary Analysis)

Supanatchaya Kangkan

Faculty of Medicine, Khon Kaen University

Using Generative AI to Develop Low-Cost Kidney Disease Education: A Pre–Post Public Knowledge Study

Nattapong Srihong

Faculty of Medicine, Chulalongkorn University

Effect of Home-Based Resistance Exercise Added to a Low-Protein Diet in CKD Stage 3b–5 Non-Dialysis Patients at Risk of PEW: A Preliminary Report from an Ongoing Randomized Controlled Trial

Cholwiwat Polpattaraset

Faculty of Medicine, Siriraj Hospital, Mahidol University

Correlation of Ketone Body Modulation by SGLT2 Inhibitors and Renal Parameters in CKD

Pattaranate Cheecharoen

Department of Medicine, Phramongkutklao Hospital and College of Medicine

MISCELLANEOUS

Outcomes, Utilization, and Economic Burden of Therapeutic Plasma Exchange: A Real-World Cohort Study from a Tertiary Center in Thailand

Pongsakorn Rueangratudom
Faculty of Medicine, Siriraj Hospital, Mahidol University

ELECTROLYTES, AND ACID-BASE DISORDERS

Incidence and Clinical Outcomes of Acute Kidney Injury in Hospitalized Patients with Hypercalcemia

Supanut Sripumsuriyakan
Faculty of Medicine, Khon Kaen University

Comparative Efficacy of Protein Supplementation Versus Sodium Chloride Tablets in the Management of Syndrome of Inappropriate Antidiuresis: A Randomized Controlled Trial (PROSALT trial)

Thaya Naksawasdi
Department of Medicine, Bhumibol Adulyadej Hospital, Royal Thai Air Force

GLOMERULAR DISEASE

A Glomerular–Vascular Collision: IgA Nephropathy Complicated by Collapsing Glomerulopathy and Renal TMA in Hemoglobin H–Constant Spring

Chanchana Boonyakrai
Department of Medicine, King Taksin Memorial Hospital

Clinical Correlations of Glomerulosclerosis and Kidney Outcomes in IgA Nephropathy, Lupus Nephritis, Minimal Change Disease and Focal Segmental Glomeruloscleorsis

Teerawat Limlungkarn
Faculty of Medicine, Ramathibodi Hospital, Mahidol University

Thai Diabetic Patients with Biopsy-proven Kidney Diseases: A Comparative Study of Kidney and Cardiovascular Outcomes (TDMK-OUTCOME)

Jirakom Pitchayatanaporn
Faculty of Medicine Siriraj Hospital, Mahidol University

External Validation of the International IgA Nephropathy Prediction Tool (IIgAN-PT) in Songklanagarind Hospital Cohort

Attamon Thongrueang

Faculty of Medicine, Prince of Songkla University

RISK MANAGEMENT & QUALITY IMPROVEMENT IN KIDNEY CARE

When Care Providers Become Victims: Workforce Fragility in Dialysis Disaster Response

Uraiwan Parinyasiri

Department of Internal Medicines, Songkhla Hospital

Association between Frailty Status and Decline in Kidney Function Among Older Adults

Promvinit Sattayatit

Department of Medicine, Phramongkutklao Hospital and College of Medicine

Impact of SGLT2 Inhibitors on the Incidence of Urinary Tract Infections in Patients with Diabetes and Asymptomatic Pyuria

Nithada Khomkamon

Faculty of Medicine, Thammasat University

A Retrospective Cohort with a Cross-Sectional Survey to Evaluate the Effects of PM2.5 Exposure on Renal Function Decline among Stage 3-4 Chronic Kidney Disease Patients at Vajira Hospital Nephrology Clinic

Matkawin Pratheepusanon

Faculty of Medicine Vajira Hospital, Navamindradhiraj University

TRANSPLANTATION

Effects of Sodium-Glucose Cotransporter 2 Inhibitors on Kidney Allograft Outcomes in Kidney Transplant Recipients with Diabetes

Thana Meksong

Faculty of Medicine Ramathibodi Hospital, Mahidol University

Breast Arterial Calcification Predicts Vascular Events in Kidney Transplant Recipients

Ravipa Vongrojrattana

Faculty of Medicine Ramathibodi Hospital, Mahidol University

Prevalence and Associated Factors of Latent Tuberculosis Infection in Kidney Transplant Recipients in a High Tuberculosis Burden Country

Jakkrid Banjong

Faculty of Medicine, Khon Kaen University

Factors Associated with Patient and Graft Survival after Kidney Retransplantation: Evidence from a National Transplant Registry

Korakot Sondee

Faculty of Medicine, Vajira Hospital, Navamindradhiraj University

Impact of Single-Nucleotide Polymorphisms of Cytochrome P450 3A5 (rs776746) on Tacrolimus Exposure on Hospital Discharge Day: A Real-world Observation Study in Thai Kidney Transplant Recipients

Saowarat Phacharoen

Pharmacy Department, Rajavithi Hospital

KIDNEY REPLACEMENT THERAPY (HD, PD)

Effects of Ramadan Fasting on Intradialytic Hypoglycemia and Clinical Outcomes in Patients with Diabetes on Maintenance Hemodialysis: A Multicenter Prospective Cohort Study in Southern Thailand

Ashari Saman

Department of Medicine, Pattani Hospital

Cancer Risk and Associated Factors Among Patients Undergoing Maintenance Dialysis: A Single-Center Analysis

Poomsiri Kerdmalee

Department of Internal Medicine, Rajavithi Hospital

Peritoneal Dialysis Associated Nocardia Vermiculata Peritonitis: A Case Report and Literature Review

Poomsiri Kerdmalee

Department of Internal Medicine, Rajavithi Hospital

Survival Rate and Associated Factors among Hemodialysis Patients: A 10-Year Retrospective Cohort Study

Tanita Piemkla

Department of Internal Medicine, Rajavithi Hospital

Changing of Serum Creatinine as a Surrogate Marker for Small Solute Clearance in Peritoneal Dialysis

Chatchai Chatnarongchai

Faculty of Medicine Thammasat University

From Inference to Proof: Nanopore Sequencing Confirms Zoonotic Neisseria Zoodegmatis Peritonitis after Cat Bite-Related Contamination in Automated Peritoneal Dialysis

Nattapat Anuduang

Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital

Continuous Kidney Replacement Therapy Versus Intermittent Hemodialysis as Initial Therapy for Acute Kidney Injury, A 5-Year Retrospective Cohort Study

Pawarut Pattanasiriphong

Department of Internal Medicine, Rajavithi Hospital

High Sensitivity Cardiac Troponin T and I as a Predictor of Cardiovascular Disease and Long-Term Mortality Among Hemodialysis Patients: A Retrospective Observational Cohort Study

Prathatai Chittaisong

Faculty of Medicine, Chiang Mai University

Factors Associated with Caregiver Burden among Caregivers of Patients Receiving Peritoneal Dialysis at King Chulalongkorn Memorial Hospital – A Cross-Sectional Study

Kanokphorn Pitjamit

King Chulalongkorn Memorial Hospital

Transitions of Peritoneal Dialysis Dependency among Incident Patients Undergoing Peritoneal Dialysis at King Chulalongkorn Memorial Hospital

Chanatip Panlak

Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital

Longitudinal Assessment of Trabecular Bone Score and Osteoporosis in Patients on Chronic Hemodialysis

Maythasit Fungrattanatrai

Faculty of Medicine, Khon Kaen University

Association of Hemoglobin Variability and Mortality, Hospitalization, Cardiovascular Event in Hemodialysis Patients in Maharat Nakhon Ratchasima Hospital

Ritthirong Maneenate

Medicine Department, Maharat Nakhon Ratchasima Hospital

Drug-related Problems Identified Through Pharmacist-Led Medication Reconciliation in a Multidisciplinary Peritoneal Dialysis Clinic: A Five-Year Retrospective Cohort

Kanittha Triamamornwooth

Department of Pharmacy, King Chulalongkorn Memorial Hospital

From Culture-Negative to Sequence-Positive: 16S rRNA Nanopore Sequencing in CAPD Peritonitis

Preeyarat Pavatung

Faculty of Medicine, Chulalongkorn University

Hypokalemia Burden and Treatment Gaps in Peritoneal Dialysis Despite Protocol-Based Potassium Supplementation: A Single-Center Audit

Bhurapol Prommongkol

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ITS Nanopore Sequencing Reveals Lumen-Specific Fungal DNA Profiles in Hemodialysis Catheters Largely Missed by Culture

Thunvarat Saejew

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Changes in Nutritional and Body Composition Parameters among Incident Peritoneal Dialysis Patients During the First Year of Multidisciplinary Care

Suchavalee Tapananont

Department of Dietetics and Diet Therapy, King Chulalongkorn Memorial Hospital

Outcomes and Factors Associated with Successful Fluoroscopic Manipulation of Peritoneal Dialysis Catheters

Arnon Phurichitiporn

Faculty of Medicine Siriraj Hospital, Mahidol University

Averaged PTH and Mortality in Thai Hemodialysis Patients: Determinants from the National TRT Registry

Nuttaphon Sirisorsakul

Department of Medicine, Phramongkutklao Hospital and College of Medicine

Oral Presentation Abstract

Clinical Performance of Automated Urine Sediment Scoring System for Early AKI Detection and Prediction Outcome

Sarit Poowitayaphant, Sasipha Tachabooh, Janejira Dinhuzen, Tanat Lertussavavivat, Win Kulvichit, Nuttha Lumlertgul, Sadudee Peerapornratana, Nattachai Srisawat

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Background and Objectives: Acute kidney injury (AKI) is associated with substantial morbidity and mortality, underscoring the need for early detection. Automated urinalysis machine using fluorescence flow cytometry enables standardized assessment of urinary cells and casts. We evaluated the association of pathological casts (referred to all non-hyaline casts) and renal tubular epithelial cells (RTECs) with AKI.

Methods: In this prospective cohort study, 212 hospitalized adults without end-stage kidney disease were enrolled. Urinary RTECs and pathological casts were measured within 24 hours after admission using an automated urinalysis machine to find association with AKI and other clinical outcomes including severe AKI (KDIGO 2012 criteria stage 2–3), persistent AKI (defined as continuance of AKI beyond 48 hours), RRT initiation and a composite outcome of MAKE-30 day.

Results: AKI developed in 88 patients (41.1%), comprising 67 (31.6%) with initial AKI at admission and 21 (9.9%) developed subsequent AKI after admission. Urinary pathological cast counts were significantly higher in patients with AKI compared to those without (3.04 ± 8.12 vs. 0.89 ± 3.66 per µL, p = 0.02), while RTECs showed no significant difference. Urinary pathological casts normalized to urine creatinine demonstrated an association with AKI (AUC 0.67), severe AKI (AUC 0.70), persistent AKI (AUC 0.74), RRT initiation (AUC 0.69), and MAKE-30 day (AUC 0.65). In the subgroup of patients with subsequent AKI, normalized urinary pathological casts showed good predictive performance for AKI (AUC 0.67), severe AKI (AUC 0.74), persistent AKI (AUC 0.73), and MAKE-30 day (AUC 0.82).

Conclusions: Automated urinalysis–derived pathological casts, provide clinically relevant association, prediction and prognostic information for AKI. This support the role of standardized urine sediment analysis in AKI risk stratification.

Keywords: Acute kidney injury (AKI), Automated urinalysis, Urine sediment

Reduced Hip Bone Mineral Density in Chronic Kidney Disease Stage 3 association with Risk of Sustained Decline in Kidney Function

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Background: Growing evidence links reduced bone mineral density (BMD) to a higher risk of fracture and mortality in the chronic kidney disease (CKD) population; however, data on its predictive value for renal function decline remain limited.

Methods: This large retrospective cohort study of CKD stage 3 patients who underwent BMD testing examined the association between reduced BMD and sustained kidney function decline. Patients with an estimated glomerular filtration rate (eGFR) of 30–59 mL/min/1.73 m² who underwent BMD testing between 2010 and 2023 were included. The outcomes were a sustained decline in eGFR of ≥40% from baseline.

Results: A total of 5,335 patients underwent BMD testing at the total hip (TH) and femoral neck (FN), and 4,655 underwent testing at the lumbar spine (LS). For the sustained eGFR decline analysis, patients without follow-up kidney function data and those with dipstick-positive albuminuria were excluded, yielding 4,566 in the TH/FN group and 3,956 in the LS group. The median follow-up ranged from 4.9 to 5.6 years. In univariate analyses, reduced BMD, lower T-scores, and osteoporosis at the TH and FN were associated with sustained eGFR decline, whereas no LS BMD parameters were associated with outcome. In multivariate analyses, only TH BMD was independently associated with sustained eGFR decline. However, in the subgroup with confirmed dipstick-negative albuminuria, both TH and FN BMD were independently associated with sustained eGFR decline.

Conclusion: Reduced BMD, lower T-score and osteoporosis were associated with sustained kidney function decline, particularly among patients without significant albuminuria. These findings support the potential role of hip BMD assessment as a prognostic marker of adverse renal outcome.

Keywords: bone mineral density; BMD; osteoporosis; Chronic kidney disease CKD

Hot Climate and the Incidence of Metformin-Associated Lactic Acidosis: Evidence from a Five-Million Population-Based Study in Northeastern Thailand

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[1]*Maharat Nakhon Ratchasima Hospital, Thailand*

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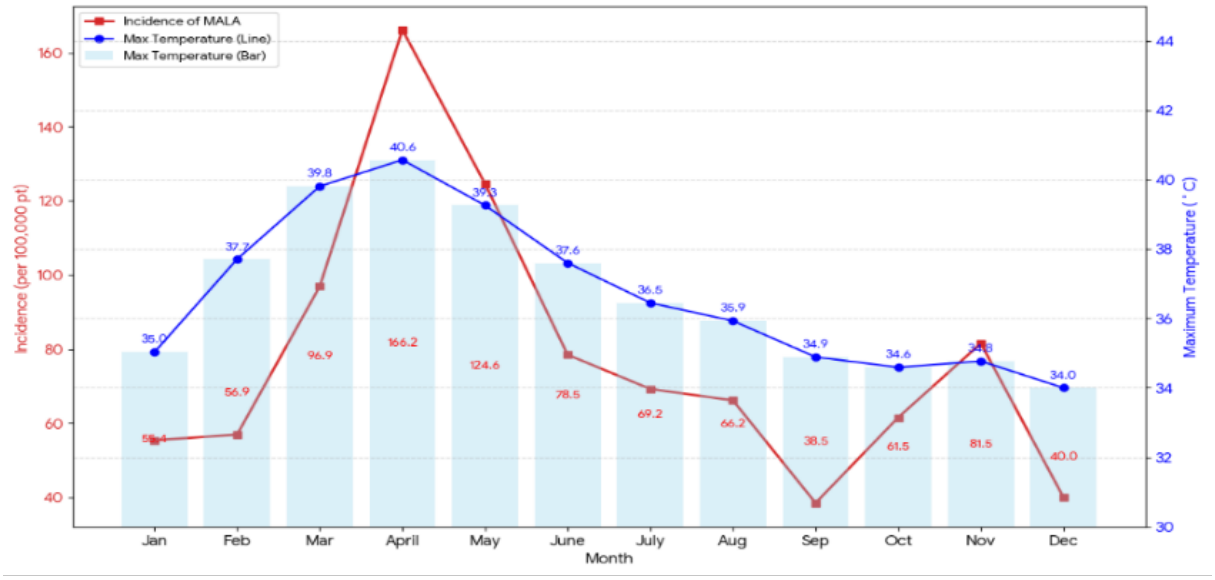
Background: Metformin-associated lactic acidosis (MALA) is an uncommon but life-threatening adverse event. Although the global incidence of MALA is considered low, evidence from tropical climates where heat exposure may contribute to dehydration remains limited. We investigated the incidence of MALA and its association with ambient temperature in a tropical region.

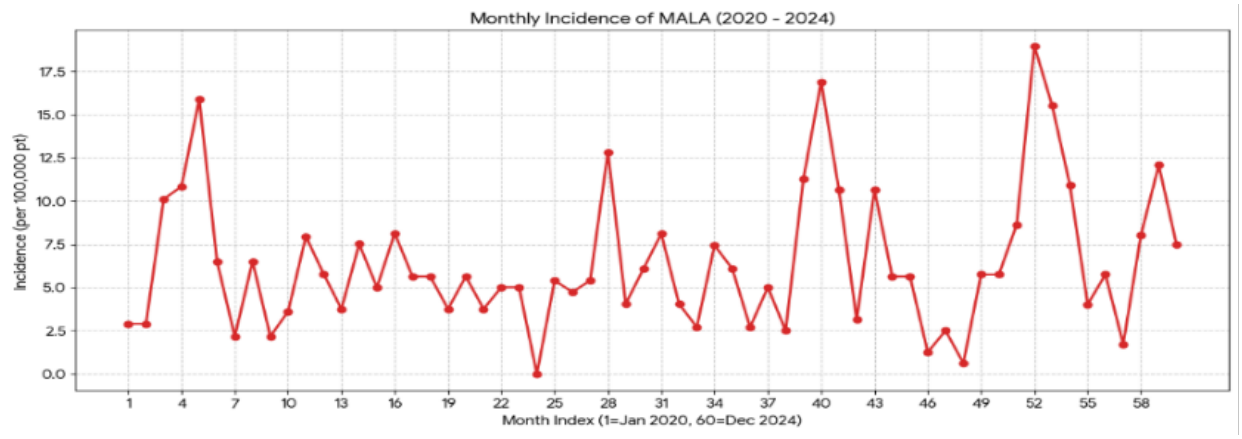
Methods: This retrospective population-based cohort study in northeastern Thailand (population 5.5 million) was conducted from 2020 to 2024 and included 159,752 individuals with diabetes prescribed metformin, total 779,916 person-years of follow-up. MALA cases were identified from three provincial referral hospitals. Meteorological data were obtained from the Thai Meteorological Department. Incidence rate (IR) with 95% confidence intervals (CI) were calculated, and associations between temperature and MALA incidence were analyzed using Poisson regression.

Results: A total of 608 cases of MALA were identified, equivalent to the IR of 77.9 per 100,000 person-years (95% CI 71.8 - 84.4). Dialysis was required in 68.3% of cases, and the overall mortality rate was 16.6%. The highest incidence occurred in April, corresponding to the annual peak in maximum temperature. Each 1 °C increase in maximum temperature was associated with a 12% increase in MALA incidence (incidence rate ratio 1.12, 95% CI 1.12 - 1.13; $p<0.001$). MALA incidence was correlated with maximum temperature ($r=0.70$, 95% CI 0.64 - 0.76; $p<0.001$), while higher rainfall and humidity were associated with lower incidence.

Conclusions: MALA incidence in this tropical population was higher than previously reported and showed an association with a hot climate. Preventive strategies during high-temperature periods are urgently needed.

Keywords: Metformin-Associated Lactic Acidosis, Incidence rate, Temperature


Incidence of MALA
Max Temperature (Line)
Max Temperature (Bar)
Incidence (per 100,000 pt)
Maximum Temperature (°C)
Month
Jan
Feb
Mar
April
May
June
July
Aug
Sep
Oct
Nov
Dec
35.0
37.2
39.8
40.6
39.3
37.6
36.5
35.9
34.9
34.6
34.8
34.0
56.9
96.9
166.2
124.6
78.5
69.2
66.2
38.5
61.5
81.5
40.0


Monthly Incidence of MALA (2020 - 2024)
Incidence (per 100,000 pt)
Month Index (1=Jan 2020, 60=Dec 2024)

A Randomized Controlled Trial Comparing the Efficacy and Safety of Thiazide Diuretics, Calcium Polystyrene Sulfonate, and Sodium Zirconium Cyclosilicate in Treating Hyperkalemia in Chronic Kidney Disease

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Background: Hyperkalemia is a common chronic kidney disease (CKD) complication. While KDIGO guidelines recommend diuretics or potassium binders for maintenance therapy, they do not preferentially endorse either class due to a lack of prospective head-to-head comparisons. We aimed to evaluate and compare the efficacy, safety, and metabolic profiles of sodium zirconium cyclosilicate (SZC), calcium polystyrene sulfonate (CPS), and hydrochlorothiazide (HCTZ).

Methods: We conducted a randomized, open-label, active-controlled trial in adults with non–dialysis CKD (eGFR <60 mL/min/1.73 m²) and non–life-threatening hyperkalemia (K^+ 4.8–5.9 mmol/L). Participants were randomized (1:1:1) to SZC 5 g/day, CPS 10 g/day, or HCTZ 25 mg/day for 14 days. The primary outcome was change in serum potassium at Day 7. Secondary outcomes included kidney function, acid–base status, blood pressure, and tolerability. Analyses used linear mixed-effects models.

Results: Eighty-four participants were randomized (mean eGFR 31.96±14.12 mL/min/1.73 m²; K^+ 5.05±0.26 mmol/L). All treatments significantly reduced potassium at Day 7 with no between-group differences (LS mean change: SZC −0.44, CPS −0.44, HCTZ −0.40 mmol/L; P=0.91), with sustained effects at Day 14. Despite similar efficacy, treatment-specific physiological profiles were observed. HCTZ resulted in a significant decline in eGFR at Day 7 (−3.26 vs −0.43 CPS vs +2.50 SZC mL/min/1.73 m²; P<0.001) and increased BUN/creatinine ratio, consistent with hemodynamic kidney effects. HCTZ also significantly reduced systolic blood pressure within-group at Day 7 (−5.03 mmHg; 95% CI −9.89 to −0.18; P=0.042). In contrast, SZC significantly increased serum bicarbonate within-group at Day 7 (+0.85 mmol/L; 95% CI 0.08–1.63; P=0.032) and Day 14 (+1.55 mmol/L; 95% CI 0.18–2.92; P=0.026), with stable

kidney function. CPS was associated with more frequent constipation (18.5%). Treatment palatability favored HCTZ.

Conclusions: In CKD, SZC, CPS, and HCTZ achieve comparable short-term potassium reduction, but differ meaningfully in kidney hemodynamics, acid–base effects, and tolerability. HCTZ lowers blood pressure at the cost of reversible kidney function decline, whereas SZC provides concurrent correction of metabolic acidosis with favorable kidney safety. These findings support a phenotype-guided approach to hyperkalemia management rather than a uniform strategy (TCTR20250519005).

Keywords: Hyperkalemia; Chronic Kidney Disease; Sodium Zirconium Cyclosilicate; Calcium Polystyrene Sulfonate; Hydrochlorothiazide

Nephrologist follow-up reduces recurrent acute kidney injury in post-acute kidney injury survivors: an IPTW-weighted cohort study

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Background: Survivors of acute kidney injury (AKI) are at high risk for recurrent AKI, which is associated with increased mortality and long-term renal dysfunction. However, post-AKI care is often fragmented, and the effectiveness of nephrologist follow-up in reducing recurrent AKI remains unclear.

Methods: We conducted a retrospective cohort study at Thammasat University Hospital, including adults discharged alive after KDIGO stage 2-3 AKI between January 2018 and December 2024. Inverse probability of treatment weighting (IPTW), derived from propensity scores, was used to balance baseline characteristics. The primary outcome was recurrent AKI within 1 year after discharge, analyzed using a weighted cause-specific Cox model.

Results: Among 1,267 patients discharged after AKI stage 2-3, 279 received nephrologist follow-up and 988 received usual care. The nephrologist follow-up group had more severe kidney dysfunction and a higher comorbidity burden at baseline. After IPTW, all absolute standardized differences were below 10%, indicating excellent balance of measured baseline covariates between groups. During 1-year follow-up, nephrologist follow-up was associated with a lower cumulative incidence of recurrent AKI than usual care (34.1% vs 47.5%) and a lower cause-specific hazard (weighted HR, 0.63; 95% CI, 0.49–0.82).

Conclusions: Among survivors of severe AKI, nephrologist follow-up was associated with a lower risk of recurrent AKI, supporting a potential role for structured nephrology follow-up in post-AKI care.

Keywords: Acute kidney injury, Post-AKI care, Recurrent AKI

Table 1: Primary and secondary clinical outcomes after inverse probability of treatment weighting (IPTW)

Post-discharge Follow-up	Weighted cumulative incidence, %	HR (95%CI)	P value
Primary Outcome			
Recurrent AKI			
Nephrologist	34.1	**0.63 (0.49-0.82)**	**0.001**
Usual care	47.5	1	Ref
Secondary Outcome			
Major adverse kidney events (MAKE)			
Nephrologist	14.3	0.90 (0.58-1.41)	0.65
Usual care	16.5	1	Ref
All-cause death			
Nephrologist	6.8	0.73 (0.42-1.26)	0.26
Usual care	9.2	1	Ref
Persistent kidney dysfunction			
Nephrologist	8.6	0.65 (0.59-2.83)	0.51
Usual care	7.0	1	Ref
New onset dialysis			
Nephrologist	3.2	1.86 (0.61-5.69)	0.27
Usual care	1.7	1	Ref
Readmission			
Nephrologist	39.4	0.78 (0.61-0.99)	0.05
Usual care	47.8	1	Ref

Abbreviations: AKI, acute kidney injury; CI, confidence interval; HR, hazard ratio; MAKE, major adverse kidney events

Prevalence of chronic kidney disease and hypertension in Thai adolescents: The Thai National Health and Examination Survey, VI and VII (2019-2025)

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Background: The present study aimed to examine the prevalence of chronic kidney disease (CKD) and hypertension (HT), and their association with adiposity and daily sodium intake among Thai adolescents.

Methods: We analyzed 7,055 adolescents aged 10–17 years from the sixth and seventh Thai National Health Examination Surveys. Demographic, anthropometric data, and standardized office BP were collected. An estimated 24-hour urinary sodium (24-hr UNa) was calculated using the INTERSALT-2 equation to represent daily Na intake. An estimated GFR (eGFR) was calculated using the Schwartz equation. CKD is defined as eGFR < 75 mL/min/1.73 m^2. HT is defined according to the 2026 Thai Pediatric Hypertension guidelines.

Results: CKD prevalence was 3.8%, while HT prevalence was 9.2%. In multivariable analysis, apart from male sex, CKD was associated with older age (aOR 1.91, 95% CI 1.76–2.07), HT (aOR 1.77, 95% CI 1.23–2.54), and a higher 24-hr UNa (aOR 1.31, 95% CI 1.16–1.49) while HT was associated with overweight/obesity (aOR 3.16, 95% CI 2.68-3.73), CKD (aOR 1.88, 95% CI 1.34–2.67), and male sex (aOR 1.56, 95% CI 1.31-1.85). Multivariable linear regression revealed that a higher 24-hr UNa was independently associated with higher systolic BP (3.24 mmHg per 1 g/day; 95% CI 2.99–3.49; P < 0.01)

Conclusions: CKD and HT are not uncommon among Thai adolescents, particularly in males, and are closely linked to one another and to daily sodium intake. These findings support adolescent-focused CKD and BP screening programs and prevention, including dietary sodium reduction.

Keywords: Adolescents, Chronic kidney disease, Hypertension, Prevalence

Efficacy of mTOR Inhibitors in the Management of BK Virus Infection after Kidney Transplantation: Outcomes and Safety

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Background: BK polyomavirus (BKPyV) infection is a significant complication following kidney transplantation which can lead to BK polyomavirus nephropathy (BKPyV nephropathy) and graft loss. Current management strategies primarily involve reduction of immunosuppression, though conversion to mammalian target of rapamycin inhibitors (mTORi) has emerged as an alternative approach. This study aimed to compare the efficacy and safety of mycophenolic acid (MPA) dose reduction, mTORi conversion, and sequential therapy in the management of BKPyV infection.

Methods: We conducted a retrospective cohort study of kidney transplant recipients at Siriraj Hospital between 2015 and 2023. Adult patients with BKPyV viruria (urine BK viral load >1,000,000 copies/mL) or viremia were included. Patients were categorized into three groups: MPA dose reduction (n=49), mTORi conversion (n=63), and sequential therapy (n=28). The primary outcome was BK viruria clearance at 6 months. Secondary outcomes included BKPyV nephropathy, graft loss, de novo donor-specific antibodies (DSA), and graft function. Multivariable logistic regression was performed to identify predictors of viral clearance.

Results: Baseline characteristics were comparable across groups. At 6 months, BKPyV viruria clearance rates were similar between MPA reduction and mTORi conversion groups (p=0.753), while the sequential therapy group had significantly lower clearance rates compared to both groups (Sequential 64.3% vs MPA 87.8%,mTORi 85.7% p=0.015 and p=0.02, respectively). Time to viral clearance was significantly shorter in the mTORi conversion group compared to sequential therapy (p<0.001), despite higher initial viral loads. The overall prevalence of BKPyV viremia was 44.3%, and BKPyV nephropathy occurred in 10.71% of patients. No significant differences were observed among groups in graft loss, biopsy-proven acute rejection, or de novo DSA formation. Most patients eventually achieved viral clearance during follow-up. AUC analysis was performed and found that Urine BKPyV VL of more than 156x106 is associated with failure of BKPyV viruria clearance at 6 months when using Dose reduction strategy ((AUC 0.79, Sensitivity 75%, Specificity 77.1%)

Conclusions: mTORi conversion demonstrated comparable efficacy to MPA dose reduction, with faster viral clearance despite higher baseline viral burden. Sequential therapy was associated with delayed viral clearance. These findings support mTORi conversion as a viable strategy for BKPyV infection management, particularly in patients with high viral load. Further prospective studies are warranted to confirm these findings in broader populations

Keywords: Kidney transplantation, BK virus, BKVAN, CNI, MPA, mTOR inhibitors, BK viruria, BK viremia

Integrating Vascular Injury into Risk Prediction: Renal Thrombotic Microangiopathy in Lupus Nephritis Outcomes

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Background: Renal thrombotic microangiopathy (TMA) is an underrecognized vascular lesion in lupus nephritis (LN), and its independent prognostic value beyond established clinical and histopathological predictors remains uncertain.

Methods: In a retrospective biopsy-based cohort of 452 patients with LN (2012–2024), 64 (14%) had renal TMA. The primary outcome was progression to kidney failure; mortality was secondary. Associations with kidney failure were assessed primarily using multivariable Cox regression, with Fine–Gray competing-risk, composite-outcome, and multiple-imputation analyses as prespecified sensitivity analyses. A pathology-based TMA–Chronicity Kidney Failure (TCKF) score was developed and internally validated by 500-replication bootstrap resampling.

Results: Patients with TMA had more severe baseline disease — higher blood pressure, greater disease activity, impaired kidney function, hematologic abnormalities, and increased antiphospholipid antibody positivity (all $p \leq 0.01$) — and more often exhibited proliferative LN with higher activity and chronicity indices (both $p<0.001$). Over a median follow-up of 60 months, kidney failure occurred in 51% of TMA patients versus 10% ($p<0.001$) and mortality in 13% versus 3% ($p<0.001$). After adjustment, renal TMA remained independently associated with kidney failure in the primary Cox model (adjusted hazard ratio, 2.45; 95% CI, 1.39–4.32; $p=0.002$), with concordant findings across competing-risk and other sensitivity analyses. Discrimination improved with TMA inclusion ($p=0.012$; apparent C-index 0.86; optimism-corrected 0.85). The TCKF score stratified patients into low-, intermediate-, and high-risk groups, with 5-year kidney failure incidences of 4%, 35%, and 72% (Gray's $p<0.001$).

Conclusions: Renal TMA identifies a vascular phenotype in LN that independently predicts kidney failure and mortality. The TCKF score offers parsimonious, biopsy-based risk stratification that may help inform therapeutic decisions.

Keywords: Kidney failure; Lupus nephritis; Mortality; Risk stratification; Thrombotic microangiopathy.

Table 1: TMA–Chronicity Kidney Failure (TCKF) risk score

Component	Variable	Definition	Points
T	Renal TMA	Presence of renal TMA	+1
C1	Glomerulosclerosis (TG)	Total glomerulosclerosis grade ≥2	+2
C2	Interstitial fibrosis (IFib)	Interstitial fibrosis grade ≥2	+1
A	Cellular/fibrocellular crescents	Cellular/fibrocellular crescents >2	+1
Total score range: 0–5			

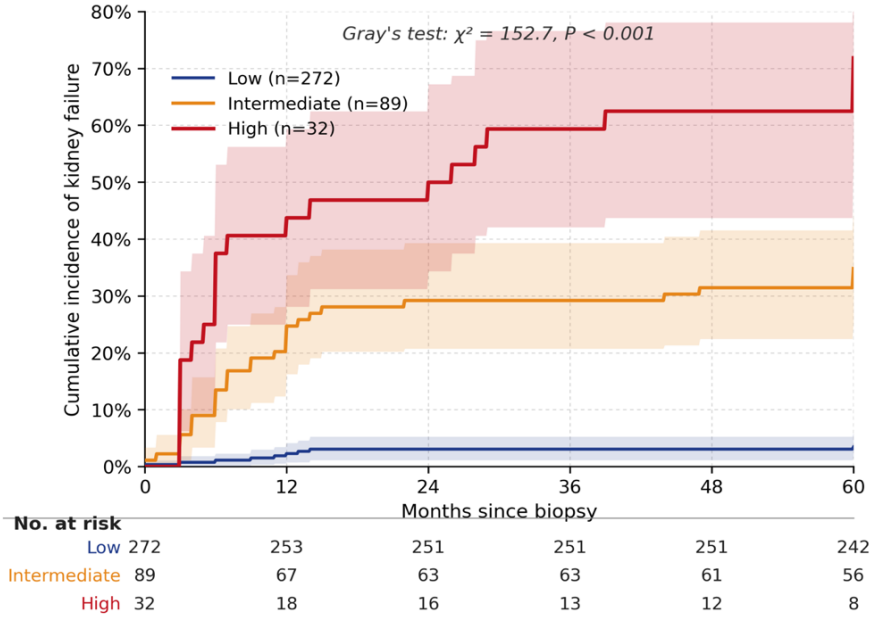

Figure 1: Cumulative incidence of kidney failure by TCKF risk group.
Analysis included 393 patients with complete TCKF pathological components; death before kidney failure was treated as a competing event. Cumulative incidence was estimated by the Aalen–Johansen method, with 95% confidence intervals derived from 500-replication bootstrap resampling. Five-year kidney-failure incidence was 4%, 35%, and 72% in the low-, intermediate, and high-risk groups, respectively

When the Water Stops: Dialysis at Risk During Urban Flooding in a Middle-Income Country With a PD-First Policy

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Background: Evidence on dialysis system performance during real-world climate disasters remains limited. We assessed the impact of the November 2025 floods on dialysis services in Songkhla province, Thailand.

Methods: We conducted a post-disaster, cross-sectional evaluation of all HD and/or PD centers in Songkhla province following the November 2025 floods. Between 15 December 2025 and 15 January 2026, dialysis unit leaders completed a structured survey assessing service disruption, infrastructure failures, patient impact, adaptive responses, and preparedness gaps. Analyses were descriptive with thematic analysis of free-text responses; exploratory comparisons used Fisher's exact and Wilcoxon rank-sum tests.

Results: All 20 dialysis centers (100%) participated. During the peak flood period, 11 centers (55%)—all in Hat Yai district—suspended operations ($p<0.001$), with a median interruption of 4 days (IQR 2–9). Service disruption was driven primarily by physical inaccessibility and loss of municipal tap water supply, the latter affecting both operational (44%) and all non-operational centers (100%). Overall, 347 hemodialysis (HD) patients (39%) and 91 peritoneal dialysis (PD) patients (21%) were affected. HD disruption was associated with acute

complications, including volume overload and hyperkalemia, and four HD-related deaths. PD services showed greater continuity but were constrained by equipment damage, supply chain disruption, unsafe home environments, and registry inaccessibility, with two PD patient deaths reported.

Conclusions: The 2025 Songkhla floods caused system-wide dialysis disruption driven primarily by infrastructure and governance failures. HD services were highly vulnerable to utility loss, whereas PD showed conditional resilience dependent on logistics and data systems, highlighting the need for integrated dialysis disaster preparedness.

Keywords: Climate disaster, Dialysis services, Disaster preparedness, Flooding, Hemodialysis, Peritoneal dialysis, Reverse-osmosis water systems, Health system resilience

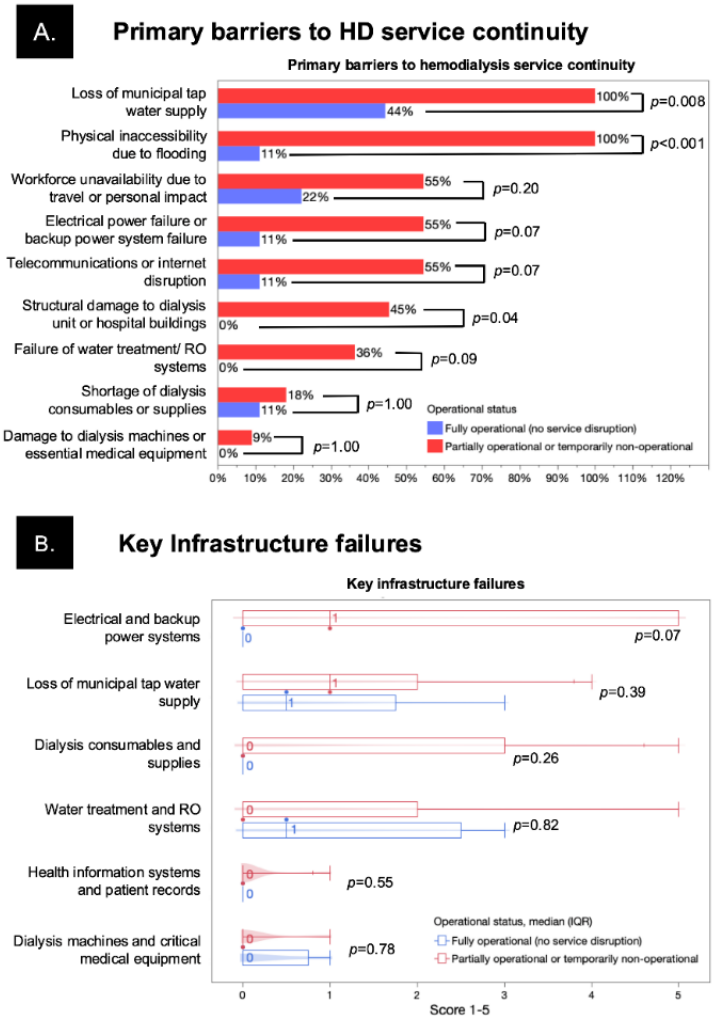

Figure 1: Primary barriers to hemodialysis service continuity and infrastructure failures by center operational status during the November 2025 floods.

Resolution of infection in sepsis kidney transplant recipients following immunosuppressant reduction: a randomized controlled trial (preliminary analysis)

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Background: Sepsis in kidney transplant recipients is a common condition. Reduction of immunosuppressive therapy is generally recommended to facilitate recovery from infection. However, there is no standardized immunosuppressant reduction regimen.

Methods: A multicenter, randomized controlled trial that enrolled kidney transplant recipients receiving calcineurin inhibitors (CNIs), mycophenolate, and corticosteroids, who were hospitalized with sepsis, defined as an increase in the Sequential Organ Failure Assessment (SOFA) score of ≥2 points. Participants were randomized to either discontinuation of mycophenolate or a half-dose reduction. The primary outcome was a composite of in-hospital mortality and failure to achieve at least a 25% reduction in the SOFA score by day 7.

Results: In this preliminary analysis, July 2025 to March 2026, 60 infection-related hospital admissions were screened, 16 patients were enrolled (8 in each group). The most common reason of exclusion was the failure to fulfill the SOFA increase criterion. The mean age of the participants was 55.1±16.7 years, 56.2% male, median eGFR 47.2 mL/min/1.73 m². Two patients in the mycophenolate discontinuation group met the primary outcome, compared with one in the dose-reduction group (2 vs. 1; p = 1.000 [Fisher's exact test]). One discontinuation patient died in hospital; one half-dose patient died within 90 days from recurrent infection.

Conclusion: Based on this preliminary analysis, no significant differences were observed in in-hospital mortality or clinical recovery. There was no signal of an increased risk of adverse outcomes in the half-dose reduction group. However, these analyses were underpowered because of the limited sample size.

[Clinical trial registry number: TCTR20250517008]

Keywords: Kidney Transplant, Infection, Immunosuppressant Reduction, Sepsis

The Effects of Pemafibrate on Markers of Renal Disease Progression in Kidney Transplant Recipients: A Randomized Controlled Trial

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Background: Hypertriglyceridemia is a frequent metabolic complication after kidney transplantation and has been linked to progressive graft dysfunction. Pemafibrate, a selective PPARα modulator, is a newer lipid-lowering agent with potential anti-inflammatory beyond its triglyceride-lowering effect. This study aimed to evaluate the effect of pemafibrate on renal progression markers in kidney transplant patients.

Methods: This randomized, placebo-controlled clinical trial was conducted at Phramongkutklao Hospital. Post kidney transplant recipients ≥6 months with stable graft function and triglyceride levels >150 mg/dL were randomized to receive either pemafibrate or a matching placebo for 16 weeks. Primary and secondary outcomes included changes in UACR, serum creatinine and estimated glomerular filtration rate (eGFR).

Results: A total of 42 patients were enrolled, with comparable baseline characteristics. UACR was significantly reduced at week 16 in the pemafibrate group compared with placebo [−205.2 mg/gCr (95% CI −362.7 to -47.8); P = 0.012] and triglyceride levels were significantly reduced compared with placebo [−84.2 mg/dL (95% CI −168.5 to 0.1); P=0.050]. No significant differences were observed in changes in total cholesterol, LDL cholesterol, HDL cholesterol, serum creatinine or tacrolimus trough levels with no serious adverse events.

Conclusion: This analysis demonstrates that short-term pemafibrate therapy effectively reduces albuminuria and triglyceride level without adversely affecting kidney function, immunosuppressant levels in kidney transplant recipients. Pemafibrate represent a safe therapeutic option for managing hypertriglyceridemia and albuminuria which is a marker of renal progression in this population.

Keywords: kidney transplantation, hypertriglyceridemia, albuminuria

Graft Survival in Different Kidney Allograft Rejection Phenotypes: An Analysis of 2,166 Biopsies

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Background: Acute rejection remains a major cause of graft loss after kidney transplantation, but the long-term impact of different rejection phenotypes and histopathologic lesions remains incompletely defined.

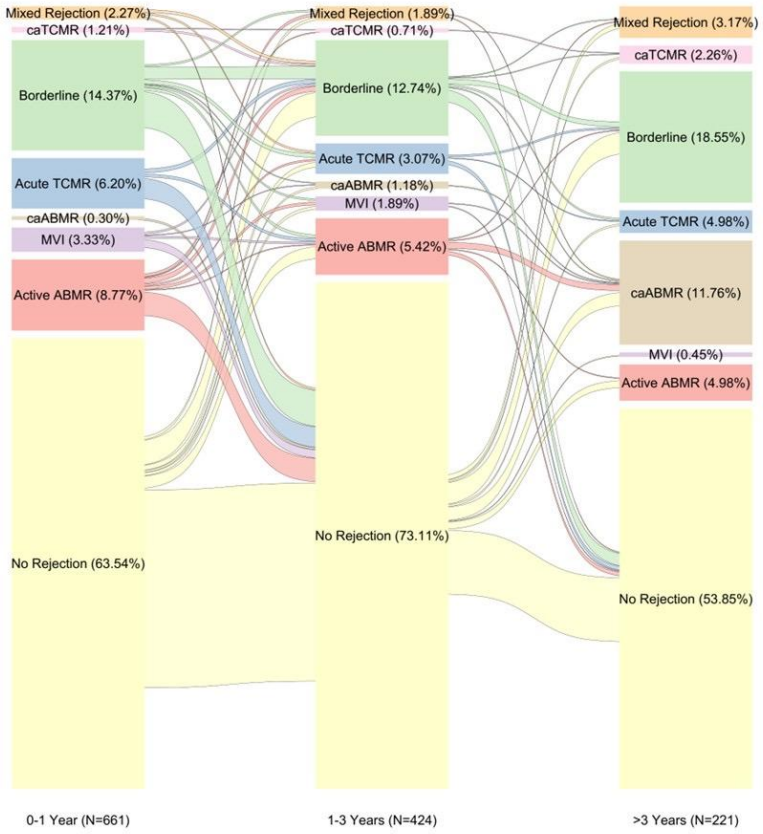
Methods: We conducted a retrospective cohort study of 747 kidney transplant recipients at King Chulalongkorn Memorial Hospital between 2010 and 2024. A total of 2,166 kidney allograft biopsies were analyzed. Rejection phenotypes and Banff lesion scores were modeled as time-varying covariates. Graft failure was assessed using competing-risk regression, with death as a competing event. Principal component analysis (PCA) was applied to identify major histologic injury patterns.

Results: Rejection was associated with an increased risk of graft failure, with marked differences across phenotypes. At 5 years, graft failure incidence was 3.0% without rejection, compared with 7.6% in borderline T-cell mediated rejection (TCMR), 17.1% in acute TCMR, 15.9% in active Antibody-mediated rejection (ABMR), and 54.3% in chronic active TCMR. At 10 years, graft failure increased to 9.3% without rejection, 22.1% in borderline TCMR, 44.9% in acute TCMR, 42.2% in active ABMR, and 91.7% in chronic active TCMR, with similarly poor outcomes observed in mixed rejection (72.3%). PCA identified three major patterns of histologic injury—tubulointerstitial inflammation, microvascular inflammation, and chronic injury—which showed improved predictive performance compared with conventional Banff classification.

Conclusions: Rejection phenotypes are strongly associated with long-term graft outcomes. Chronic active TCMR and mixed rejection confer the highest risk of graft failure. Incorporating time-varying histopathologic data and composite injury patterns may improve risk stratification after kidney transplantation.

Keywords: Kidney transplantation; Rejection phenotype; Graft failure

Evolution of Rejection Phenotypes over Time



Efficacy and Safety of Fibrin Sealant in Reducing Post-Biopsy Perinephric Hematoma in Percutaneous Kidney Biopsy: An Open-Label Randomized Controlled Trial (KIDNEY-SEAL)

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Background: Percutaneous kidney biopsy is a key diagnostic procedure in nephrology but is frequently complicated by perinephric hematoma or major bleeding. Currently, no established preventive strategy exists. Fibrin sealant, a hemostatic agent composed of fibrinogen and thrombin, promotes fibrin clot formation and is approved by the U.S. FDA and Thai FDA for surgical uses. However, evidence in kidney biopsy remains limited. This study provides one of the first trial evaluating the efficacy and safety of fibrin sealant in kidney biopsy.

Methods: The KIDNEY-SEAL trial was an open-label, randomized controlled trial at King Chulalongkorn Memorial Hospital. Adult participants undergoing percutaneous kidney biopsy (native or allograft) were randomized in a 1:1 ratio to receive fibrin sealant injection via coaxial needle after biopsy or standard care. The primary outcome was the occurrence of perinephric hematoma at 6 hours. Secondary outcomes included hematoma size, major bleeding requiring intervention, hemoglobin change, length of stay, and drug-related adverse events.

Results: Sixty-six participants were randomized equally between groups with comparable baseline characteristics. Perinephric hematoma at 6 hours was significantly lower in the fibrin sealant group compared with the control group (18.18% vs. 51.51%; risk difference −33.3%, 95% CI −54.87% to −11.79%, p=0.004), with a number needed to treat of 4. Median hematoma size was significantly smaller in the intervention group. Hemoglobin change over time was comparable between groups. No major bleeding, infectious complications or drug-related adverse events were observed. In subgroup analysis, the treatment effect was greater among those with eGFR ≥45 mL/min/1.73 m² and native kidney biopsy.

Conclusion: Fibrin sealant injection following kidney biopsy significantly reduced early perinephric hematoma without compromising safety, supporting its role as a local hemostatic

strategy. Further multicenter studies and cost-effectiveness analyses are warranted to inform real-world clinical practice.

Thai Clinical Trial Registration: TCTR20250218017, **Ethical approval:** MDCU IRB (No. 0115/68)

Keywords: Percutaneous kidney biopsy, fibrin sealant, perinephric hematoma

Comparing the Efficacy of Heparin-locked and Peritoneal Flushing for Preventing Peritoneal Dialysis Catheter Blockage: Randomized Control Trial

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Background: Early dysfunction of peritoneal dialysis (PD) catheters during the break-in period is often thought to be related to intraluminal clot formation. Although the 2019 ISPD guidelines recommend routine peritoneal flushing to keep the catheter patent, this can be difficult in daily practice. It takes extra time for staff, and each time the system is opened there is a risk of contamination. Intraluminal heparin locking may be a simpler option, but evidence comparing it with routine flushing is still limited.

Objective: To compare the effectiveness of intraluminal heparin locking with routine peritoneal flushing for preventing early PD catheter dysfunction.

Methods: This single-center, open-label, randomized controlled trial included patients undergoing Tenckhoff PD catheter insertion. Participants were randomly assigned to either intraluminal heparin locking or routine peritoneal flushing during the break-in period. The primary outcome was catheter dysfunction due to intraluminal clot formation within 14 days after insertion. Secondary outcomes included overall catheter dysfunction, catheter survival at 2 and 4 weeks, and infectious or bleeding complications. Analyses were performed using both intention-to-treat (ITT) and per-protocol (PP) populations.

Results: A total of 120 patients were randomized (60 in each group). In the ITT analysis, clot-related catheter dysfunction occurred in 1.7% (1/60) of the heparin locking group and 8.3% (5/60) of the flushing group (risk difference, -6.7%; 95% CI, -14.8% to 1.5%). Similar results were seen in the PP analysis (n=105), with rates of 1.9% (1/54) and 9.8% (5/51), respectively (risk difference, -7.9%; 95% CI, -17.3% to 1.4%). No statistically significant difference was found between groups. Catheter survival at 2 and 4 weeks was similar, and rates of infectious or bleeding complications were low in both groups.

Conclusions: Intraluminal heparin locking was not significantly different from routine peritoneal flushing in preventing early catheter dysfunction. Because it is simpler to perform and showed a similar safety profile, heparin locking may be a practical alternative during the break-in period.

Keywords: Peritoneal dialysis; Tenckhoff catheter; Heparin locking; Catheter dysfunction

Hypotension Prediction Index-Guided Hemodynamic Management to Prevent Intradialytic Hypotension in the Intensive Care Unit: A Randomized Crossover Trial (HyPIR-ICU)

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Background: Intradialytic hypotension (IDH) is a common complication of prolonged intermittent renal replacement therapy (PIRRT) in intensive care units (ICU). There are no established gold standards for hemodynamic management in this high-risk population. Hypotension Prediction Index (HPI) is a novel machine-learning algorithm based on continuous analysis of arterial waveforms. However, its utility during PIRRT is unclear. This study aimed to evaluate whether HPI-guided hemodynamic management reduces the incidence of IDH compared to standard care in ICU patients undergoing PIRRT.

Methods: This was a randomized, controlled, crossover trial conducted at King Chulalongkorn Memorial Hospital. Critically ill patients requiring PIRRT were recruited and randomly assigned to either HPI-guided management or standard care, with a subsequent crossover to the alternative protocol for the next treatment session. In the intervention group, an HPI >85 prompted a series of pre-specified management actions, including discontinuation of ultrafiltration (UF), volume administration (e.g. fluid, albumin or blood products), or the use of vasopressors or inotropes. The primary outcome measured was the burden of IDH, quantified as the Time-Weighted Average (TWA) of MAP <65 mmHg. (**NCT07179705**)

Results: In this analysis of 25 patients (84% male; mean age 58 years; acute kidney injury in 68%; SOFA score 11±3), no significant baseline differences and PIRRT prescriptions were observed

between the groups, with 88% of participants identified as volume non-responders by the passive leg-raising test. The TWA-MAP <65 mmHg did not differ significantly between the HPI and standard care groups [0.08 (0-0.154) vs. 0.011 (0-0.244); p=0.50] but the HPI group had significantly higher average MAP at 15-minute intervals, particularly during the first half of the PIRRT session (p=0.001). During treatment, the hemodynamic profiles were comparable between the two groups, with the primary etiology of instability being preload dependence, followed by vasoplegia and impaired contractility. Notably, the HPI group achieved a higher delivered-to-prescribed UF ratio (0.94 $\pm$ 0.20 vs. 0.76 $\pm$ 0.34; p=0.032) despite receiving a significantly greater adjunctive fluid at PIRRT initiation [median difference +35.5 mL (0,162)] and greater crystalloid rescue fluid use during PIRRT session (8.7% in HPI group vs. 0% in Standard group), while maximum vasopressor requirements remained comparable between both groups.

Conclusions: This was the first study to implement HPI-guided management during PIRRT. Although HPI-guided management did not significantly lower time-weighted average MAP < 65 mmHg, it resulted in higher MAP during the first half of PIRRT and improved ultrafiltration targets through increased initial adjunctive fluid and more crystalloid rescue fluid. These findings suggest that machine-learning-guided monitoring may assist fluid removal during PIRRT; however, larger studies are necessary to confirm the clinical utility of HPI in this context.

Keywords: Hypotension Prediction Index; Prolonged intermittent renal replacement therapy; Intradialytic hypotension

The Efficacy of Intermittent Fasting Combined with Renal-Specific Low-Protein Supplementation in Reducing Albuminuria among Overweight Patients with Diabetic Kidney Disease

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Background: Weight reduction improves albuminuria in patients with diabetic kidney disease (DKD). Intermittent fasting (IF) is an effective weight-loss strategy but may promote loss of lean muscle mass in patients with chronic kidney disease (CKD). Renal-specific low-protein supplementation (LPS) may mitigate this risk. Whether combining IF with renal-specific LPS reduces albuminuria in overweight patients with DKD has not been evaluated.

Objective: To determine the efficacy of 12-week IF combined with renal-specific LPS in reducing albuminuria among overweight patients with DKD.

Materials and Methods: In this 12-week, open-label, randomized controlled trial, 44 overweight patients with DKD (CKD stages 3b through 4) were assigned in a 1:1 ratio to IF with renal-specific LPS or standard care. The primary outcome was the between-group difference in the change from baseline in the urine albumin-to-creatinine ratio (UACR).

Results: A total of 42 patients completed the trial. The mean change in UACR was −118.2±298.2 mg per gram of creatinine in the intervention group, as compared with +96.6±200.4 in the control group (between-group difference, −214.8; 95% confidence interval [CI], −374.9 to −54.7; P=0.01). Body weight decreased by 1.1 kg more in the intervention group (95% CI, −2.1 to −0.09; P=0.03). There were no significant differences in estimated glomerular filtration rate, muscle mass, or fat mass. No serious adverse events occurred.

Conclusions: Among overweight patients with DKD, IF combined with renal-specific LPS significantly reduced albuminuria and body weight without adverse effects on renal function or muscle mass.

Keywords: intermittent fasting, albuminuria, diabetic kidney disease

Comparative Effects of Ferric Citrate and Sevelamer on Protein-Bound Uremic Toxins in Pre-Dialysis Chronic Kidney Disease with Hyperphosphatemia: A Randomized Controlled Trial

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Background: Protein-bound uremic toxins (PBUTs), particularly p-cresyl sulfate (PCS) and indoxyl sulfate (IS), are associated with cardiovascular and all-cause mortality. Although Sevelamer has shown potential effects on PBUTs reduction and Ferric citrate may modulate the gut microbiome diversity, evidence remains inconsistent. We therefore compared their impact on PBUTs in pre-dialysis CKD patients with hyperphosphatemia.

Methods: In this multicenter, open-label, randomized study, 75 adults with pre-dialysis CKD stages 3–5 and hyperphosphatemia were randomized 1:1 to Ferric citrate (n=37) or Sevelamer (n=38) for 1 month. The primary outcome was the proportion of responders, defined as any decrease in PBUT levels from baseline, chosen to account for high biological variability. Continuous outcomes were log-transformed [ln(x)]. Analyses followed the per-protocol principle. Risk differences were used with a non-inferiority margin of 15%. Secondary analyses included paired t-tests and Welch's t-tests. Secondary outcomes included estimated glomerular filtration rate (eGFR), serum phosphate, PTH, FGF 23, hemoglobin level, iron studies, inflammatory markers, and nutrition markers.

Results: P-cresyl sulfate (PCS) levels did not significantly decrease in either group, and non-inferiority in responder proportions was inconclusive (risk difference −10.3%; 95% CI, −25.5% to 4.8%). For indoxyl sulfate (IS), both groups showed significant within-group reduction (**Δ**lnIS −0.27 (95% CI −0.43 to −0.11; p=0.001 in Ferric citrate and **Δ**lnIS −0.32 (95% CI −0.49 to −0.14; p<0.001 in Sevelamer group). However, the between-group comparison did not meet the criteria for non-inferiority (risk difference −3.5%; 95% CI, −24.4% to 17.4%). Serum phosphate and intact FGF23 levels decreased significantly in both groups ($p < 0.001$ and $p < 0.005$, respectively), while eGFR remained stable. Sevelamer resulted in greater reductions in LDL cholesterol and hs-CRP, whereas ferric citrate improved iron indices.

Conclusions: Ferric citrate and sevelamer did not demonstrate superiority or non-inferiority in the primary outcome of PCS reduction over this short study period. However, both significantly lowered indoxyl sulfate and intact FGF23, suggesting biologically relevant effects. Sevelamer improved lipid and inflammatory markers, whereas ferric citrate enhanced iron parameters, highlighting cardiometabolic benefits beyond phosphate control. These findings support a personalized approach to phosphate binder selection in CKD patients.

Keywords: P-cresyl sulfate; Indoxyl sulfate; Protein-bound uremic toxins

Effect of Intradialytic Exercise on Serum FGF23 Levels and left ventricular structure and function in Hemodialysis Patients: A randomized controlled trial pilot study

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Background: Cardiovascular disease accounts for approximately 50% of mortality in hemodialysis (HD) patients. Elevated Fibroblast Growth Factor 23 (FGF23) is associated with uremic cardiomyopathy. While intradialytic exercise offers various physiological benefits, its specific efficacy in lowering serum FGF23 levels remains limited. This pilot study aimed to determine whether intradialytic exercise lowers serum FGF23 and improves left ventricular structure and function.

Methods: A single-center, open-label, randomized controlled trial was conducted in stable chronic HD patients. Participants were randomized 1:1 to either a 24-week intradialytic exercise program (combined aerobic and strength training) or a non-exercising control group. The primary outcome was the change in serum FGF23 levels from baseline to 6 months after intradialytic exercise. Secondary outcomes included echocardiographic parameters (left ventricular ejection fraction [LVEF] and left ventricular [LV] mass), mineral metabolism markers, inflammatory marker, physical performance, and quality of life (KDQOL).

Results: Among 60 eligible participants, 49 participants were completed the study (23 in the intervention group and 26 in the control group). At 6 months after initiation of intradialytic exercise, there was no significant difference in FGF23 levels between the intervention and control groups (p = 0.57), potentially confounded by exceptional inter-patient variance. Echocardiographic assessments revealed no significant changes in LVEF (p = 0.59) or LV mass (p = 0.17). In terms of mineral metabolism, the exercise group demonstrated a significant reduction in serum calcium (adjusted mean difference -0.53, p = 0.02). Phosphorus and parathyroid hormone levels remained unchanged. Notably, the intervention group exhibited a positive trend toward improved mental quality of life scores (p = 0.07).

Conclusion: A 6-month intradialytic exercise program did not significantly reduce serum FGF23 levels or reverse structural cardiac remodeling in HD patients. The systemic uremic mineral burden largely bypasses the pathways influenced by physical exertion. However, exercise remains an adjunctive therapy, demonstrating potential psychological benefits and partial engagement of the mineral regulation.

Keywords: intradialytic exercise, FGF23, LVEF, LV mass.

Effects of Spironolactone on Residual Kidney Function in Incremental Hemodialysis Patients: A multicenter Randomized Controlled Trial (SPARE-RKF Trial)

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Background: Residual kidney function (RKF) is a key determinant of outcomes in end-stage kidney disease and is particularly relevant in incremental hemodialysis. Strategies to preserve RKF, including renin-angiotensin-aldosterone system inhibitors, have shown inconsistent benefit. Spironolactone, a mineralocorticoid receptor antagonist, may preserve RKF through neurohormonal and diuretic effects, but evidence in this setting remains limited. We evaluated its effect on RKF in patients undergoing incremental hemodialysis.

Methods: Adults receiving twice-weekly incremental hemodialysis with urine volume ≥500 mL/day and Kru ≥2 mL/min/1.73 m² were randomized (1:1) to spironolactone 25 mg daily or control and followed for 12 weeks. The primary outcome was change in RKF, assessed by 24-hour urine volume and Kru. Secondary outcomes included hyperkalemia, interdialytic weight gain (IDWG), blood pressure, cardiac biomarkers, beta-2 microglobulin, hospitalization, and mortality.

Results: A total of 32 patients were randomized, and 30 were analyzed. Baseline characteristics were comparable, except for a higher prevalence of diabetes in the spironolactone group. At 12 weeks, urine volume increased more with spironolactone than with control (median 100 [0-800] vs 50 [−500-100] mL; p=0.037), and Kru increased with spironolactone but declined in controls (+0.80 [−0.28-2.42] vs −0.09 [−0.70-0.42] mL/min/1.73 m²; p=0.036). After adjustment, spironolactone remained associated with higher urine volume and Kru. Post-dialysis systolic blood pressure was lower with spironolactone (p=0.03), whereas IDWG (p=0.42) and hyperkalemia (p=0.51) were comparable between groups.

Conclusion: Spironolactone preserved residual kidney function over 12 weeks in patients undergoing incremental hemodialysis without increasing hyperkalemia, supporting its potential role in this population.

Keywords: Spironolactone, residual kidney function (RKF), incremental hemodialysis

Evaluation of venous congestion in patients with end-stage kidney disease undergoing hemodialysis: VExUS assessment

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Background: Venous congestion is common and is associated with adverse outcomes in end-stage kidney disease (ESKD) undergoing hemodialysis (HD). Venous Excess Ultrasonography Score (VExUS) and common femoral vein (CFV) Doppler are noninvasive bedside ultrasound tools for assessing venous congestion, but their role in HD patients remains unclear.

Method: This prospective cross-sectional study included patients with ESKD undergoing HD. All patients underwent bioimpedance analysis (BIA), VexUS, and CFV Doppler, before and after HD. Venous congestion was defined as an extracellular water-to-total body water ratio (ECW/TBW) ≥0.4 by BIA. The primary outcome was the diagnostic performance of VExUS for detecting venous congestion Corresponding 95% confidence intervals (CIs) estimated using patient-level cluster bootstrap. Associations were evaluated using generalized estimating equations.

Results: A total of 140 assessments were performed across 70 HD sessions in 31 patients. VExUS ≥1 showed a sensitivity of 53.0% (95% CI, 36.5–69.6) and specificity of 71.0% (95% CI, 52.6–86.2), providing the best balance between sensitivity and specificity. Higher thresholds increased specificity while reducing sensitivity. CFV Doppler showed comparable sensitivity (49.0% [95% CI, 32.0–66.2]) but higher specificity (83.9% [95% CI, 71.2–94.0]). Both VExUS and CFV Doppler were significantly associated with BIA-defined congestion. A graded relationship was observed between VExUS severity and ECW/TBW (P=0.002).

Conclusion: VExUS and CFV Doppler demonstrated moderate diagnostic performance and significant associations with BIA-derived venous congestion in HD patients. These findings support their complementary role as bedside tools for assessing venous congestion in ESKD.

Supplementary Data

Table: Diagnostic Performance of VExuS and CFV doppler (n=140)

Evaluation	Sensitivity% (95%CI)	Specificity% (95%CI)	PPV%	NPV%	Accuracy	LR+	LR-
VExUS score							
≥1	52.8 (41.4-63.9)	70.6 (58.9-80.1)	65.5	58.5	61.4	1.79	0.69
≥2	27.8 (18.8-39.0)	89.7 (80.2-94.9)	74.1	54.0	57.9	2.70	0.81
3	8.3 (3.8-17.0)	98.5 (92.1-99.7)	85.7	50.4	52.1	5.67	0.93
Inferior vena cava	51.4 (40.1-62.6)	69.1 (57.4-78.8)	63.8	57.3	60.0	1.66	0.70
Hepatic vein	80.6 (70.0-88.0)	55.9 (44.1-67.1)	65.9	73.1	68.6	1.83	0.35
Portal vein	52.8 (41.4-63.9)	76.5 (65.1-85.0)	70.4	60.5	64.3	2.24	0.62
CFV Grading	48.6 (37.4-59.9)	83.8 (73.3-90.7)	76.1	60.6	65.7	3.01	0.61

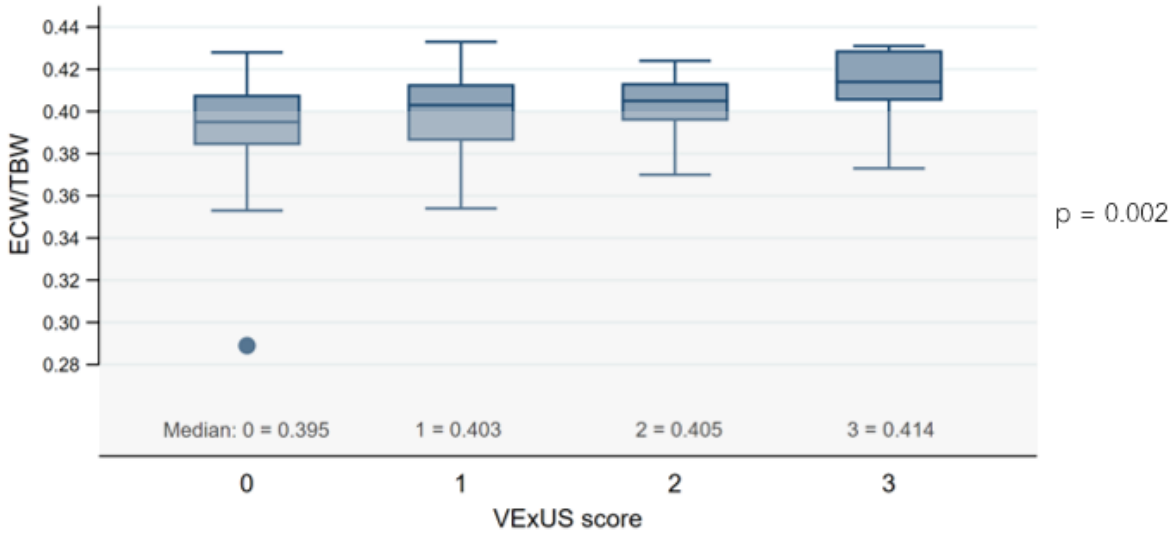

Figure: Distribution of ECW/TBW by VExUS

Optimal meropenem dosing regimens in patients receiving combined continuous kidney replacement therapy and hemoadsorption: a Monte Carlo simulation

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Background: Critically ill patients with sepsis-associated acute kidney injury frequently require continuous kidney replacement therapy (CKRT) combined with hemoadsorption devices such as HA-380 and CytoSorb. These extracorporeal therapies may alter meropenem pharmacokinetics, however, optimal dosing regimens in these patients with combined extracorporeal circuit remains poorly defined.

Methods: A one-compartment pharmacokinetic model using previously published patient characteristics and pharmacokinetic parameters was developed incorporating daily and alternate-day CKRT modalities for both hemofiltration and hemodialysis at effluent rates of 25 and 35 mL/kg/h. These modalities were combined with either HA-380 (4-hour treatment) or CytoSorb (24-hour treatment). A Monte Carlo simulation performed concentration-time profiles of 10,000 simulated virtual patients per each tested dose. The probability of target attainment (PTA) was evaluated over 48 hours with a MIC breakpoint of 2 mg/L using pharmacodynamic targets of 40%fT>MIC, 40%fT>4MIC, and 100%fT>MIC. The optimal dose was defined as the lowest dose achieving at least a PTA of 90%.

Results: For the primary target of 40%fT>4MIC, meropenem 750 mg every 8 hours achieved a PTA of at least 90% for both CVVH and CVVHD at effluent rates of 25 and 35 mL/kg/h, across all hemoadsorption devices, modes, and treatment phases. The risk of nephrotoxicity and neurotoxicity remained low at the recommended dose, with rates of < 0.4% and 0.03%, respectively.

Conclusion: Adding a hemoadsorption into CKRT modality does not affect the meropenem requirement compared to doses of patients receiving only CRRT. Clinical validation of our results is absolutely needed.

Keywords: Meropenem, Continuous Kidney Replacement Therapy, Hemoadsorption, Monte Carlo simulation, Pharmacokinetics, Combined extracorporeal therapy

Isolated Frailty Independently Predicts Mortality in Peritoneal Dialysis: A Multicenter Prospective Comparison with Sarcopenia and Protein-Energy Wasting

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Background: Frailty, sarcopenia, and protein-energy wasting (PEW) commonly coexist in patients receiving peritoneal dialysis (PD), but their independent prognostic significance when assessed concurrently remains uncertain. We compared their independent associations with mortality and examined whether risk differed across frailty phenotype subgroups.

Methods: This prospective two-center study included 336 prevalent PD patients in Thailand. Frailty was assessed using a modified Fried phenotype, sarcopenia using Asian Working Group for Sarcopenia 2019 criteria, and PEW using modified International Society of Renal Nutrition and Metabolism criteria. All-cause mortality was analyzed using multivariable Cox regression. Cause-specific mortality was examined using Fine–Gray competing-risks models, comparing isolated frailty and frailty with overlap against no frailty.

Results: Mean age was 58.2 ± 12.9 years, 46.7% were female, and 69.1% had diabetes. Frailty, sarcopenia, and PEW were present in 27.7%, 22.3%, and 32.7%, respectively. During a median follow-up of 30 months (IQR 12–44), 123 deaths occurred. In multivariable Cox regression, only frailty retained an independent association with all-cause mortality (adjusted HR 1.87, 95% CI 1.23–2.82, P = 0.003); neither sarcopenia nor PEW retained significance. In competing-risks analysis, isolated frailty significantly predicted cardiovascular death (sHR 3.07, 95% CI 1.58–5.97) and infection-related death (sHR 2.79, 95% CI 1.20–6.49) compared with no frailty. Frailty with overlap was not associated with any cause-specific outcome.

Conclusions: Isolated frailty identified a domain of all-cause and cause-specific mortality risk not detected by conventional nutritional or muscle-specific assessments. Systematic frailty screening may improve risk stratification and inform targeted interventions in PD care.

Keywords: Peritoneal dialysis, Frailty, Sarcopenia, Protein-energy wasting, All-cause mortality

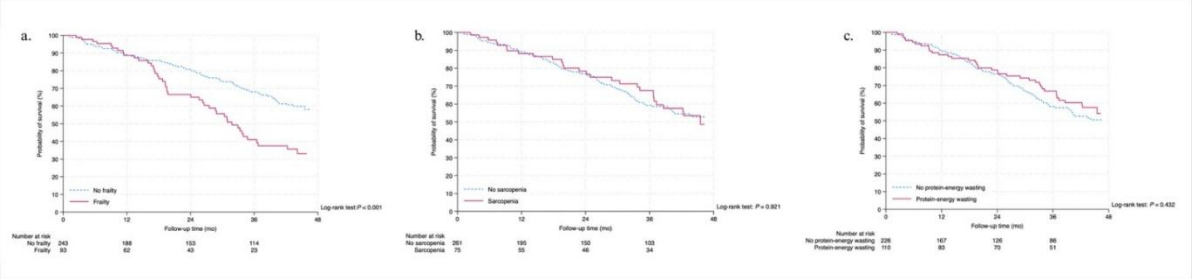

Figure Kaplan–Meier curves for overall survival by (a) frailty status, (b) sarcopenia status, and (c) protein-energy wasting status.

Table Crude and adjusted Cox proportional hazards models for all-cause mortality and adjusted Fine–Gray competing risks models for cause-specific mortality by frailty phenotype subgroup.

Variables	All-cause death	*P*-value	CV-related death	*P*-value	Infection-related death	*P*-value	Other-cause death	*P*-value
	Adjusted HR (95% CI)		SHR (95% CI)		SHR (95% CI)		SHR (95% CI)	
Isolated frailty	2.81 (1.74–4.55)	<0.001*	3.07 (1.58–5.97)	0.001*	2.79 (1.20–6.49)	0.017*	0.65 (0.19–2.24)	0.494
Frailty with overlap	1.12 (0.65–1.94)	0.680	1.03 (0.44–2.41)	0.943	1.50 (0.53–4.20)	0.443	0.88 (0.34–2.28)	0.797
Age, per 1 year	1.02 (1.00–1.04)	0.020*	1.01 (0.98–1.04)	0.440	1.03 (1.00–1.07)	0.028*	1.01 (0.98–1.04)	0.431
Diabetes	1.25 (0.79–1.97)	0.343	1.76 (0.79–3.93)	0.163	0.57 (0.25–1.29)	0.176	1.38 (0.64–2.97)	0.411
ASCVD	0.77 (0.46–1.27)	0.98	0.74 (0.35–1.57)	0.426	1.01 (0.42–2.42)	0.986	0.68 (0.24–1.89)	0.475
CCI, per 1 unit	1.09 (0.99–1.19)	0.081	1.09 (0.96–1.25)	0.195	1.17 (0.99–1.36)	0.058	1.00 (0.85–1.18)	0.457
Total weekly Kt/Vurea, per 0.1 unit	0.92 (0.66–1.27)	0.606	0.89 (0.57–1.38)	0.595	0.82 (0.50–1.33)	0.422	1.08 (0.54–2.19)	0.820
Albumin, per 1 g/L	0.97 (0.95–1.00)	0.037*	0.96 (0.92–1.00)	0.040*	1.00 (0.96–1.05)	0.757	0.98 (0.94–1.02)	0.314

"No frailty" is the reference group. Crude all-cause mortality HRs were estimated using univariable Cox regression; adjusted HRs and cause-specific SHRs were adjusted for age, diabetes, ASCVD, Charlson Comorbidity Index, total weekly Kt/Vurea, and serum albumin. Non-index deaths were treated as competing events in Fine–Gray models. Isolated frailty: frailty without coexisting sarcopenia or protein-energy wasting. Frailty with overlap: frailty with coexisting sarcopenia and/or protein-energy wasting. *P < 0.05. ASCVD, atherosclerotic cardiovascular disease; CCI, Charlson Comorbidity Index; CI, confidence interval; HR, hazard ratio; PEW, protein-energy wasting; SHR, shazard ratio.

The Efficacy of High Dialysate Magnesium on Parathyroid hormone in ESKD patient: A multicenter Randomized Controlled Trial

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Background: Hyperparathyroidism is a common complication in end-stage kidney disease (ESKD), associated with adverse clinical outcomes. Treatment options remain limited. Increasing dialysate magnesium has been proposed as a strategy to modulate parathyroid hormone (PTH) secretion and mineral metabolism, but randomized clinical evidence remains limited.

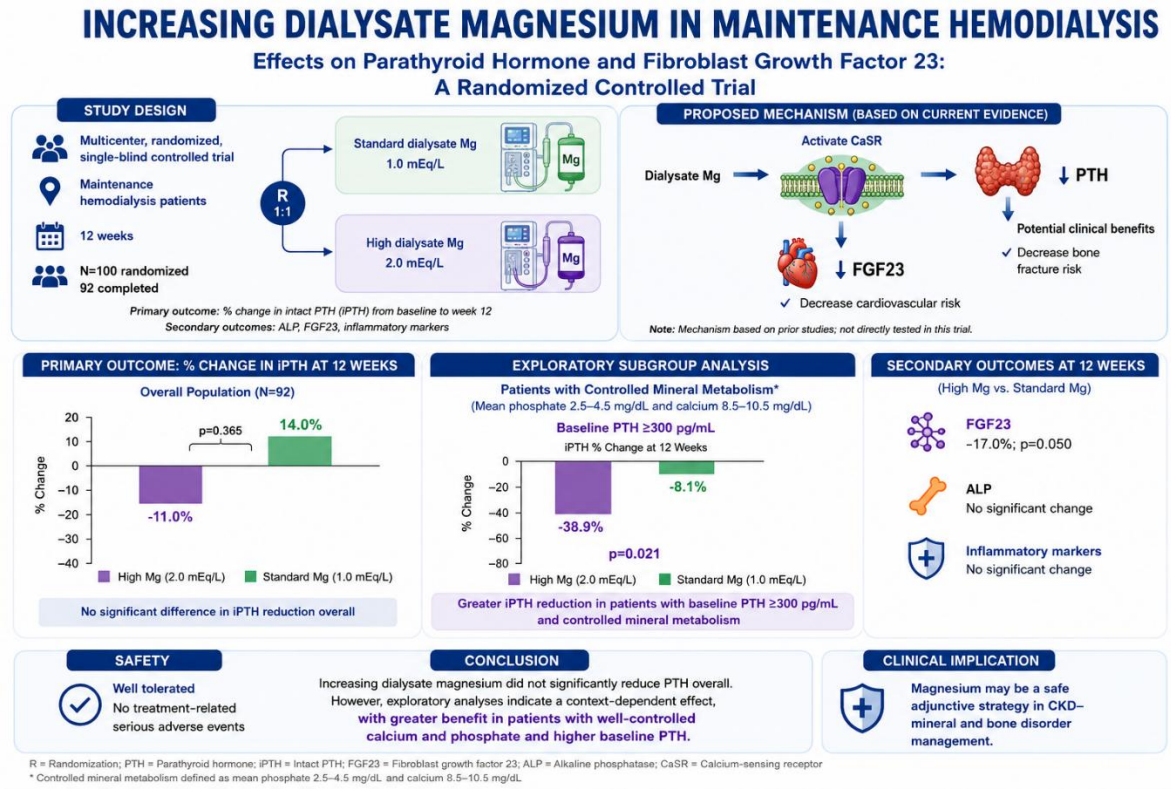
Methods: We conducted a multicenter, randomized, single-blind controlled trial evaluating the effect of increasing dialysate magnesium from 1.0 to 2.0 mEq/L over 12 weeks in maintenance hemodialysis patients. The primary outcome was percent change in intact PTH (iPTH) from baseline to week 12. Secondary outcomes included alkaline phosphatase (ALP), fibroblast growth factor 23 (FGF23), and inflammatory markers. Analyses were performed using log-scale ANCOVA adjusted for baseline PTH and sex, with prespecified exploratory subgroup analyses according to time-averaged phosphate, calcium and baseline PTH.

Results: Among 100 randomized patients, 92 completed the study. Increasing dialysate magnesium did not significantly reduce iPTH overall versus standard dialysate magnesium

(-11.0%; 95% CI,-30.0% to 14.0%; p=0.365). However, exploratory subgroup analyses showed greater PTH reduction in patients with controlled mineral metabolism (mean phosphate 2.5-4.5 mg/dL and calcium 8.5-10.5 mg/dL), with the largest effect observed in those with baseline PTH≥300 pg/mL (-38.9%; 95% CI, -59.4% to -8.1%; p=0.021), although no significant interaction was detected. FGF23 showed a similar directional reduction (-17.0%; p=0.050), while ALP and inflammatory markers were unchanged. Increased dialysate magnesium was well tolerated, with no treatment-related serious adverse events.

Conclusion: Increasing dialysate magnesium did not significantly reduce PTH overall. However, exploratory analyses indicate a context-dependent effect, with greater benefit in patients with well-controlled calcium and phosphate. These findings support magnesium as a safe adjunctive strategy in CKD–mineral and bone disorder management.

Keywords: dialysate magnesium, parathyroid hormone (PTH), inflammatory marker, FGF23



Effectiveness of Intraluminal Thrombolytic Lock Therapy Using 1 mg versus full dose 2 mg r-tPA for Hemodialysis Catheter Dysfunction: A Multicenter, non-inferiority Randomized Controlled Trial

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Background: Hemodialysis via tunneled cuffed catheters remains widely used, particularly during dialysis initiation. Catheter dysfunction is a common complication associated with inadequate dialysis delivery, increased infection risk, and the need for catheter replacement. Although intraluminal recombinant tissue plasminogen activator (r-tPA) lock therapy is a standard first-line treatment, the optimal dose remains uncertain.

Methods: This multicenter, single-blind, randomized controlled non-inferiority trial enrolled patients with end-stage kidney disease undergoing hemodialysis via tunneled catheters for ≥30 days who developed catheter dysfunction. Participants were randomized to receive intraluminal r-tPA lock therapy using either 1 mg or 2 mg. The primary outcome was restoration of catheter function. Secondary outcomes included catheter function at 1 and 3 months, catheter-related bloodstream infection, hospitalization, and safety outcomes.

Results: A total of 26 patients were included. Baseline characteristics were comparable, although the 2 mg group had more severe dysfunction. Catheter function was restored in 92.9% of the 2 mg group and 100% of the 1 mg group (difference −6.3%, 95% CI −6.3 to 21), meeting the non-inferiority margin. Catheter patency remained high at 1 and 3 months. No significant differences were observed in composite secondary outcomes (27.3% vs 10.0%, p=0.59). No major bleeding or embolic events occurred.

Conclusion: Low-dose r-tPA was non-inferior to standard-dose therapy and may provide a cost-effective alternative.

Keywords: Hemodialysis Catheter Dysfunction, R-tPA, Thrombolytic Lock Therapy, Vascular Access

Poster Presentation Abstract

Comparative Accuracy and Precision of Spot Urine Ratios vs. 24-hour Collection for Protein and Albumin during the Acute and Resolved Phases of Acute Kidney Injury

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Background: 24-hour urine collection is the gold standard for quantifying proteinuria and albuminuria, but spot urine protein/creatinine (UPCR) and albumin/creatinine (UACR) ratios are common surrogates. However, their validity during hemodynamically unstable Acute Kidney Injury (AKI) and subsequent resolution remains poorly defined.

Methods: This prospective study screened N=311 patients with AKI. Paired samples of spot urine (first morning void) and 24-hour collections were obtained during the AKI phase (Phase 1) and after resolution (Phase 2). Completeness was verified using the Gerber & Mann model. Linear regression and Bland-Altman (BA) analysis assessed agreement and interchangeability.

Results: After exclusions for incomplete collections, 100 patients remained for analysis. In the AKI phase (Phase 1), correlation was severely diminished (UPCR: r=0.7305; UACR: r=0.2624, p=0.009). BA analysis revealed consistent overestimation (bias ratios 1.372–1.586) and unacceptably wide Limits of Agreement (LOA; UPCR: 0.330–7.399; UACR: 0.223–8.431), indicating high random error. Conversely, in the AKI Resolved phase (Phase 2), both UPCR and UACR showed excellent correlation ($r>0.90$, $p<0.001$). Critically, LOAs significantly narrowed (UPCR: 0.480–5.236; UACR: 0.415–5.514), demonstrating marked improvement in measurement precision once hemodynamic stability was achieved.

Conclusion: During acute AKI, spot UPCR and UACR fail to accurately estimate 24-hour excretion due to physiological instability and erratic creatinine kinetics. However, upon resolution, these ratios regain high utility and precision. Clinicians should exercise extreme caution interpreting spot ratios during active AKI; their restored accuracy after resolution confirms their reliability for long-term monitoring.

Keywords: AKI, UPCR, UACR, Correlation, Bland-Altman analysis

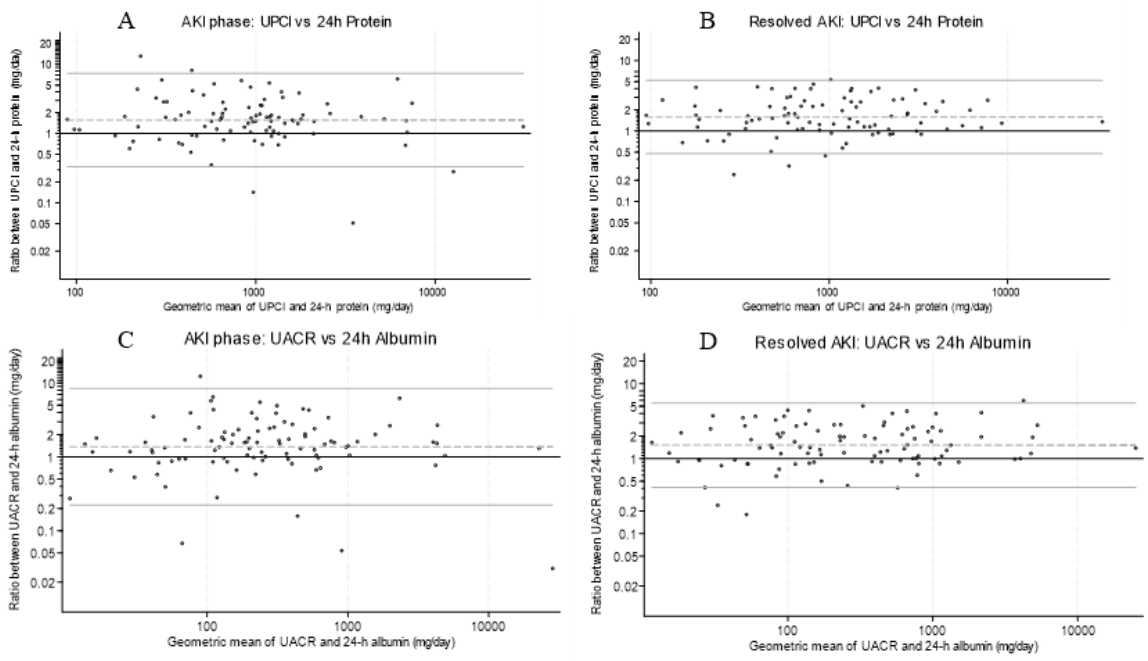

Figure: Bland–Altman plots illustrate the agreement between the 24-hour gold standard and the spot urine ratios for both study phases: (A) UPCR in the AKI Phase, (B) UACR in the AKI Phase, (C) UPCR in the Resolved Phase, and (D) UACR in the Resolved Phase (N = 100).

As the data exhibited a non-normal distribution, a ratio-based Bland-Altman analysis was performed. In this model, a perfect agreement between the 24-hour measured excretion and the spot urine ratio would result in all data points lying precisely along the y = 1 line (representing a ratio of unity where the two methods yield identical results). The horizontal lines in each plot indicate the total bias (geometric mean ratio) and the 95% limits of agreement (LOA) ratio for the entire study distribution.

Clinical Characteristics, Etiology and Clinical Outcomes of Acute Kidney Injury in Systemic Sclerosis

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Background: Acute kidney injury (AKI) is a serious complication of systemic sclerosis (SSc) associated with high morbidity and mortality. Although scleroderma renal crisis (SRC) is a well-recognized cause of AKI, non-SRC etiologies are increasingly identified and may require different management. This study evaluated the etiologies, clinical characteristics, and outcomes of AKI in patients with SSc and compared outcomes between SRC-AKI and non-SRC AKI.

Methods: This retrospective cohort study included patients with SSc who developed AKI and were admitted to Khon Kaen Hospital between January 1, 2014, and December 31, 2024. The primary outcome was major adverse kidney events (MAKE) comparing SRC-AKI and non-SRC AKI. Secondary outcomes included AKI etiologies, need for kidney replacement therapy (KRT), and all-cause mortality.

Results: Among 127 patients with SSc-associated AKI, 68 (53.5%) had SRC-AKI and 59 (46.5%) had non-SRC AKI. SRC-AKI was associated with diffuse cutaneous SSc, shorter disease duration, hypertensive crisis, tendon friction rub, and microangiopathic hemolytic anemia. Common causes of non-SRC AKI were acute tubular necrosis (57.6%), prerenal azotemia (17.0%), ANCA-associated glomerulonephritis (8.5%), and lupus nephritis (5.1%). MAKE occurred more frequently in SRC-AKI than non-SRC AKI (95.6% vs. 79.7%; HR 5.53, 95% CI 1.48–20.70; P = 0.011). Patients with SRC-AKI also had higher risks of requiring acute KRT (HR 3.94; P < 0.001) and all-cause mortality (HR 3.56; P = 0.024).

Conclusions: AKI in SSc is associated with poor kidney outcomes and high mortality, particularly in SRC. Early identification of AKI etiology and prompt management are essential to improve outcomes.

Keywords: Systemic Sclerosis, Acute Kidney Injury, Scleroderma Renal Crisis, Kidney Replacement Therapy, Mortality

Urinary Non-Albumin Protein-to-creatinine Ratio as an Accessible Marker for Early Sepsis-associated Acute Kidney Injury: A Prospective Observational

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Background: Sepsis-associated acute kidney injury (SA-AKI) is a severe condition often diagnosed late using conventional criteria like serum creatinine. While sensitive biomarkers like NGAL exist, their high-cost limits accessibility. This study explores the urinary non-albumin protein-to-creatinine ratio (NAPCR)—calculated as the urine protein-to-creatinine ratio minus the albumin-to-creatinine ratio—as a cost-effective alternative for early SA-AKI detection, hypothesizing that it reflects tubular stress.

Methods: A single-center prospective observational study enrolled 111 adults meeting Sepsis-3 criteria. Spot urine was collected on days 0, 2, and 7 to calculate NAPCR. The primary endpoint was the development of SA-AKI within seven days, defined by KDIGO criteria.

Results: Among 111 patients, 31 (27.9%) developed SA-AKI and experienced significantly higher rates of septic shock and mortality. Although the median baseline NAPCR was higher in the AKI group (334.2 mg/g) compared to the non-AKI group (263.7 mg/g), this difference was not statistically significant ($p = 0.245$). An optimal NAPCR percent change cut-point of ≥ 4.79 suggested a 3.48-fold increase in the odds of predicting SA-AKI. However, due to sample size constraints, this finding lacked statistical significance ($p = 0.153$) and demonstrated limited discriminative ability (AUC = 0.65). NAPCR levels did not differentiate AKI severity stages.

Conclusion: Interim results indicate a consistent upward trend in NAPCR among patients developing SA-AKI. While current findings lack statistical significance due to the small sample size, completing enrollment may confirm its predictive value. If validated, NAPCR could provide a highly accessible, low-cost tool for the early recognition of tubular damage.

Keywords: Sepsis-associated AKI; Non-albumin protein-to-creatinine ratio; Tubular stress; Low-cost biomarker

Factors Associated with Serum Creatinine Elevation in HIV Patients Receiving Dolutegravir-Based Antiretroviral Therapy

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Background: Dolutegravir (DTG), an integrase inhibitor, has been associated with modest increases in serum creatinine after initiation. To date, there has been no study in Thailand evaluating factors associated with serum creatinine elevation among HIV-infected patients receiving DTG.

Methods: In this retrospective case-control study, we evaluated 188 HIV-infected patients receiving DTG-based antiretroviral therapy at Police General Hospital between January 1, 2020, and December 31, 2024. Patients were classified according to whether serum creatinine increased by ≥15% from baseline (rising-creatinine group) or remained stable. Factors associated with serum creatinine elevation were assessed using univariable and multivariable logistic-regression models.

Results: Among 188 patients, 91 (48.4%) had a ≥15% increase in serum creatinine after DTG initiation. Baseline demographic, clinical, and HIV-related characteristics were similar between groups except for age. Patients in the rising-creatinine group were older than those in the stable group (mean age, 52.5±8.2 vs. 49.3±9.9 years; P=0.02). In multivariable analysis, age was the only independent predictor (OR, 1.04; 95% confidence interval [CI], 1.01–1.08; P=0.02). Patients 50 years of age or older had an approximately twofold higher risk than younger patients (OR 1.84; 95% CI, 1.01–3.35; P=0.047). In a secondary analysis using KDIGO criteria (>0.3 mg/dL increase), older age remained the only independent predictor (OR 1.083, 95%CI 1.014-1.158 p = 0.018).

Conclusion: Serum creatinine elevation after DTG initiation reflecting inhibition of tubular secretion rather than true renal impairment. Older age (especially ≥50 years) is associated with this effect. Close monitoring of renal function is warranted, especially if without apparent risk factors.

Table 1: Factor associated with serum creatinine elevation in HIV patients after DTG initiation

Variable	Univariable analysis			Multivariable analysis		
	OR	95% CI	p-value	OR	95% CI	p-value
Age (years)	1.040	1.006 – 1.075	0.020	1.042	1.007 – 1.079	0.017
Bactrim, n (%)	4.414	0.484 – 40.252	0.188	3.862	0.413 – 3.862	0.236
WBC (x10^3cells/uL)	0.871	0.747 – 1.016	0.078	0.883	0.754 – 1.034	0.122
K (mEq/L)	0.539	0.440 – 1.944	0.181	0.540	0.211 – 1.381	0.198

OR: Odds Ratios; CI: Confidence interval, WBC: White Blood Cell, K: Potassium

Keywords: HIV infection, Dolutegravir, DTG, Serum Creatinine

Development and Validation of a Risk Score for Contrast-Associated Acute Kidney Injury post-CT Scans in Hospitalized Patients

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Background: Contrast-associated acute kidney injury (CA-AKI) is a significant complication following the administration of iodinated contrast media during computed tomography (CT) scans. Despite the availability of risk prediction models, there remains a lack of a validated risk score specifically designed for predicting CA-AKI in patients undergoing CT scans with contrast.

Method: This retrospective study included hospitalized patients who had perform CT scans with iodinated contrast media in Songklanagarind Hospital between January 1st, 2013, to June 30th, 2024. Patients with chronic kidney disease stage 5 or pre-existing acute kidney injury at the time of CT scans were excluded. To develop and assess the accuracy of the risk score, the study population was divided into a derivation cohort for score construction and an independent validation cohort for performance testing.

Results: 7,872 hospitalized patients performed CT scans with iodinated contrast media. There were CA-AKI in 802 patients (10.2%). Multivariable logistic regression identified several risk factors of CA-AKI: chronic hepatitis, history of coronary artery bypass grafting, use of renin–angiotensin system inhibitors, diuretics, and amphotericin B, tachycardia, thrombocytopenia, and estimated glomerular filtration rate < 60 mL/min/1.73 m2, while normal saline infusion was a protective factor. These variables were included in the prediction model. Area under the ROC curve of prediction model in derivation cohort was 0.695. The simplified risk score were developed. Area under the ROC curve of simplified risk score model in validation cohort was 0.629. The risk score was categorized into three groups: low risk (score < 1), moderate risk (score 1–2), and high risk (score > 2) which CA-AKI in validation cohort were 5.3%, 10.9%, and 17.6% respectively.

Conclusion: This study in hospitalized patients undergoing CT scans with iodinated contrast media, found many factors that associated with CA-AKI. The risk score for prediction of CA-AKI can be used to improved risk stratification and patient outcomes.

Keywords: Acute kidney injury, Contrast media, Hospitalized patient

Diagnostic Performance of Percentage Changes in Cardiac Troponin T Levels for Acute Myocardial Infarction in Patients with Chronic Kidney Disease.

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Background: Non-ST elevation MI (NSTE-MI) in CKD patients is common. The 20% rise or fall over 3 hours of high-sensitivity cardiac troponin T (D 0-3 hr hs-cTnT) is widely used as an indicator for NSTE-MI; since CKD patients exhibit cTnT retention, the 0-3 hr cTnT protocol is recommended to mitigate these limitations, but it has never been validated in the Thai CKD population.

Methods: All medical records of stage 3-5 CKD patients at Vachira Hospital, Thailand, between 2021-2024, who underwent coronary angiography (CAG) for suspected NSTE-MI were reviewed. The sensitivity and specificity of D 0-3 hr cTnT for diagnosed NSTE-MI were calculated using the significant angiographic coronary lesion as the gold standard. The new potential optimal cutoff values were assessed.

Results: A total of 153 patients were recruited. Of those, 131 patients (85.6%) were CAG-proven NSTE-MI. Only diabetes mellitus was significantly higher in the NSTE-MI group (59.5% vs 18.2%, $p < 0.001$). The diagnostic performance of the new optimal D 0-3 hr cTnT cut-off value is 14.88%, which provides sensitivity and specificity of 67.18% and 50.00% (with PPV and NPV of 88.89% and 20.37%) showed limited discriminative ability for detecting significant coronary lesions, with an AUC of 0.56 (95% CI 0.43–0.69).

Conclusion: As a result of limited cTnT clearance of CKD, the cut point of D 0-3 hr cTnT to diagnose NSTE-MI in these patients should be lower at 15% to enhance the test sensitivity. However, using hs-cTnT kinetics alone still provides limited diagnostic performance in advanced CKD patients who are inherently at high risk for AMI.

Keywords: Chronic Kidney Disease, High-Sensitivity Cardiac Troponin T, Acute Myocardial Infarction

Predictors of Albuminuria Reduction Efficacy with SGLT2 Inhibitors in Patients with Chronic Kidney Disease

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Background: Albuminuria is a key predictor of kidney disease progression, cardiovascular events, and mortality. Sodium-glucose cotransporter 2 (SGLT2) inhibitors have been shown to reduce albuminuria; however, interindividual variability in response remains unclear. This study aimed to identify baseline predictors and early on-treatment factors associated with significant albuminuria reduction following SGLT2 inhibitors therapy.

Methods: This retrospective cohort study included patients aged ≥18 years with chronic kidney disease (eGFR 20–59 mL/min/1.73 m²) and baseline urine albumin creatinine ratio (UACR) ≥30 mg/g who received SGLT2 inhibitors. The primary outcome was ≥30% reduction in UACR at 3 months. Ten predefined baseline predictors and early on-treatment factors were analyzed using univariable and multivariable logistic regression. Secondary outcomes included major adverse kidney events (MAKE), analyzed using Cox proportional hazards models.

Results: A total of 272 patients were included, with 49.6% achieving ≥30% reduction in UACR at 3 months. Among the ten prespecified predictors and early on-treatment factors, only systolic blood pressure was showed a correlation with albuminuria reduction (OR 0.98, 95% CI 0.96–0.99; p=0.01), suggesting that lower systolic blood pressure may be associated with a greater response. While no predefined baseline predictors were associated with secondary outcomes in the primary model, exploratory analysis revealed that baseline eGFR 45–59 mL/min/1.73 m² was associated with lower risk of MAKE (adjusted HR 0.41, p=0.017), while UACR >1000 mg/g was associated with higher risk of MAKE (adjusted HR 2.17, p=0.022).

Conclusion: Lower systolic blood pressure may be associated with a greater likelihood of albuminuria reduction following SGLT2 inhibitors therapy. Further prospective studies are needed to confirm these findings.

Keywords: SGLT2 inhibitors; albuminuria; chronic kidney disease; blood pressure; predictors

Efficacy of Calcium Polystyrene Sulfonate in Preventing RAASi Discontinuation in High-Risk CKD Patients: A Retrospective Cohort Study

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Background: Hyperkalemia is a major factor leading to discontinuation of renin–angiotensin–aldosterone system inhibitors (RAASi) in patients with chronic kidney disease (CKD). Although calcium polystyrene sulfonate (CPS) is widely used to control serum potassium levels, evidence regarding its effectiveness in enabling continued RAASi use remains limited.

Methods: This retrospective cohort study included patients with CKD and an estimated glomerular filtration rate (eGFR) <45 mL/min/1.73 m² who had serum potassium ≥4.8 mmol/L while receiving RAASi therapy at Thammasat University Hospital between 2012 and 2025. Patients were categorized into a regular CPS group (n = 64) and a control group (n = 518). The primary outcome was time to permanent RAASi discontinuation. Analyses were performed using overlap weighting and Cox proportional hazards models.

Results: Over a median follow-up of 24.1 months (IQR 8.9–46.1), patients receiving regular CPS had a longer median time to RAASi discontinuation compared with the control group (41.2 vs. 29.6 months) ; however, this difference was not statistically significant (HR 0.78; 95% CI 0.54–1.12; p = 0.181), CPS use was also not associated with secondary outcomes, including hyperkalemia, progression to end-stage kidney disease, or all-cause mortality. In addition, the incidence of gastrointestinal adverse events and hypercalcemia did not significantly differ.

Conclusions: In CKD patients at high risk of hyperkalemia, regular CPS use was not associated with the prevention of RAASi discontinuation. These findings may reflect limited statistical power, low dosing, and heterogeneity in real-world CPS use. Prospective studies are needed to further evaluate the effectiveness of CPS in this population.

Keywords: Calcium polystyrene sulfonate, Hyperkalemia, RAASi

Impact of Pharmacist-Led Medication Reconciliation on Drug-Related Problem Detection in Patients with Chronic Kidney Disease

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Background: Patients with chronic kidney disease (CKD) are at high risk of drug-related problems (DRPs) due to polypharmacy, multiple comorbidities, and frequent transitions of care. Medication discrepancies are common in this population and may compromise treatment effectiveness and patient safety. Pharmacist-led medication reconciliation has the potential to identify clinically relevant DRPs and improve the quality and safety of medication use in outpatient CKD settings.

Methods: This retrospective study compared DRP detection between CKD patients receiving pharmacist-led medication reconciliation and those receiving standard care. Pharmacists conducted medication reconciliation, medication review, and patient counseling. DRPs were classified using the Helper and Strand system and confirmed with attending physicians before documentation. The study was approved by the institutional review board (SI 307/2021).

Results: Among 280 enrolled patients, 140 received pharmacist-led medication reconciliation (MR) and 140 received standard care. A total of 78 DRPs were identified in 44 patients. Significantly more DRPs were detected in the MR group than in the standard care group (68 vs. 10 events, $p < 0.001$). Medication non-adherence was the most common DRP in the MR group (60.3%), followed by adverse drug reactions (13.2%), medication use without indication (8.8%), and excessive dosing (8.8%).

Conclusion: Pharmacist-led medication reconciliation significantly improved DRP detection among CKD patients, highlighting the value of pharmacist integration within multidisciplinary CKD care.

Keywords: chronic kidney disease, medication reconciliation, drug-related problems, pharmaceutical care

Efficacy of CURcumin, in Addition to Standard of Care, on Inflammatory markErs among Patients with Chronic Kidney Disease: A Randomized Controlled Trial (CURE-CKD2)

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Background: Curcumin has anti-inflammatory effects in chronic kidney disease (CKD), where an elevated neutrophil-to-lymphocyte ratio (NLR), a low-cost inflammatory marker, indicates adverse outcomes.

Method: To assess curcumin's anti-inflammatory effects in CKD as adjunct therapy, we are conducting a 12-month multicenter, randomized, double-blind, placebo-controlled trial in adults with CKD stages 3–4 and albuminuria (urine albumin-to-creatinine ratio [UACR] ≥30 to ≤5,000 mg/g) receiving ACEi/ARB therapy. Participants were randomized 1:1 to curcumin or placebo. The primary outcome is the change in NLR at 2 months.

Preliminary results: To date, 1,122 participants were screened, 98 were randomized (curcumin group, n = 48; placebo group, n = 50). The most common reasons for ineligibility were CKD stage outside 3–4. The mean age was 59.6 years; 52% were male; and the mean eGFR was 32.8 mL/min/1.73 m². Median UACR was 838.7 mg/g (IQR, 170.6–2,124.4). Diabetes was present in 53% of participants. All participants were receiving ACEi/ARB therapy, and

14.3% were receiving an SGLT2 inhibitor. Baseline NLR was 2.07 ± 0.8 in the curcumin group and 2.12 ± 0.82 in the placebo group. At the 2-month interim analysis (n = 77 analyzable), the adjusted mean difference in NLR change between groups was −0.17 (95% CI, −0.77 to 0.43; p=0.57). Changes in hsCRP and IL-6 were also nonsignificant. No serious adverse events occurred.

Conclusion: NLR and other inflammatory markers did not differ significantly between groups. This interim analysis may be underpowered; the completed trial will further evaluate curcumin's anti-inflammatory efficacy in CKD.

Keywords: Curcumin; Chronic kidney disease; Neutrophil-to-lymphocyte ratio (NLR)

Timing of Arteriovenous Fistula Creation and Clinical Outcomes of Central Venous Catheter Insertion in ESRD Patients: A Retrospective Multicenter Observational Study (Preliminary Analysis)

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Background: Arteriovenous fistula (AVF) is the preferred vascular access for hemodialysis; however, the optimal timing of its creation remains uncertain.[1] Although the 2019 KDOQI guidelines recommend AVF creation at an estimated glomerular filtration rate (eGFR) of 15–20 mL/min/1.73 m², AVF creation is often delayed in real-world practice, and local data are limited. This study evaluated clinical outcomes by eGFR at the time of AVF creation.

Methods: We conducted a retrospective multicenter study at Srinagarind Hospital, Sakon Nakhon Hospital, and Roi Et Hospital. Adult patients with end-stage kidney disease receiving hemodialysis were categorized by eGFR at AVF creation: <9 vs. ≥9 mL/min/1.73 m². The primary outcome was catheter insertion. Cox proportional hazards models were used to identify associated factors.

Results: Among 159 patients, 105 underwent AVF creation at eGFR <9 and 54 at ≥9 mL/min/1.73 m². Median age was 65 years, and 54% were male; diabetes was the leading cause of ESKD (60.4%). Catheter insertion was significantly more frequent in the <9 group (15.2% vs. 1.8%, p=0.01). Time from AVF creation to initiation of kidney replacement therapy was shorter in the <9 group (3.02 vs. 5.58 months, p=0.001). In multivariable analysis, age <60 years (HR 4.80, 95% CI 1.15–20.63), ischemic heart disease (HR 7.58, 95% CI 1.54–37.41), and prior acute kidney injury (HR 5.45, 95% CI 1.35–21.96) were independently associated with catheter insertion.

Conclusions: AVF creation at eGFR ≥9 mL/min/1.73 m² was associated with a lower risk of catheter insertion. Earlier access planning should be considered, particularly in patients who are younger or have ischemic heart disease or a history of acute kidney injury.

Keywords: arteriovenous fistula, end stage kidney disease, catheter insertion, kidney replacement therapy

Using Generative AI to Develop Low-Cost Kidney Disease Education: A Pre–Post Public Knowledge Study

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Background: CKD is common in Thailand, but public awareness remains low. Traditional educational animations are costly and slow to produce. We developed a generative AI-assisted animation on kidney disease and evaluated its effects on public knowledge, production time, and cost.

Methods: This single-arm pre–post study evaluated an AI-assisted educational animation, KidDee Episode 1: General Knowledge about Kidney Disease, among members of the general public. Generative AI was used to support script development, image generation, and animation production. Participants completed an online questionnaire before and after viewing the animation. The survey collected demographic data, an 11-item CKD knowledge score, and satisfaction ratings across five domains using a 5-point Likert scale. Pre–post changes in knowledge were analysed using paired statistical tests, including the paired t-test for normally distributed differences and the Wilcoxon signed-rank test for non-parametric comparisons. Production time and cost were compared descriptively with a conventional animation workflow.

Results: A total of 45 participants completed paired pre- and post-intervention assessments. Participants were predominantly female (51%), aged 26–40 years, educated to diploma or bachelor's level, and without underlying disease (89%). Mean knowledge scores increased from 8.5±1.8 to 9.5±2.3 out of 11, with a mean paired gain of 1.00 point. The improvement was statistically significant by both paired *t*-test ($t = 4.50$, $p<0.001$) and Wilcoxon signed-rank test ($p<0.001$). The overall correct-response rate increased from 77% to 86%, with the largest item-level gain seen for knowledge of kidney disorder types, rising from 11% to 69%. Satisfaction was high, with a mean overall score of 4.2±0.9 out of 5; perceived usefulness received the highest rating (4.4/5). The AI-assisted workflow completed production in

approximately 24 hours, compared with about one month using a conventional workflow, reducing production time by more than 95% and substantially lowering cost (Figure 1).

Conclusions: The AI-assisted animation was associated with improved kidney-disease knowledge, high satisfaction, and >95% shorter production time than a conventional workflow. Generative AI may provide a rapid, low-cost approach to CKD health education, although larger controlled studies with longer follow-up are needed to confirm knowledge retention, behavioural impact, and real-world effectiveness.

Keywords: chronic kidney disease; health education; generative AI; animation; knowledge; pre–post study

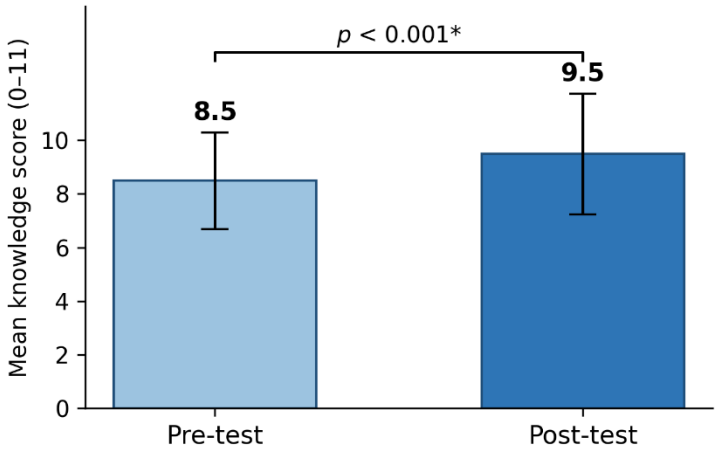

Figure 1. Mean kidney-disease knowledge scores before and after viewing the AI-assisted animation among 45 participants. Scores range from 0 to 11; error bars indicate SD. Knowledge scores increased significantly after viewing the animation, paired t-test, $p<0.001$.

Effect of Home-Based Resistance Exercise Added to a Low-Protein Diet in CKD Stage 3b–5 Non-Dialysis Patients at Risk of PEW: A Preliminary Report from an Ongoing Randomized Controlled Trial

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Background: Sarcopenia is common in patients with chronic kidney disease (CKD) and is associated with higher mortality and poorer quality of life. A low-protein diet (LPD), which is standard care to slow CKD progression, may also contribute to muscle loss and protein-energy wasting (PEW). Resistance exercise, usually studied alongside higher protein intake, has shown benefits for physical performance and sarcopenia in dialysis patients. However, evidence for resistance exercise combined with LPD in non-dialysis CKD remains limited.

Objectives: To evaluate the effect of a 12-week home-based resistance exercise program on muscle strength and physical performance in non-dialysis CKD patients at risk of PEW receiving a low-protein diet, after adjustment for energy and protein intake, and to assess intervention feasibility and exercise compliance.

Methods: This is an ongoing single-center, randomized open-label controlled trial. Participants aged 18–75 years with CKD stage 3b–4 at risk of PEW were randomized to one of three groups: oral nutritional support (ONS), resistance exercise, or ONS plus resistance exercise for 12 weeks. Since post-intervention energy and protein intake were comparable across groups (approximately 20 kcal/kg/day and 0.6–0.7 g/kg/day, respectively), participants were subsequently analyzed according to exercise status as either a conventional diet control group (LPD ± ONS) or a conventional diet control plus resistance exercise group to evaluate the effect of adding resistance exercise. Primary outcomes were changes in muscle strength (handgrip and leg strength) and physical performance assessed by the 6-minute walk test (6MWT). Feasibility was assessed based on exercise adherence and participant-reported barriers to exercise.

Results: In this interim analysis, 11 participants completed the study by April 15, 2026. During the 12 weeks, changes in handgrip strength, leg strength, and 6MWT distance were not statistically significant between the conventional diet control group and conventional diet control plus resistance exercise group. Median exercise compliance was 75%.

Conclusions: Home-based resistance exercise was feasible in CKD patients at risk of protein-energy wasting. These findings represent preliminary results from an ongoing randomized controlled study, and participant recruitment is ongoing to achieve the target sample size.

Keywords: Chronic kidney disease, Protein-energy wasting, Resistance exercise, Low-protein diet, Muscle strength, Physical performance

Correlation of Ketone Body Modulation by SGLT2 Inhibitors and Renal Parameters in CKD

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Introduction: Sodium–glucose cotransporter 2 (SGLT2) inhibitors provide renoprotective effects through multiple mechanisms. Increased ketone body production, particularly β-hydroxybutyrate (BHB), has been proposed as a potential biomarker of metabolic and renal benefits. This study aimed to determine whether changes in serum BHB levels in patients with chronic kidney disease (CKD) treated with SGLT2 inhibitors are associated with kidney and metabolic outcomes.

Methods: Patients with CKD eligible for SGLT2 inhibitor therapy received empagliflozin 10 mg daily and were followed for 3 months. Renal function, metabolic profiles, and serum BHB levels, were assessed at baseline and follow-up. Participants were stratified by the median percentage change in BHB into High and Low groups. Longitudinal associations were evaluated using mixed-effects maximum likelihood regression.

Results: A total of 53 patients were included, with comparable baseline characteristics between the groups. In mixed-effects analysis, change in eGFR was independently associated with percentage change in serum BHB (β = 0.055, 95% CI 0.010–0.099, P = 0.016), along with changes in UACR (β = −0.070, 95% CI −0.132 to −0.009, P = 0.025) and triglycerides (β = −0.019, 95% CI −0.029 to −0.008, P = 0.001). A 10% increase in BHB corresponded to a 0.55 mL/min/1.73 m² increase in eGFR. The High BHB group showed an increase in eGFR (+1.66), whereas the Low BHB group showed a decline (−1.69), with an adjusted between-group difference of 3.35 mL/min/1.73 m² (P = 0.034). No significant difference in UACR change was observed.

Conclusion: Greater increases in serum BHB following empagliflozin therapy were independently associated with improvement in eGFR, but not albuminuria, in CKD patients.

Keywords: SGLT2 inhibitors; β-hydroxybutyrate; chronic kidney disease

Outcomes, Utilization, and Economic Burden of Therapeutic Plasma Exchange: A Real-World Cohort Study from a Tertiary Center in Thailand

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Background: Therapeutic plasma exchange (TPE) is a cornerstone intervention for diverse immune-mediated and critical conditions; however, large-scale real-world data from Southeast Asia remain scarce, particularly regarding outcomes and healthcare resource utilization.

Objectives: To comprehensively characterize the indications, utilization patterns, clinical outcomes, and economic burden of TPE, and to identify factors associated with in-hospital mortality in a large tertiary care cohort.

Methods: We conducted a retrospective cohort study of 866 admissions undergoing TPE at Siriraj Hospital, Thailand. Indications were classified by disease-specific categories according to American Society for Apheresis (ASFA) evidence levels. TPE utilization, in-hospital mortality, and cost per admission were analyzed. Factors associated with mortality were assessed, and outcomes were stratified by disease category and severity.

Results: TPE was most frequently performed for kidney transplantation (33.3%), followed by neuroimmunological and autoimmune diseases, including neuromyelitis optica spectrum disorder (15.1%) and systemic lupus erythematosus (12.0%). Over 85% of procedures were supported by high-to-moderate quality evidence (ASFA categories I–II).The overall in-hospital mortality rate was 9.5%, with marked heterogeneity across indications. Mortality was disproportionately high in acute liver failure (69.6%), severe vasculitis, and critical illness, while remaining low in transplant-related indications, particularly ABO-compatible kidney transplantation. Independent predictors of mortality included prolonged hospitalization, underlying cerebrovascular and chronic liver disease, non-transplant status, use of fresh frozen plasma as replacement volume, and the occurrence of severe complications such as shock, respiratory failure, coagulopathy, and hemorrhage. The economic burden of TPE was substantial, with a median cost of 348,254 THB per admission, escalating significantly in non-survivors and severe cases.

Conclusions: In this large real-world cohort, TPE demonstrated broad applicability across specialties with acceptable overall survival, yet outcomes varied significantly by indication

and disease severity. Mortality was primarily driven by underlying critical illness and treatment-related complications rather than TPE utilization itself. The considerable cost associated with TPE, particularly in high-risk populations, underscores the need for refined patient selection, risk stratification, and resource optimization. These findings provide important regional evidence to inform clinical decision-making and health policy in resource-limited settings.

Keywords: Therapeutic plasma exchange; TPE; apheresis; mortality; cost; Thailand; real-world study

Incidence and Clinical Outcomes of Acute Kidney Injury in Hospitalized Patients with Hypercalcemia

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Background and Aims: Hypercalcemia is common among hospitalized patients and is associated with acute kidney injury (AKI). However, the incidence, predictors, and short-term renal and mortality outcomes of AKI in patients hospitalized with hypercalcemia remain unclear. We aimed to evaluate the incidence of AKI and its clinical outcomes in this population.

Method: We conducted a retrospective cohort study of adult patients hospitalized with moderate-to-severe hypercalcemia (albumin-corrected serum calcium ≥12 mg/dL) at Srinagarind Hospital, a tertiary care center in Thailand, between 2020 and 2024. AKI was defined according to KDIGO criteria as an increase in serum creatinine ≥0.3 mg/dL or to ≥150% of baseline. The primary outcome was persistent kidney dysfunction at 90 days, defined as a sustained decrease in estimated glomerular filtration rate (eGFR) ≥25% or serum creatinine ≥200% of baseline. The secondary outcome was 90-day mortality. Multivariable logistic regression was used to identify factors independently associated with clinical outcomes.

Results: Among 295 patients hospitalized with hypercalcemia, AKI occurred in 199 (67.5%): stage 1 in 110 (37.3%), stage 2 in 50 (16.9%), and stage 3 in 39 (13.3%). At admission, mean serum creatinine was 1.77 ± 1.15 mg/dL, mean eGFR was 52.4 ± 30.1 mL/min/1.73 m^2, and mean corrected serum calcium was 14.5 ± 1.7 mg/dL. The most common causes of hypercalcemia were solid malignancy (61.3%), hematologic malignancy (22.4%), and primary hyperparathyroidism (7.5%). Patients with AKI had higher admission serum calcium and phosphate levels, lower baseline eGFR, and a higher prevalence of hematologic malignancy. Overall, 7.5% of patients required acute hemodialysis at admission, with a mean corrected serum calcium level of 16.0 ± 1.7 mg/dL at initiation, and 2.7% remained hemodialysis dependent at 90 days. At 90 days, persistent kidney dysfunction occurred in 90 patients (30.5%), and 91 patients (30.8%) died. In multivariable analysis, lower admission eGFR was independently associated with persistent kidney dysfunction (OR 0.98; 95% CI 0.97–0.99; p = 0.006). Factors independently associated with 90-day mortality included older age (OR 1.02; 95% CI 1.00–1.04; p = 0.048), presence of malignancy (OR 3.49; 95% CI 1.86–6.53; p < 0.001), and higher admission serum calcium (OR 1.51; 95% CI 1.26–1.81; p < 0.001).

Conclusion: AKI occurs in approximately two-thirds of hospitalized patients with moderate-to-severe hypercalcemia, most commonly due to malignancy. Reduced kidney function at admission

is associated with persistent kidney dysfunction at 90 days. Older age, malignancy, and greater severity of hypercalcemia are key predictors of 90-day mortality.

Table 1. Baseline characteristics of the study population.

Characteristic	AKI (*n* = 199)	No AKI (*n* = 96)	*P* value
Age — yr	60.5±14.0	60.4±14.8	0.984
Male sex — no. (%)	116 (58.3%)	56 (58.3%)	0.995
Type 2 diabetes — no. (%)	30 (15.1%)	16 (16.7%)	0.724
Solid malignancy — no. (%)	113 (56.8%)	68 (70.8%)	0.020
Hematologic malignancy — no. (%)	54 (27.1%)	12 (12.5%)	0.005
Baseline eGFR — mL/min/1.73 m^2	78.6±26.5	86.7±24.8	0.012
eGFR at admission — mL/min/1.73 m^2	39.0±21.9	80.1±25.4	<0.001
Corrected serum calcium at admission — mg/dL	14.8±1.8	13.8±1.2	<0.001
Severe hypercalcemia (≥14 mg/dL) — no. (%)	131 (65.8%)	36 (37.5%)	<0.001
Serum phosphate — mg/dL	3.8±1.2	2.9±0.8	<0.001
Hospital length of stay — days	17.3±15.1	14.5±17.0	0.16
90-day persistent kidney dysfunction — no. (%)	71 (35.7%)	19 (19.8%)	0.005
90-day mortality — no. (%)	62 (31.2%)	29 (30.2%)	0.869

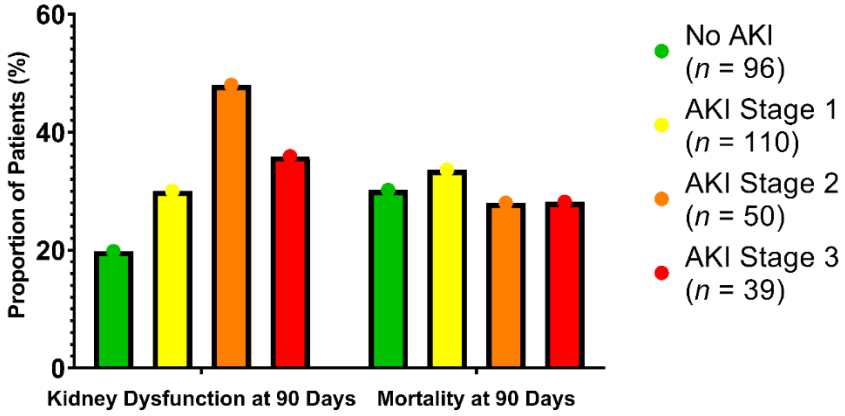

Figure 1. AKI severity and 90-day outcomes (persistent kidney dysfunction and mortality) in hospitalized patients with hypercalcemia. AKI severity was defined according to KDIGO 2012 criteria. Persistent kidney dysfunction was defined as a sustained ≥25% decline in eGFR or serum creatinine ≥200% of baseline.

Comparative Efficacy of Protein Supplementation Versus Sodium Chloride Tablets in the Management of Syndrome of Inappropriate Antidiuresis: A Randomized Controlled Trial (PROSALT trial)

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Background: Hyponatremia is the most common electrolyte abnormality in clinical practice, and syndrome of inappropriate antidiuresis is the main cause. Management of syndrome of inappropriate antidiuresis consists of fluid restriction, diuretics and drugs which aims to create solute diuresis – sodium chloride tablet, urea tablet, but there is no randomized controlled trial comparing efficacy of sodium chloride tablet to protein supplement.

Method: This is an open label randomized controlled trial, which include chronic SIAD patients at outpatient clinic whose serum sodium concentration < 135 mEq/L. Participants then randomly assigned to 2 two groups: sodium chloride tablet 3.6gm/day and protein supplement 60gm/day. After received intervention for 7 days, the primary outcome is a change of plasma sodium after 7 days of intervention and secondary outcomes are other lab parameters, safety and satisfactory of the patients.

Results: 25 participants were recruited; 13 of which was assigned to sodium chloride tablet group and the other 12 participants was in protein group. After receiving either treatment, the median change of serum sodium at 7 days are 2 mEq/L (IQR, -3.00 to 3.00) in Protein group and 2mEq/L (IQR, -1.50 to 4.50) in Salt group, which are not statistically different (P=0.810). However, the participants' satisfactory measured by Visual Analogue Scale is better in the protein group (p=0.001).

Conclusions: In chronic SIAD patients at outpatient clinic, protein supplement and sodium chloride tablet did not show a different result in increasing plasma sodium concentration. While the side effect in each group is not different, participants satisfactory is better in protein supplement group.

Keywords: Sodium chloride tablet; syndrome of inappropriate antidiuresis; protein supplement

A Glomerular–Vascular Collision: IgA Nephropathy Complicated by Collapsing Glomerulopathy and Renal TMA in Hemoglobin H–Constant Spring

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IgA nephropathy (IgAN) is the most common primary immune-mediated glomerulonephritis worldwide, yet vascular and podocytopathic modifiers of disease severity remain underrecognized within conventional risk frameworks. We report a 36-year-old Thai woman with hemoglobin H–Constant Spring disease (HbH-CS) who developed progressive kidney dysfunction with nephrotic-range proteinuria despite normotension. She had transitioned from non–transfusion-dependent to transfusion-dependent anemia and exhibited severe microcytic anemia (hemoglobin 4.9 g/dL) with secondary iron overload. Serum creatinine rose from 1.82 to 3.35 mg/dL, and urine protein–creatinine ratio was 4.93 g/gCr. Complement C3 was decreased; lupus anticoagulant testing was transiently positive. Evaluation for systemic microangiopathy showed lactate dehydrogenase 207 U/L, absence of schistocytes, and mild thrombocytopenia (platelet count 109,000/μL).

Kidney biopsy demonstrated IgAN (Oxford M0E0S1T2C0) with superimposed collapsing glomerulopathy (CG) and arteriolar thrombotic microangiopathy (TMA). Immunofluorescence showed IgA-dominant mesangial deposits. Electron microscopy, performed on formalin-fixed paraffin-embedded tissue, revealed diffuse (>90%) podocyte foot process effacement and chronic microangiopathic remodeling.

This constellation—IgAN, CG, and kidney-limited TMA in a normotensive adult—represents a rare but biologically coherent phenotype. Emerging data indicate that TMA independently predicts kidney failure progression in IgAN beyond MEST-C variables. The coexistence of TMA and collapsing lesions supports an endothelial–podocyte injury axis in which microvascular ischemia drives secondary podocyte collapse. In this patient, severe, fluctuating anemia in

HbH-CS may have acted as a tempo-dependent endothelial stressor, potentially amplifying complement-mediated microangiopathy, although this remains hypothesis-generating.

This case highlights the prognostic significance of vascular and collapsing lesions in IgAN and underscores the need for integrated glomerular–vascular interpretation when clinical decline appears disproportionate to conventional histologic activity indices.

Keywords: Collapsing glomerulopathy; Hemoglobin H–Constant Spring disease; IgA nephropathy; Podocyte injury; Thrombotic microangiopathy.

Clinical Correlations of Glomerulosclerosis and Kidney Outcomes in IgA Nephropathy, Lupus Nephritis, Minimal Change Disease and Focal Segmental Glomeruloscleorsis

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Background: Global glomerulosclerosis (GS) represents irreversible kidney damage and reduced nephron reserve, yet its quantitative prognostic value across different glomerular diseases remains unclear. While histopathologic scoring systems exist (e.g., Oxford MEST-C in IgA nephropathy), the proportion of GS is not routinely incorporated. This study aims for evaluation the association between the proportion of global glomerulosclerosis (%GS) and kidney outcomes in patients with IgA nephropathy (IgAN), lupus nephritis (LN), minimal change disease (MCD), and focal segmental glomerulosclerosis (FSGS), and to determine optimal prognostic cut-off values.

Methods: We conducted retrospective cohort study included biopsy-proven IgAN, LN, MCD, and FSGS patients at Ramathibodi Hospital (2018–2024). Baseline clinical and histopathological data were collected. The primary outcome was time to composite kidney events (eGFR <15 mL/min/1.73m², renal replacement therapy, or eGFR halving). Secondary outcomes were time to ESKD, eGFR halving, death and remission. Cox proportional hazards models were used, adjusting for age, sex, baseline eGFR, and proteinuria. Time-dependent ROC analysis and Youden index were used to identify optimal %GS cut-offs.

Results: A total of 487 patients were analyzed. Median %GS was significantly higher in patients with kidney events compared to those without (36.93% vs 12.5%). %GS was independently associated with composite kidney outcomes (adjusted HR 1.01 per 1% increase). The optimal %GS cut-off for predicting kidney events was 28% at 3 years and 30% at 5 years with moderate sensitivity and specificity. The addition of %GS to clinical variables improved predictive performance. Disease-specific analyses showed consistent trends, although baseline eGFR remained the strongest independent predictor across all diseases.

Conclusions: The proportion of global glomerulosclerosis is an independent predictor of adverse kidney outcomes across major glomerular diseases. A threshold of approximately 30% GS provides useful risk stratification and prediction of kidney outcomes.

Keywords: Glomerular diseases, Renal outcome, Glomerulosclerosis

Supplementary Data

Table Univariate and multivariate Cox proportional hazard model for time to composite kidney events (n=487)

Variables	Unadjusted HR (95% CI)	p-value	Adjusted HR (95% CI)	p-value
Pathological				
Glomerulosclerosis	1.02 (1.01-1.03)	0.000	1.01(1.00-1.01)	0.050
Clinical				
Age – year	1.01 (1.00-1.02)	0.029	0.98 (0.98-0.99)	0.024
Sex				
Male	1		1	
Female	0.59 (0.42-0.85))	0.003	0.86 (0.59-1.25)	0.437
eGFR – ml/min/1.73m^2	0.95 (0.94-0.96)	0.000	0.99 (0.98-0.99)	0.024
UPCR	1.00 (0.99-1.00)	0.374	-	

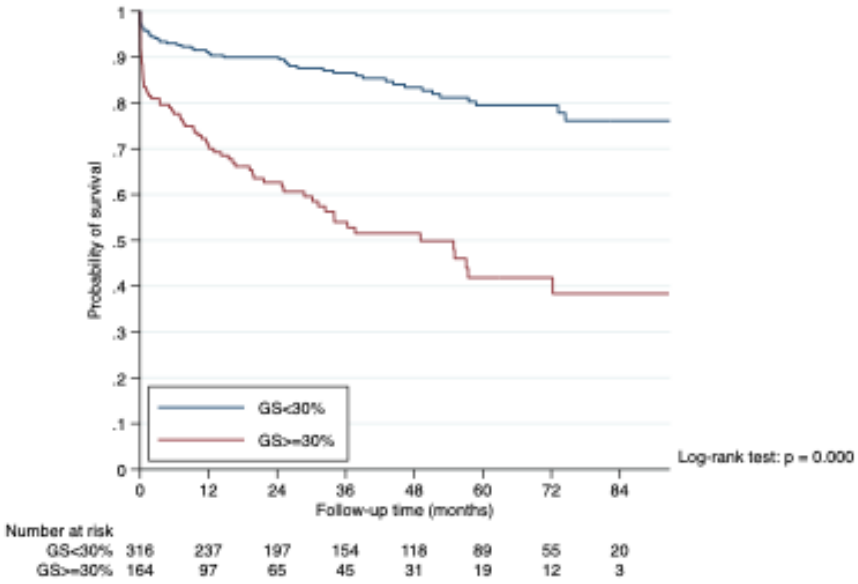

Figure – Kapplen-Meier graph of time to composite kidney events between %GS more than and less than best cut-off at 30%

Thai Diabetic Patients with Biopsy-proven Kidney Diseases: A Comparative Study of Kidney and Cardiovascular Outcomes (TDMK-OUTCOME)

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Background: Diabetic nephropathy (DKD) and non-diabetic kidney disease (NDKD) may coexist in patients with diabetes, however data on the long-term kidney and cardiovascular (CV) outcomes in patients with NDKD superimposed on DKD (DKD plus NDKD) remain limited. This study aimed to evaluate kidney and CV outcomes among DKD, NDKD, and DKD plus NDKD groups and to identify risk factors associated with kidney or CV outcomes.

Methods: A retrospective cohort study was conducted at Siriraj Hospital, including 374 adult diabetic patients who underwent kidney biopsy between January 2012 and April 2025. Patients were categorized into three groups: DKD (n=153), NDKD (n=146), and DKD plus NDKD (n=75). The primary composite outcome included sustained eGFR decline ≥50%, end-stage kidney disease (ESKD), kidney-related death, or CV death.

Results: Over a median follow-up of 1.8 years, the NDKD group had a significantly lower risk of the primary composite outcome (HR 0.38, p=0.001) and the kidney composite outcome (HR 0.34, p<0.001) compared to the DKD group. However, there was no significant difference in outcomes between the DKD group and the DKD plus NDKD group. Independent predictors of adverse kidney outcomes included diabetic retinopathy, and pathological chronicity (interstitial fibrosis and tubular atrophy, and total glomerular sclerosis), whereas diabetic retinopathy was the sole predictor of adverse cardiovascular outcomes.

Conclusion: The presence of superimposed NDKD did not significantly alter the long-term prognosis compared with DKD alone, suggesting that underlying DKD pathology may remain the dominant determinant of kidney and CV outcomes.

Keywords: Biopsy-proven, Diabetic kidney disease, Diabetic nephropathy, Glomerular disease superimposed, Outcome

External Validation of the International IgA Nephropathy Prediction Tool (IIgAN-PT) in Songklanagarind Hospital Cohort

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Background: The International IgA Nephropathy Prediction Tool (IIgAN-PT) can predict risk of End-stage kidney disease (ESKD) and was endorsed by guidelines to share decision making for archiving optimal outcome and avoid unnecessarily treatment. However, because the original derivation cohorts excluded Southeast Asian populations, its validity in Thai patients remained uncertain. This study aimed to externally validate the IIgAN-PT in a Thai cohort.

Methods: A single-center, retrospective cohort study was conducted at Songklanagarind Hospital, including 180 adult Thai patients with biopsy-proven IgAN. The primary outcome was a composite of a 50% decline in baseline estimated glomerular filtration rate (eGFR) or progression to end-stage kidney disease (ESKD). Model performance for both the full model (with race) and the model omitting the race coefficient was evaluated using discrimination (C-statistic, area under the curve [AUC]) and calibration slopes.

Results: The study included 180 Thai patients (median age 41 years old, 46.1% male) with biopsy proven IgA nephropathy. Of these, 37.2% presented with an eGFR <30 mL/min/1.73 m^2, and 86.7% had segmental glomerulosclerosis (S1). Over a median follow-up of 2.8 years, 51.6% (n=93) reached the primary composite outcome (50% eGFR decline or ESKD). Despite this high severity, the IIgAN-PT demonstrated good discrimination. The full model without race slightly outperformed the full model with race with a higher C-statistic (0.754 vs. 0.753), a superior 5-year AUC (0.88 vs. 0.81), and a calibration slope closer to 1.0 (0.83 vs. 0.80). Kaplan-Meier survival curves confirmed significant clinical risk stratification across all predicted quartiles (log rank test $P < 0.001$).

Conclusion: The IIgAN-PT was a valid prognostic instrument for Thai patients. The full model without race demonstrated slightly superior predictive accuracy and may be considered for clinical practice in Thailand.

Keywords: Immunoglobulin A Nephropathy, IgA nephropathy, IgAN, Prediction, Tool, Thai, Cohort

When Care Providers Become Victims: Workforce Fragility in Dialysis Disaster Response

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Background: To assess the professional and personal impacts of climate-related flooding on frontline dialysis providers in a resource-constrained setting.

Methods: We conducted a post-disaster cross-sectional survey of nephrologists and dialysis nurses providing hemodialysis (HD) and/or peritoneal dialysis (PD) care in Songkhla province during the peak flood period (22 November–5 December 2025). The survey assessed facility disruption, workload, burnout, communication, personal exposure, and preparedness priorities. Inverse probability weighting adjusted for baseline differences between professional groups, and free-text responses underwent thematic analysis.

Results: Sixty-nine providers participated, including 14 nephrologists (100%) and 55 dialysis nurses (52%). Flood-related facility disruption was reported by 93% of nephrologists and 52% of nurses (adjusted effect 0.45; 95%CI 0.25–0.66). Workload shifted toward operational centers, where 67–73%

reported working >80 hours/week versus 25–50% in non-operational units (p=0.036). Burnout was pervasive and higher among nurses (median 4 vs 3; adjusted effect −1.14; 95%CI −1.67 to −0.61). Personal impacts were substantial, with 78% reporting financial strain and ~50% reporting life-threatening exposure affecting themselves or family members (Figures 1 and 2).

Conclusions: Extreme flooding revealed a critical weakness in dialysis disaster response: the workforce itself. Preparedness must extend beyond infrastructure to include workforce protection, coordinated command systems, and surge staffing.

Keywords: Burnout; Climate disaster; Dialysis workforce; Flooding; Peritoneal dialysis; Hemodialysis; Health-system resilience

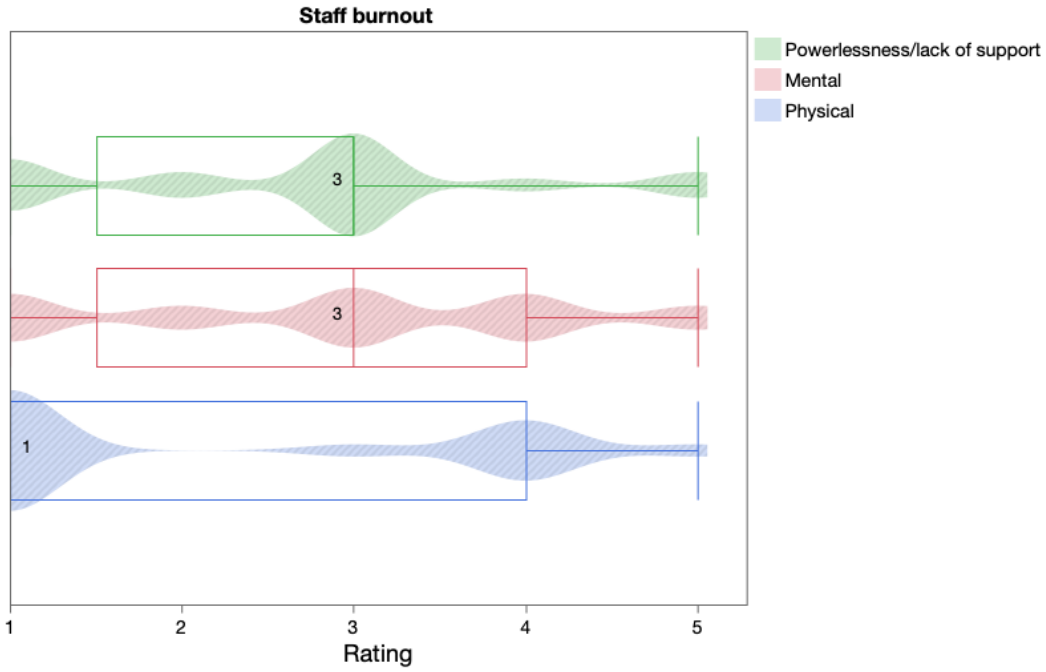

Figure 1. Workforce burnout severity during the November 2025 flooding crisis
Distribution of self-assessed burnout scores among nephrologists and hemodialysis nurses during the peak flood period (22 November–5 December 2025). Scores were rated on a 1–5 ordinal scale (1 = none; 5 = extreme). Median burnout was significantly higher among nurses than nephrologists, consistent with asymmetric exposure to prolonged shifts and crisis standards of care.

Association between Frailty Status and Decline in Kidney Function Among Older Adults

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Background: Frailty and chronic kidney disease (CKD) have a bidirectional relationship, yet evidence linking frailty to kidney function decline remains limited, especially in very elderly populations. This study aimed to investigate the association between frailty, assessed by the Thai FRAIL (T-FRAIL) scale, and rapid estimated glomerular filtration rate (eGFR) decline over three years.

Methods: We conducted a retrospective cohort study of 320 patients aged ≥75 years attending a geriatric clinic at Phramongkutklao Hospital. Frailty was defined as a T-FRAIL score ≥3. Rapid eGFR decline was defined as >5 mL/min/1.73 m²/year using the CKD-EPI creatinine equation (2021).

Results: Among 320 patients (mean age 81.2 ± 8.8 years; baseline eGFR 63.7 ± 21.1 mL/min/1.73 m²), 111 (34.7%) were classified as frail. Rapid eGFR decline occurred in 72 patients (22.5%) and was significantly more common among frail individuals (50.0% vs. 30.2%; p = 0.002). Multivariate analysis showed frailty was independently associated with rapid eGFR decline (adjusted OR 1.90; 95% CI 1.05–3.43; p = 0.033), as was higher HbA1c (adjusted OR 1.50; 95% CI 1.03–2.19; p = 0.037). The T-FRAIL scale demonstrated moderate predictive ability (AUC 0.65; 95% CI 0.58–0.72), improving to 0.72 (95% CI 0.65–0.78) when combined with clinical variables. At a T-FRAIL score of 3, sensitivity and specificity were 50% and 69.8%, respectively.

Conclusions: Frailty, as assessed by the T-FRAIL scale, is significantly associated with rapid kidney function decline in very elderly Thai patients and demonstrates moderate predictive performance for identifying individuals at risk of rapid eGFR decline.

Keywords: Frailty, Kidney function decline, Elderly, Chronic kidney disease

Impact of SGLT2 Inhibitors on the Incidence of Urinary Tract Infections in Patients with Diabetes and Asymptomatic Pyuria

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Background: Evidence regarding urinary tract infection (UTI) risk with sodium–glucose cotransporter-2 (SGLT2) inhibitors remains limited in patients with diabetes and persistent asymptomatic pyuria. We compared the risk of first UTI after SGLT2 inhibitor initiation versus no initiation in this high-risk population.

Methods: We conducted a single-center retrospective cohort study of adults with diabetes and persistent pyuria at Thammasat University Hospital between 2012 and 2025. Patients who initiated SGLT2 inhibitors within 1 year after the second pyuria episode were compared with controls. The primary outcome was time to first UTI and secondary outcomes were severe UTI and UTI-related hospitalization. Baseline differences were addressed using overlap weighting. Time-to-event outcomes were analyzed using overlap-weighted Kaplan–Meier methods and overlap-weighted Cox proportional hazards models. A sensitivity analysis was performed in which the primary outcome was restricted to culture-confirmed UTI.

Results: Among 523 patients, 80 initiated SGLT2 inhibitors and 443 served as controls. SGLT2 inhibitor initiation was not significantly associated with time to first UTI (hazard ratio [HR] 1.138; 95% confidence interval [CI] 0.665–1.949; p = 0.637). In time-stratified analyses, a borderline increase in UTI hazard was observed during the first 12 months after SGLT2 inhibitor initiation (HR 1.798; 95% CI 0.996–3.246; p = 0.052), followed by a significantly lower hazard during months 12–24 (HR 0.117; 95% CI 0.015–0.890; p = 0.038). Severe UTI and UTI-related hospitalization were also not significantly different between groups (HR 1.616; 95% CI 0.543–4.808; p = 0.388 and HR 1.557; 95% CI 0.613–3.950; p = 0.352, respectively).

Conclusion: In adults with diabetes and persistent asymptomatic pyuria, initiation of SGLT2 inhibitor was not associated with an increased risk of first UTI, severe UTI, or UTI-related hospitalization. Although a possible early increase in UTI risk was observed within the first 12 months after initiation, this was not sustained over time.

Keywords: SGLT2 inhibitors, Urinary tract infection, Asymptomatic pyuria

A Retrospective Cohort with a Cross-Sectional Survey to Evaluate the Effects of PM2.5 Exposure on Renal Function Decline among Stage 3-4 Chronic Kidney Disease Patients at Vajira Hospital Nephrology Clinic

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Background: Chronic kidney disease progression is driven by traditional risk factors, but emerging evidence suggests long-term ambient fine particulate matter (PM2.5) exposure may accelerate kidney function decline. Data regarding this association in polluted urban settings among advanced CKD patients receiving specialized care remain limited. This study evaluated the effect of ambient PM2.5 exposure on the estimated glomerular filtration rate decline in patients with CKD stages 3-4.

Method: This retrospective cohort study with a cross-sectional survey at Vajira Hospital evaluated adults with CKD stages 3-4 having ≥ 3 eGFR measurements over ≥ 180 days. Residential addresses were geocoded to determine mean annual PM2.5 exposure over follow-up, categorized into tertiles (T1: lowest, T2: medium, T3: highest). Multivariable linear regression compared annualized eGFR slopes (calculated via patient-level linear regression) between T3 and T1, adjusting for core clinical covariates.

Results: A total of 192 patients were analyzed. Mean annualized eGFR slopes across tertiles were -3.56 ± 9.10, -1.37 ± 7.55, and -2.48 ± 7.96 mL/min/1.73m²/year for T1, T2, and T3, respectively. In multivariable analysis, the highest exposure group (T3) was not significantly associated with faster eGFR decline compared to T1 (Coefficient=0.25, 95% CI: -2.33 to 2.84, p=0.846). Baseline eGFR was the only significant independent predictor of progression (p<0.001).

Conclusion: In patients with CKD stages 3-4 under specialized nephrology care, long-term exposure to higher ambient PM2.5 was not significantly associated with accelerated eGFR decline. Intensive management of traditional risk factors in specialized clinics might attenuate adverse environmental impacts on CKD progression.

Keywords: Chronic Kidney Disease, PM2.5, Air Pollution, eGFR Decline, Disease Progression

Effects of Sodium-Glucose Cotransporter 2 Inhibitors on Kidney Allograft Outcomes in Kidney Transplant Recipients with Diabetes

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Background: Kidney transplantation is the preferred mode of renal replacement therapy due to its superior survival rates. However, cardiovascular disease remains a leading cause of mortality in this population, with diabetes mellitus serving as a major risk factor. While sodium-glucose cotransporter 2 inhibitors (SGLT2i) have demonstrated cardiovascular and renoprotective benefits in the general population, data in kidney transplant recipients (KTRs) remain limited. This study evaluated the effects of SGLT2i on renal function and clinical outcomes in diabetic KTRs.

Method: This retrospective cohort study at Ramathibodi Hospital compared diabetic KTRs receiving SGLT2i versus non-users. Primary outcomes included a composite of sustained estimated glomerular filtration rate (eGFR) reduction $\geq$40%, eGFR <15 mL/min/1.73m^2, allograft failure, and cardiovascular mortality.

Results: A total of 165 patients were included (mean age 53.68 $\pm$9.36 years; 38.8% with pretransplant diabetes). Over a median follow-up time of 2.99 (IQR 1.44, 5.71) years, Cox regression showed a lower trend for the primary composite outcome in SGLT2i users, although this did not reach statistical significance (aHR 0.39, 95% CI: 0.04-3.69, P=0.410). Incidence rates of graft rejection, major adverse cardiovascular events, and all-cause mortality were comparable between groups. No significant differences in adverse events were observed. Notably, higher proteinuria was identified as a significant independent risk factor for the primary outcome (aHR 2.57, 95% CI: 1.32-5.02, P=0.006).

Conclusion: SGLT2i appear safe in diabetic KTRs. Despite no statistically significant difference in clinical outcomes in this cohort, the favorable trends warrant further prospective studies to confirm the long-term effects of SGLT2i in this population.

Keywords: SGLT2 inhibitors, Kidney transplantation, Diabetes mellitus

Breast Arterial Calcification Predicts Vascular Events in Kidney Transplant Recipients

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Background: While coronary artery calcification, a key predictor of cardiovascular outcomes, reflects both intimal and medial calcification, breast arterial calcification (BAC) represents exclusively medial calcification and is more prevalent and severe in patients with chronic kidney disease (CKD). Calcium–phosphate imbalance, prolonged dialysis vintage, and dysregulation of calcification inhibitors are major contributors to arterial calcification. Although BAC has been associated with cardiovascular events and mortality across all stages of CKD, data in kidney transplant recipients remain limited.

Methods: This retrospective study aimed to evaluate the association between BAC and post-transplant outcomes, including major adverse kidney events (MAKE), composite major cardiovascular and limb events (MACE + MALE), and all-cause mortality. A total of 227 female patients aged ≥40 years who underwent kidney transplantation (KT) between 2007 and 2023 and had at least one mammogram within 2 years before or 5 years after KT were included. Patients with a post-transplant serum creatinine ≥2 mg/dL within 12 months of the mammogram date were excluded. Outcomes were ascertained from medical records through the end of 2025.

Results: During follow-up, there were 34 MAKEs, 25 composite major cardiovascular and limb events, and 16 deaths. In univariate analyses, the presence of BAC (BAC+) was associated with composite cardiovascular and limb events and all-cause mortality, but not with MAKE. After adjustment for relevant confounders, BAC+ remained independently associated with an increased risk of composite cardiovascular and limb events, whereas the association with mortality was no longer significant.

Conclusion: the presence of BAC at the time of KT, likely reflecting cumulative vascular calcification from prior dialysis exposure, is associated with an increased risk of composite

cardiovascular and limb events after transplantation. BAC may therefore serve as a convenient risk marker for vascular events in kidney transplant recipients.

Keywords: Breast arterial calcification, Kidney transplantation, Major adverse kidney event, Major adverse cardiovascular event, Major adverse limb event

Prevalence and Associated Factors of Latent Tuberculosis Infection in Kidney Transplant Recipients in a High Tuberculosis Burden Country

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Background: The prevalence of latent tuberculosis infection (LTBI) in the Thai population is 10-40% and is a major cause leading to tuberculosis in kidney transplant (KT) recipients. However, the epidemiology of LTBI and its specific risk factors in KT recipients remain limited. This study aimed to investigate the prevalence and factors associated with LTBI using the interferon-gamma release assay (IGRA) in KT recipients in northeastern Thailand.

Methods: A cross-sectional analysis was conducted among KT recipients during 2023-2026. Patients were screened for LTBI using IGRA to determine the prevalence. Basic demographic data and laboratory results were collected. Multivariate logistic regression was utilized to identify independent factors associated with a positive IGRA status.

Results: One hundred and thirty-four KT recipients were enrolled. The mean age was 44.9 years (SD=9.55), and 67.9% were male. One hundred and twenty-five (93.3%) patients received a deceased donor allograft, and all patients received induction immunosuppressive therapy (85.8% interleukin-2 receptor antagonist and 14.2% anti-thymocyte globulin). The overall prevalence of LTBI, defined by a positive IGRA result, was 3.7% (5/134 patients). Multivariate logistic regression demonstrated that underlying diabetes mellitus (OR 76.26, 95% CI 1.14 – 5084, p = 0.043), higher panel reactive antibody (PRA) levels (OR 1.068 per 1% increase, 95% CI 1.01 – 1.13, p = 0.018), and duration from KT to IGRA testing (OR 0.76, 95% CI 0.60 – 0.95, p = 0.016) were associated with a positive IGRA status.

Conclusions: The prevalence of LTBI among KT recipients in the northeastern region is lower than the average of the Thai population. However, diabetes mellitus, elevated PRA, and early IGRA testing post-transplantation were found to be associated with the detection of LTBI. Therefore, IGRA testing should be considered in these groups to facilitate appropriate monitoring and treatment planning.

Keywords: Kidney transplantation, Latent tuberculosis infection, Interferon-gamma release assay

Factors Associated with Patient and Graft Survival after Kidney Retransplantation: Evidence from a National Transplant Registry

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Background: Kidney transplantation is the gold-standard treatment for end-stage kidney disease. However, graft survival continues to lag behind patient survival, increasing the demand for retransplantation. While indices such as the Kidney Donor Profile Index (KDPI) and Estimated Post-Transplant Survival (EPTS) score are established for primary transplants, factors associated with outcomes after kidney retransplantation remain unclear. This study aimed to identify clinical and donor-related factors of graft and patient survival following kidney retransplantation.

Methods: This retrospective cohort study used data from the Thai Transplant Registry (2011–2024). To address the primary outcome of identifying factors, we applied Fine-Gray competing risks regression (with death as a competing event) for graft loss and Cox proportional hazards models for patients. For the secondary outcome, patient and graft survival between kidney retransplantation and first kidney transplantations were compared using Kaplan-Meier analysis.

Results: After excluding five cases of primary non-function, 331 retransplant recipients were analyzed. Graft loss occurred in 55 patients (15.1%), and 31 (9.9%) died. Competing-risks analysis revealed that serum creatinine at discharge (SHR 1.5, 95%CI 1.25–1.81) and donor age (SHR 1.06, 95%CI 1.02–1.12) were independently associated with graft loss. Intriguingly, donor anti-CMV IgG positivity was associated with a significantly lower risk of graft failure (SHR 0.13, 95% CI 0.02–0.88), a finding that warrants further investigation into the role of pre-existing recipient immunity in a highly endemic area. Cox analysis identified recipient age (HR 1.05, 95%CI 1.01–1.09), cerebrovascular disease (HR 4.27, 95%CI 1.26–14.51), and diabetes (HR 2.67, 95%CI 1.17–6.07) as significant mortality factors. Cardiovascular disease was the

leading cause of death (27.2%). Retransplantation showed inferior graft (p=0.0017) and patient survival (p=0.019) compared to primary transplantation.

Conclusion: Retransplantation yields inferior graft and patient survival versus primary transplantation, influenced significantly by early graft function, donor age, immunologic factors, and recipient comorbidities. While re-transplantation outcomes are expectedly inferior to primary transplants, it remains the preferred therapeutic strategy over long-term dialysis for eligible candidates, as supported by the sustained graft survival rates observed in this cohort.

Keywords: Kidney retransplantation; risk factors; graft survival

Impact of Single-Nucleotide Polymorphisms of Cytochrome P450 3A5 (rs776746) on Tacrolimus Exposure on Hospital Discharge Day: A Real-world Observation Study in Thai Kidney Transplant Recipients

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Background: Tacrolimus is a cornerstone immunosuppressive agent used for prophylaxis of allograft rejection in kidney transplant recipients. Optimizing exposure of tacrolimus is crucial since the drug possesses a narrow therapeutic index. Single-nucleotide polymorphisms of cytochrome P450 (CYP) 3A5 is known to significantly influence tacrolimus dosage requirement.

Method: This retrospective study aimed to determine the impact of CYP3A5 polymorphisms on tacrolimus dose requirement and its concentration-to-dose ratio (C0/dose) on the day of hospital discharge among Thai kidney recipients who received immediate-release tacrolimus and visited outpatient transplant clinic at Rajavithi hospital between 2012 and 2025. Genotyping of CYP3A5*3 (rs776746) was performed. Whole blood tacrolimus concentrations were analyzed by chemiluminescent microparticle immunoassay. Tacrolimus dose and C0/dose were compared by Kruskal–Wallis test.

Results: Among 50 clinically stable kidney recipients, 28 patients (56%) were CYP3A5 expressers, including CYP3A5*1/*1 (n = 4, 8%) and *1/*3 (n = 24, 48%), while 22 patients (44%) were CYP3A5 nonexpressers (CYP3A5 3/*3). At hospital discharge (median 21 [IQR 15, 39] day), median [IQR] dose requirements were 9.00 [7.00, 10.50], 6.25 [5.50, 8.00], and 4.00 [3.00, 5.00] mg/day and median [IQR] C0/dose were 0.84 [0.61, 1.26], 1.19 [0.88, 1.34] and 1.99 [1.67, 2.66] ng/mL per mg in CYP3A5*1/*1, *1/*3, and *3/*3, respectively (both $p < 0.001$).

Conclusion: On hospital discharge day, CYP3A5 polymorphisms significantly impact dosage requirement and C0/dose of tacrolimus in kidney transplant recipients. The highest tacrolimus dosage requirement and the lowest C0/dose of tacrolimus were observed in CYP3A5*1/*1 genotyped patients.

Keywords: CYP3A5, Genetic polymorphisms, Immunosuppressant, Kidney Transplantation, Tacrolimus

Effects of Ramadan Fasting on Intradialytic Hypoglycemia and Clinical Outcomes in Patients with Diabetes on Maintenance Hemodialysis: A Multicenter Prospective Cohort Study in Southern Thailand

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Background: Patients with end-stage kidney disease (ESKD) and diabetes mellitus (DM) face significant complication risks during Ramadan fasting. Despite these risks, many remain highly motivated to fulfill religious obligations. This study evaluated the effects of fasting on intradialytic hypoglycemia and clinical outcomes in hemodialysis (HD) patients managed with a standardized preventive protocol.

Methods: This multicenter prospective cohort study included 153 patients with ESKD and DM undergoing maintenance HD at four centers in Pattani, Thailand, during Ramadan 2024. Participants were categorized into non-fasting (n=73), partial-fasting (n=44), and full-fasting (n=36) groups. The uniform protocol comprised glucose-containing dialysate (100 mg/dL), a 15–30% preemptive insulin reduction, and oral medication adjustments. The primary endpoint was intradialytic hypoglycemia (<70 mg/dL). Secondary endpoints included HD-related complications, blood pressure, interdialytic weight gain (IDWG), and laboratory parameters.

Results: No symptomatic or documented intradialytic hypoglycemia occurred in the full- or non-fasting groups; only one episode (0.2%) occurred in the partial-fasting group. HD-related complications, blood pressure control, IDWG, and dialysis adequacy did not differ significantly among groups. Notably, while serum potassium and parathyroid hormone (PTH) levels increased significantly in both full- and non-fasting groups during Ramadan compared to baseline, these changes were minimal and lacked clinical significance.

Conclusions: Full Ramadan fasting showed no increased risk of intradialytic hypoglycemia or major HD complications when implemented with proactive medication adjustments and glucose-containing dialysate. These findings demonstrate that full fasting is clinically feasible for selected patients, supporting shared decision-making in routine clinical practice.

Keywords: Ramadan, fasting, hemodialysis, diabetes mellitus, patient-centered care

Cancer Risk and Associated Factors Among Patients Undergoing Maintenance Dialysis: A Single-Center Analysis

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Background: Patients with end-stage renal disease (ESRD) undergoing dialysis are at increased risk of malignancy due to chronic inflammation, uremic toxin accumulation, and impaired immune surveillance. However, risk factors for cancer development in this population remain poorly defined.

Methods: A retrospective single-center cohort study was conducted at Rajavithi Hospital, Bangkok, Thailand. Patients with CKD stage 5 receiving hemodialysis or peritoneal dialysis between January 2014 and December 2024 were enrolled. Factors associated with cancer development were analyzed using Cox proportional hazards regression. Cancer-free survival was estimated using the Kaplan–Meier method.

Results: Of 974 screened patients, 401 were eligible for analysis. 48 patients (11.9%) developed cancer, corresponding to an incidence rate of 22.15 per 1,000 person-years (95% CI: 16.7–29.4). Kidney and urogenital cancers were the most prevalent (27.1%). Independent predictors of cancer development included smoking (adjusted HR 2.44, 95% CI: 1.28–4.66), obstructive uropathy as the cause of ESRD (adjusted HR 13.67, 95% CI: 2.87–65.02), hemoglobin < 10 g/dL (adjusted HR 3.98, 95% CI: 1.99–7.94), and serum albumin < 3.5 g/dL (adjusted HR 3.72, 95% CI: 1.89–7.31). Cancer incidence increased substantially after six years of dialysis.

Conclusion: Smoking, obstructive uropathy, anemia, and hypoalbuminemia are independent risk factors for cancer in dialysis-dependent patients. Targeted cancer surveillance strategies are warranted in this high-risk population.

Keywords: Kidney failure, Dialysis-Dependent Patients, Cancer risk factors

Peritoneal Dialysis Associated *Nocardia Vermiculata* Peritonitis: A Case Report and Literature Review

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A 55-year-old woman with end-stage renal disease on continuous ambulatory peritoneal dialysis (CAPD) presented with cloudy dialysate effluent for 3 days without abdominal pain or fever. Initial peritoneal fluid analysis demonstrated elevated leukocyte counts, and empirical intraperitoneal cefazolin plus ceftazidime were administered. However, the patient showed no clinical improvement. Repeated microbiological evaluation revealed branching gram-positive filamentous organisms with positive modified acid-fast staining. The pathogen was subsequently identified as *Nocardia vermiculata*. Antibiotic susceptibility testing demonstrated sensitivity to trimethoprim-sulfamethoxazole (TMP-SMX), amikacin, imipenem, ciprofloxacin, and linezolid. The patient initially responded to intravenous TMP-SMX followed by oral therapy, with marked reduction in peritoneal fluid leukocyte counts. Nevertheless, relapse occurred four weeks later despite adherence to treatment, and repeat cultures again isolated *Nocardia vermiculata*. The peritoneal dialysis catheter was subsequently removed, and the patient was transitioned to hemodialysis. Combination therapy with intravenous TMP-SMX and imipenem was administered, followed by prolonged oral TMP-SMX therapy, resulting in complete clinical recovery without evidence of disseminated disease (Figure 1). Nocardia peritonitis is an extremely rare but serious complication of peritoneal dialysis that is frequently associated with delayed diagnosis, relapse, and technique failure. This case highlights the importance of considering nocardial infection in refractory or culture-negative peritonitis

Keywords: Nocardia Peritonitis, Nocardiosis in peritoneal dialysis, *Nocardia vermiculata.*

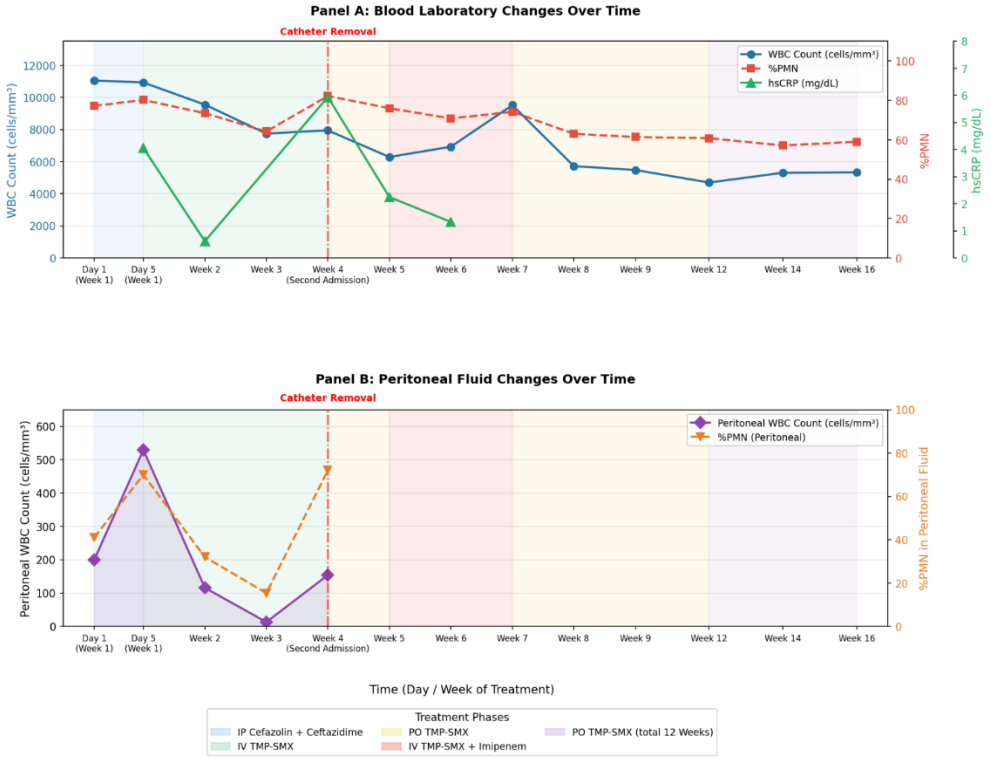

Figure 1: Laboratory marker trends over the course of treatment.

Survival Rate and Associated Factors among Hemodialysis Patients: A 10-Year Retrospective Cohort Study

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Background: Survival outcomes and prognostic factors in hemodialysis (HD) patients vary significantly across different populations and clinical settings. This study aimed to evaluate the 10-year survival rates, hospitalization trends, and factors associated with mortality among patients receiving chronic HD at Rajavithi Hospital, Thailand.

Method: A retrospective cohort analysis was conducted on end-stage kidney disease (ESKD) patients who initiated regular HD between January 2015 and December 2024 at Rajavithi Hospital. Survival probabilities and associated factors were analyzed.

Results: Of the 66 patients screened, 48 were eligible for analysis (mean age 63.5 ± 16.3 years; 52.1% male). The overall survival rates at 1, 3, 5, and 10 years were 97.9%, 86.3%, 79.6%, and 72.9%, respectively. Infectious diseases were the leading cause of death. Multivariate analysis identified HIV-positive status as a significant independent predictor of mortality with an Adjusted HR of 158.31 (95% CI 3.33–7,522.34, p=0.010). Additionally, older age (≥60 years), low serum albumin (<3.5 g/dL), and the use of catheters were significantly associated with lower survival in univariate analysis. The overall 10-year hospitalization rate was 0.737 events per person-year.

Conclusion: Hemodialysis patients at Rajavithi Hospital demonstrated favorable long-term survival rates. Mortality was significantly associated with HIV status, older age, hypoalbuminemia, and vascular access type. Strategies focusing on infection prevention and nutritional optimization may further improve outcomes in this population.

Keywords: Hemodialysis, Survival, Mortality, Hospitalization, End-stage kidney disease.

Changing of Serum Creatinine as a Surrogate Marker for Small Solute Clearance in Peritoneal Dialysis

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Background: Small solute clearance in patients undergoing peritoneal dialysis (PD) is conventionally monitored using total weekly Kt/V. However, the 24 hours collection of urine and dialysate is cumbersome to patients and healthcare providers. This study aims to investigate the utility of serum creatinine (Cr) as a surrogate marker for monitoring small solute clearance with the goal of substitute for traditional weekly total Kt/V in end-stage kidney disease patients (ESKD) undergoing peritoneal dialysis.

Objective: To evaluate the association between change in serum Cr and BUN with change in weekly total Kt/V among ESKD patients undergoing PD.

Methods: A retrospective cohort study was performed at Thammasat University Hospital between January 1st, 2015 and January 1st, 2025. Primary outcome was the association of change in serum Cr and BUN with change in weekly total Kt/V. Random slope model was used to determine the association between change in serum Cr and outcomes.

Results: 136 patients were eligible (mean (SD) age 60.5 (15.1), 53.7% of male and 50.8% performed CAPD). Each 1 mg/dL change in serum Cr was associated with a 0.05 decrease in weekly total Kt/V (mean difference [MD] -0.05; 95% confidence interval [CI], -0.06 to -0.04). Although serum Cr is influenced by muscle mass, the correlation persisted even after adjusting for body weight (BW) (MD -0.05; 95% CI, -0.06 to -0.04) or body surface area (BSA) (MD -0.04; 95% CI, -0.05 to -0.03). Furthermore, serum Cr was found to be a superior surrogate marker compared to BUN, demonstrating a larger effect size (standardized z-score -0.110 vs. -0.109) and less % coefficient of variation (16.9 vs. 22.49). While residual kidney function (RKF) partially influenced changes in serum Cr, it was not a primary determinant of the observed association. Subgroup analysis of patients without RKF still confirmed the significant correlation between changes in serum Cr and weekly total Kt/V (MD -0.03; 95% CI, -0.04 to -0.02).

Conclusion: Serum Cr is a reliable surrogate for small solute clearance in ESKD undergoing PD patients. It offers a practical alternative to weekly total Kt/V, regardless of muscle mass or RKF.

Keywords: peritoneal dialysis, small solute clearance, serum creatinine, surrogate marker

From Inference to Proof: Nanopore Sequencing Confirms Zoonotic *Neisseria Zoodegmatis* Peritonitis after Cat Bite-Related Contamination in Automated Peritoneal Dialysis

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Peritoneal dialysis (PD)-associated peritonitis due to zoonotic pathogens is uncommon and diagnostically challenging. We report a 90-year-old patient with kidney failure from diabetic kidney disease on automated PD who developed peritonitis following cat bite-related damage to the transfer set. Initial wet contamination was managed with intraperitoneal ampicillin and gentamicin; cultures were negative at that time. The patient subsequently presented with cloudy effluent and PD effluent leukocytosis (1,697 cells/μL, 91% polymorphonuclear cells). Empirical intraperitoneal cefazolin and ceftazidime were initiated. Culture of centrifuged dialysate grew Gram-negative coccobacilli identified as *Neisseria zoodegmatis* by MALDI-TOF mass spectrometry and confirmed by 16S rRNA gene sequencing (99.6% coverage, 100% identity). Intermediate β-lactam susceptibility prompted escalation to intraperitoneal meropenem and gentamicin, with resolution after a four-week course. The patient relapsed on Day 38 with negative conventional cultures. Metagenomic nanopore sequencing of index dialysate demonstrated *N. zoodegmatis* as the dominant organism (67%) within a mixed microbial background. Subsequent nanopore sequencing of saliva from three household cats identified the identical species in one animal (figure1), establishing molecular concordance and providing the first proof of zoonotic pet-to-human transmission of *N. zoodegmatis* PD peritonitis. Sustained remission was achieved after strict environmental control and exclusion of the cat from treatment areas. This represents the second reported case of *N. zoodegmatis* PD-associated peritonitis and the first with molecularly confirmed zoonotic transmission, highlighting the selective role of long-read nanopore sequencing in complex or relapsing cases, the importance of antimicrobial reassessment after pet-related contamination, and the critical role of environmental intervention in achieving durable remission.

Keywords: Nanopore Sequencing, *Neisseria zoodegmatis*, Peritoneal Dialysis-Associated Peritonitis, Zoonotic Transmission, Pet Exposure

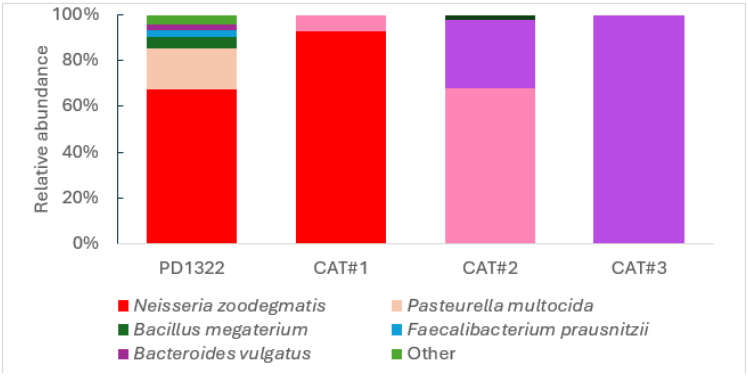

Figure 1: Species-level microbial composition determined by 16S rDNA nanopore sequencing in peritoneal dialysis (PD) effluent and feline saliva samples.

Stacked bar plots show the relative abundance of bacterial species identified by third-generation nanopore sequencing. The far-left bar represents the patient's PD effluent (PD1322) obtained during the index episode, demonstrating Neisseria zoodegmatis as the dominant organism (67%), with lower-abundance reads corresponding to Pasteurella multocida, Bacillus megaterium, Faecalibacterium prausnitzii, and Bacteroides vulgatus. The three right bars represent saliva samples from household cats. N. zoodegmatis was detected exclusively in the saliva of one cat, while the remaining cats demonstrated distinct, non-overlapping oral microbiota dominated by unrelated bacterial species. These findings illustrate species-level concordance across biologically distinct sample types and support zoonotic transmission, highlighting the selective role of nanopore sequencing in resolving pathogen attribution in complex microbial backgrounds

Continuous Kidney Replacement Therapy Versus Intermittent Hemodialysis as Initial Therapy for Acute Kidney Injury, A 5-Year Retrospective Cohort Study

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Background: Acute kidney injury is common in critically ill patients and can cause serious short- and long-term problems, including higher mortality rates, organ damage, infections, and long-term kidney disease. This study aims to compare continuous and intermittent renal replacement therapy, focusing on death rates, hospital stay, duration of treatment, and kidney recovery, to help guide better treatment of choices for patients.

Method: Retrospective cohort enroll patients in Rajavithi hospital from 1 Jan 2021 – 31 Dec 2025, duration 5 years and follow up until 60 days from starting the first RRT

Results: Kaplan–Meier survival analysis showed that the SLED + IHD group had a significantly higher survival rate than the CRRT group, with the CRRT group having a 1.98-fold higher risk of death. (HR = 1.98, 95% CI 1.51–2.6; $p < 0.001$)

Conclusion: Patients on CRRT showed much lower survival than those on SLED/IHD, with almost double the death risk (HR 1.98). Need for a ventilator or inotrope strongly signaled higher mortality. SLED/IHD without inotrope had the best 30-day survival at 34.9%, while CRRT with inotrope dropped to 6.3%.

Keywords: Continuous renal replacement therapy, intermittent hemodialysis, Sustained Low Efficiency Hemodialysis, Acute kidney injury

High Sensitivity Cardiac Troponin T and I as a Predictor of Cardiovascular Disease and Long-Term Mortality Among Hemodialysis Patients: A Retrospective Observational Cohort Study

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Background: Cardiovascular disease (CVD) is a major concern for end stage kidney disease (ESKD) patient. However, prognostic value of high sensitivity troponin on major cardiovascular events (MACEs) have shown conflicting results in predictability.

Method: A single center, retrospective cohort study including hemodialysis patients undergone hemodialysis during September 2020-January 2021 was conducted. Pre-dialytic high sensitivity troponin-T (hs-cTnT) and high sensitivity troponin-I (hs-cTnI) were measured. Outcomes were first occurrence of MACEs and all-cause mortality.

Results: 198 patients (age 62.8 ± 15.1 years, 56% male) were enrolled. Median hs-cTnT and cTnI level were 60 (IQR 37-103) and 18 ng/L (IQR 10-34). With the median follow-up time 62 months, 31 (16%) participants developed MACEs and 68 (34%) patients died. Youden's index identified the optimal cut off of hs-cTnT and hs-cTnI for MACEs prediction at ≥111 and ≥77 ng/L. Those for all-cause mortality prediction was ≥67 and ≥25 ng/L, respectively. By multivariable analysis, hs-cTnT≥111 ng/L and hs-cTnI≥77 ng/L were associated with increased risk of MACEs (HR 4.97; 95% CI 1.84-13.41, P=0.002), (HR 7.28; 95% CI 2.21–23.98, P= 0.001), respectively. Hs-cTnT≥67 ng/L and hs-cTnI≥25ng/L were associated with increased mortality (HR 3.57; 95% CI 2.16-5.9, P<0.001), (HR 4.63; 95% CI 2.22-9.64, P<0.001). The AUC of hs-cTnT and hs-cTnI for MACEs prediction was 0.569 and 0.555, while those for mortality prediction were 0.708 and 0.685, respectively.

Conclusion: Elevated hs-cTnT and hs-cTnI are independently associated with increased risk of MACEs and mortality in asymptomatic hemodialysis patients. However, their predictive performance is moderate for mortality and limited for MACEs.

Keywords: High sensitivity Cardiac Troponin, Cardiovascular disease, Hemodialysis patients

Factors Associated with Caregiver Burden among Caregivers of Patients Receiving Peritoneal Dialysis at King Chulalongkorn Memorial Hospital – A Cross-Sectional Study

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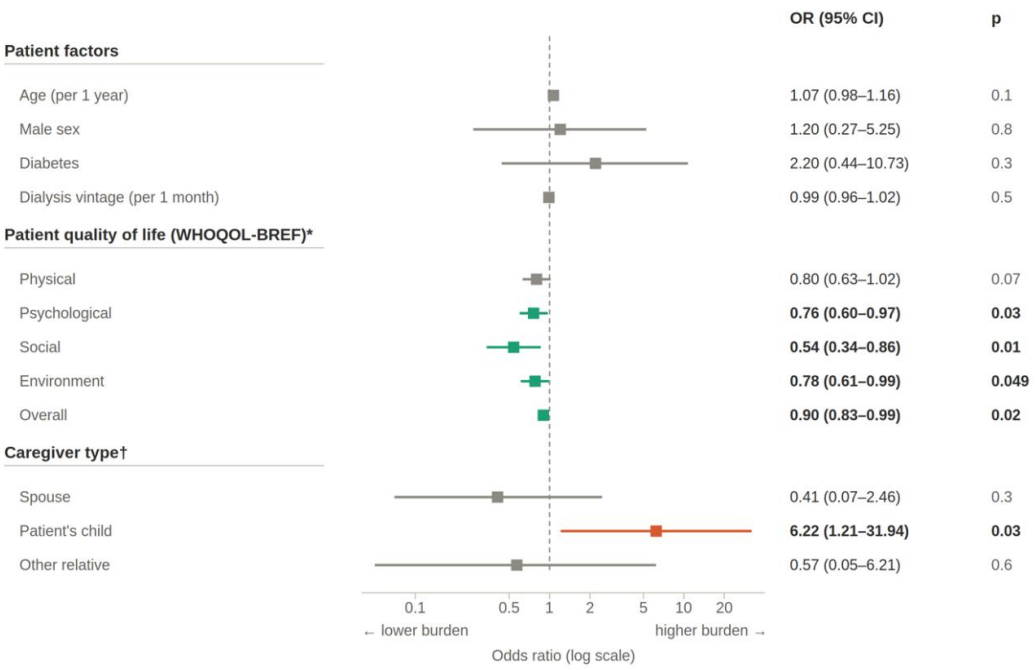
Background: Caregiver burden is a major concern in peritoneal dialysis (PD), yet data from Thailand, where families commonly provide long-term care, are limited. We examined factors associated with greater caregiver burden in this setting.

Methods: We conducted a cross-sectional study of prevalent PD patients at King Chulalongkorn Memorial Hospital between 2025 and 2026. Among patients requiring caregiver assistance with PD tasks, the primary caregiver's burden was assessed using the 22-item Zarit Burden Interview (ZBI) and classified as significant (mild-to-moderate or moderate-to-severe) versus little-to-no burden. Associations between patient and caregiver factors, including patient's WHOQOL-BREF quality of life (QOL), and significant burden were assessed by univariable logistic regression.

Results: Of 50 PD patients, 31 (62%) required caregiver assistance. Caregivers were predominantly family members (87%), including patients' children (45%), spouses (29%), and other relatives (13%); the remainders were paid domestic caregivers (13%). The median ZBI score was 10 (IQR 6–30), and 11 caregivers (35%) reported significant burden (19% mild-to-moderate, 16% moderate-to-severe). Lower patient QOL was associated with greater burden across WHOQOL domains: social (OR 0.54, 95% CI 0.34–0.86), psychological (OR 0.76, 95% CI 0.60–0.97), environmental (OR 0.78, 95% CI 0.61–0.99), and overall (OR 0.90, 95% CI 0.83–0.99). Caregiving by an adult child was associated with greater burden (OR 6.22, 95% CI 1.21–31.94). Patient age, sex, diabetes, and dialysis vintage were not significantly associated (Figure 1).

Conclusions: Approximately one-third of PD caregivers experienced significant burden. Lower patient QOL and caregiving by an adult child were associated with higher burden; these subgroups may benefit from targeted support.

Keywords: Peritoneal dialysis, caregiver burden, quality of life.



Significant (CI excludes 1): teal = lower burden, coral = higher burden; grey = not significant.
*WHOQOL OR per 1-point increase. †Paid (non-relative) caregiver and PD modality were non-estimable.

Figure 1: Forest plot of factor associated with significant caregiver burden by univariable logistic regression (*n*=31 caregivers; 35% with significant burden by the 22-item Zarit Burden Interview)

Transitions of Peritoneal Dialysis Dependency among Incident Patients Undergoing Peritoneal Dialysis at King Chulalongkorn Memorial Hospital

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Background: Previous studies suggest that patients initiating peritoneal dialysis (PD) who depend on caregivers for PD-related tasks may experience poorer outcomes, regardless of functional capacity. Therefore, self-PD is encouraged whenever feasible.

Methods: We retrospectively reviewed patients who initiated PD at King Chulalongkorn Memorial Hospital between 2018 and 2025. PD-task dependency (exit-site dressing and PD connection) and functional capacity were assessed at PD initiation and again 3–6 months later using the 20-point short-form Barthel Activities of Daily Living (ADL) index, categorized as total, severe, or moderate dependency, or independence. Peritonitis risk was compared between patients who achieved self-PD and those who remained dependent.

Results: Fifty patients were included (median age 63.5 years; 56% male, 56% diabetic); 80% received automated PD. Independence in exit-site dressing increased from 9 (18%) patients at baseline to 17 (34%) at follow-up, including 9 patients who newly achieved independence. Independence in PD connection increased from 12 (24%) to 22 (44%), with 10 patients newly achieving independence. Overall, complete PD-task independence increased from 9 (18%) to 16 (32%). In contrast, Barthel ADL independence was relatively high at baseline (54%) and increased only slightly to 58% at follow-up. Only 48% of patients classified as independent by Barthel ADL achieved complete PD-task independence. Over a median follow-up of 31 months, peritonitis risk did not differ between self-PD and assisted-PD patients (HR 0.81, 95% CI 0.28–2.35).

Conclusions: Dependency on caregivers for PD-related tasks is common at PD initiation but can improve with multidisciplinary support. The substantial gap between functional independence and PD-task independence is a potentially modifiable target for quality improvement in PD care.

Keywords: Peritoneal dialysis, caregiver, dependency, assisted peritoneal dialysis.

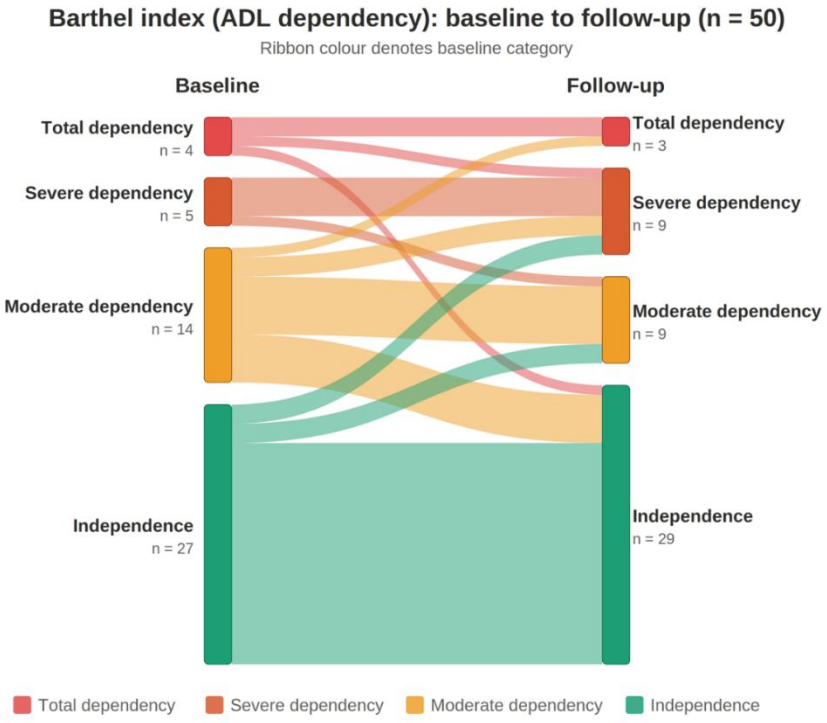

Figure 1: Dynamics of dependency level by the 20-point Barthel index of activities of daily living at baseline and at 3–6 months into multidisciplinary peritoneal dialysis program

Longitudinal Assessment of Trabecular Bone Score and Osteoporosis in Patients on Chronic Hemodialysis

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Background: Patients undergoing chronic hemodialysis are at high risk for osteoporosis and fragility fractures. Routine bone mineral density (BMD) assessment often underestimates fracture risk because it does not account for bone microarchitecture. The trabecular bone score (TBS) is a novel parameter of bone quality, but longitudinal data in this population is limited.

Objective: To evaluate 3-year changes in TBS and BMD and identify clinical predictors of worsening bone quality in hemodialysis patients.

Materials and Methods: This prospective cohort study is a continuation of a previous cross-sectional study of 133 patients. After applying exclusion criteria and accounting for attrition over 3 years, 73 adult patients on maintenance hemodialysis were included. Baseline and 3-year follow-up data for TBS, BMD, and routine clinical and laboratory parameters were evaluated. Multivariable linear regression identified factors associated with TBS decline.

Results: Of 133 patients, 60 were excluded or lost to follow-up, leaving 73 for analysis. Over 3 years, the mean TBS significantly declined from 1.37 ± 0.14 to 1.34 ± 0.11 ($p < 0.01$), while lumbar spine BMD remained relatively stable. At follow-up, 38.4% of patients had a low TBS (<1.31). Multivariable linear regression (adjusted for age, sex, BMI, and PTH) showed that advanced age was the only independent predictor of accelerated TBS decline ($\beta = -0.199$, $p = 0.008$).

Conclusions: TBS deteriorates significantly over time in hemodialysis patients, independent of BMD changes. Routine longitudinal TBS monitoring may improve fracture risk stratification and CKD-MBD management.

Keywords: Trabecular bone score, Hemodialysis, Osteoporosis

Table 1. Longitudinal Changes in Bone Parameters Over 3 Years

Parameters	Baseline	3 - Year Follow-up	% Change	p-value
TBS	1.37 ± 0.14	1.34 ± 0.11	-1.80 ± 7.46	0.014
Lumbar Spine BMD (g/cm²)	1.070 ± 0.204	1.069 ± 0.217	0.15 ± 10.27	0.941
Femoral Neck BMD (g/cm²)	0.774 ± 0.158	0.735 ± 0.151	-4.57 ± 10.32	< 0.001
Total Hip BMD (g/cm²)	0.829 ± 0.182	0.781 ± 0.174	-5.43 ± 10.24	< 0.001
Distal 1/3 Radius BMD (g/cm²)	0.771 ± 0.173	0.717 ± 0.187	-7.15 ± 11.78	< 0.001

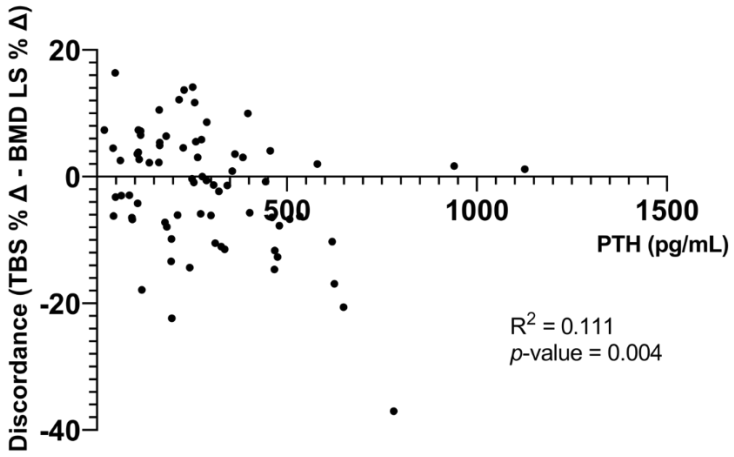

Figure 1. Correlation Between PTH Levels and the Discordance of TBS and Lumbar Spine BMD Changes. Higher levels of PTH are significantly associated with a greater negative discordance, demonstrating that severe secondary hyperparathyroidism degrades true bone quality (TBS) while masking bone loss on standard lumbar spine BMD scans.

Association of Hemoglobin Variability and Mortality, Hospitalization, Cardiovascular Event in Hemodialysis Patients in Maharat Nakhon Ratchasima Hospital

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Background: Anemia is a common complication in patients with chronic kidney disease undergoing kidney replacement therapy. One of the treatment approaches is the administration of erythropoietin to stimulate red blood cell production. Regular laboratory monitoring and subsequent dose adjustments are required to maintain hemoglobin levels within the target range and in accordance with the reimbursement policies of the healthcare coverage system. These adjustments may lead to hemoglobin variability. Previous studies have demonstrated that hemoglobin variability is associated with increased mortality and higher hospitalization rates

Objective: To investigate the association between hemoglobin variability and mortality, hospitalization, and cardiovascular complications, as well as to determine the prevalence and associated factors of hemoglobin variability.

Methods: This retrospective study included patients with end-stage kidney disease undergoing hemodialysis at dialysis units in Nakhon Ratchasima Province between January 2022 and December 2023. Hemoglobin levels of each patient were monitored for at least 12 consecutive months in order to classify patients into six groups based on patterns of hemoglobin variability. Baseline patient characteristics, comorbidities, healthcare coverage, and other relevant factors were also collected. All patients were subsequently followed for at least 2 years, and comparative analyses were performed among the different hemoglobin variability groups.

Results: A total of 375 patients met the inclusion criteria, with a mean age of 56 years. The majority of patients (259 patients, 69%) were covered by the Universal Coverage scheme. When patients were categorized into six groups based on patterns of hemoglobin variability, 33.6% were found to have hemoglobin levels within the target range. After a 2-year follow-up period, mortality rates were compared with the reference group (Target hemoglobin group). Multivariate analysis demonstrated that patients in the consistently low hemoglobin (<10 g/dL) group, low-amplitude fluctuation in low hemoglobin level group, and high-amplitude fluctuation group had significantly higher mortality rates, with risks increased by 7.57-fold, 5.02-fold, and 4.63-fold, respectively. Regarding hospitalization, compared with the reference group, patients in the consistently low hemoglobin group and low-amplitude fluctuation in low hemoglobin level group had significantly higher hospitalization rates,

increasing by 7.83-fold and 4.97-fold, respectively. Factors associated with hemoglobin variability included a history of bleeding, iron deficiency, and patients' healthcare coverage status.

Conclusion: Patients in the consistently low hemoglobin group and low-amplitude fluctuation in low hemoglobin level group were associated with a significantly increased risk of mortality and hospitalization.

Keywords: Hemoglobin variability, Anemia in dialysis, erythropoiesis-stimulating agents

Drug-related Problems Identified Through Pharmacist-Led Medication Reconciliation in a Multidisciplinary Peritoneal Dialysis Clinic: A Five-Year Retrospective Cohort

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Background: Individuals undergoing peritoneal dialysis (PD) are exposed to complex medication regimens. Drug-related problems (DRPs) are common and adversely affect clinical outcomes. This study characterized the trends and patterns of DRPs identified through pharmacist-led medication reconciliation in a multidisciplinary PD clinic.

Methods: We conducted a retrospective cohort at the PD clinic of King Chulalongkorn Memorial Hospital, Thailand, using pharmacist records between 2021 and 2025. DRPs were classified as patient-related, prescriber-related, and drug-related. Medications associated with DRPs were categorized by therapeutic class.

Results: A total of 1,213 PD clinic encounters underwent pharmacist-led medication reconciliation during the study period. Overall, 384 DRPs were identified, corresponding to 31.7% of clinic encounters. The prevalence of DRPs demonstrated a decreasing trend over the study period, declining from 40.8% of encounters in 2021 to 28.1% in 2025 despite year-to-year fluctuations (**Figure 1**). Patient-related DRPs (all non-adherence) accounted for 242 events (63%). Prescriber-related DRPs accounted for 117 events (30.5%), predominantly dosage problems (13.3%), followed by need for additional drug therapy, prescribing errors, and unnecessary drug therapy. Drug-related DRPs accounted for 25 events (6.5%), including adverse drug reactions and drug interactions. Non-adherence remained the most common DRP throughout, while dosage-related problems decreased over time. Among 275 medication-specific DRPs, CKD-MBD therapies were the most frequently involved (43.3%), followed by erythropoiesis-stimulating agents and potassium supplements.

Conclusions: DRPs were frequently identified among PD individuals but demonstrated an overall decreasing trend over time. Non-adherence remained the predominant DRP. Pharmacist-led medication reconciliation provides a valuable opportunity to address DRPs and support quality improvement in PD care.

Keywords: Peritoneal dialysis, Drug-related problems, Medication reconciliation, Pharmacist-led

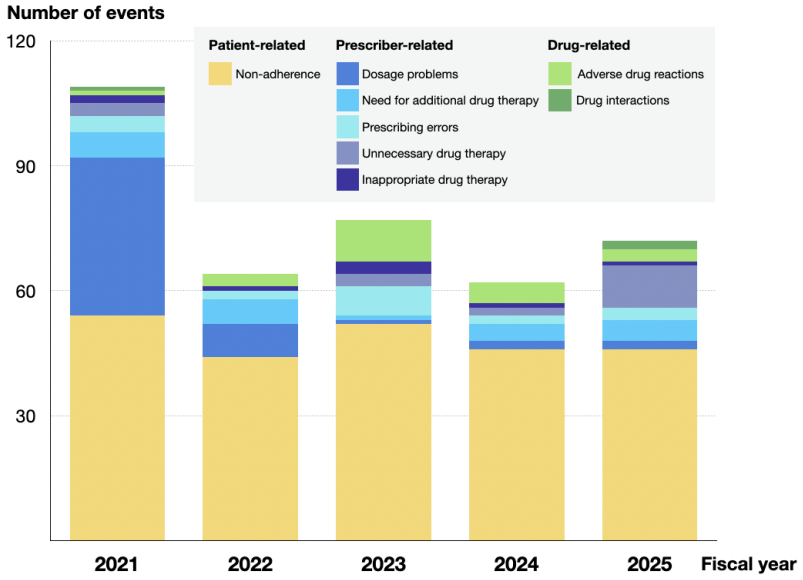

Figure 1. Annual distribution of drug-related problem categories identified through pharmacist-led medication reconciliation in a peritoneal dialysis clinic, 2021–2025.

From Culture-Negative to Sequence-Positive: 16S rRNA Nanopore Sequencing in CAPD Peritonitis

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Background: Culture-negative peritonitis in peritoneal dialysis (PD) is often linked to antibiotic exposure before PD effluent (PDE) collection, which suppresses bacterial growth and reduces culture yield. We evaluated direct 16S rRNA nanopore sequencing of PDE as a rapid, culture-independent method to detect bacterial DNA and improve diagnostic resolution in culture-negative cases.

Methods: We conducted a prospective diagnostic accuracy study of antibiotic-responsive, culture-negative CAPD-associated peritonitis from January 2023 to August 2025. Consecutive patients with clinically diagnosed peritonitis, negative conventional bacterial culture, and subsequent response to antibiotic therapy were enrolled under a predefined sampling protocol. Patients were eligible if they remained on CAPD for at least 3 months after the index episode; those who transferred to haemodialysis or died before adequate follow-up were excluded. Peritoneal effluent was collected and preserved in NAP buffer, followed by bacterial 16S rRNA nanopore sequencing targeting the V1–V4 hypervariable regions. Nanopore sequencing served as the index test, with Sanger sequencing used as the comparator for sequence confirmation. The primary endpoint was diagnostic yield, defined as the proportion of culture-negative episodes with bacterial DNA detected by nanopore sequencing.

Secondary endpoints included taxonomic resolution and concordance between nanopore and Sanger sequencing, assessed using percentage agreement and agreement-based measures.

Results: Among 36 antibiotic-responsive, culture-negative CAPD peritonitis episodes, 16S rRNA nanopore sequencing detected bacterial DNA in 29 samples (81%), compared with 13 samples by Sanger sequencing (36%), representing a 45-percentage-point absolute gain and a 2.2-fold higher detection yield. Species-level concordance between methods was 62%, mainly involving *Escherichia*, *Streptococcus*, *Staphylococcus*, *Acinetobacter*, and *Pseudomonas*. Discordance occurred in 38% of cases and was largely driven by nanopore-only detections, including *Streptococcus parasanguinis* (*n*=4), *Staphylococcus hominis* (*n*=2), *Gardnerella vaginalis* (*n*=2), and others (*n*=8).

Conclusion: 16S rRNA nanopore sequencing improved bacterial detection in antibiotic-responsive, culture-negative PD-associated peritonitis, especially in low-biomass or antibiotic-exposed samples. Nanopore-only findings require clinical correlation and contamination controls, but the method may be a useful adjunct to conventional microbiology.

Keywords: peritoneal dialysis; 16S nanopore sequencing; Escherichia; Streptococcus; Staphylococcus

Hypokalemia Burden and Treatment Gaps in Peritoneal Dialysis Despite Protocol-Based Potassium Supplementation: A Single-Center Audit

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Background: Hypokalemia is common in peritoneal dialysis (PD) and is linked to higher risks of peritonitis at serum potassium <3.5 and cardiovascular events at <4.0 mEq/L. Despite center's proactive supplementation protocol targeting serum potassium 4.0-5.0 mEq/L, its performance in routine practice remains unclear. We evaluated real-world potassium control under a protocol-based supplementation program by assessing hypokalemia prevalence and treatment gaps among PD patients.

Methods: We conducted a retrospective longitudinal audit of active PD patients at King Chulalongkorn Memorial Hospital in 2025. Sixty-seven eligible patients, including 17 incident 50 prevalent PD patients, contributed 266 clinic visits, with a median of 4 visits per patient. Hypokalemia was assessed using two prespecified thresholds: serum potassium <3.5 and <4.0 mEq/L. We estimated visit- and patient-level prevalence of hypokalemia, quantified treatment gaps defined as hypokalemia without potassium supplementation, and compared them between incident and prevalent PD patients.

Results: Mean age was 68.4±15.6 years, 55% were male, and time-average serum potassium was 4.05±0.76 mEq/L. Among 266 PD visits, potassium <3.5 and <4.0 mEq/L occurred in 12% and 36%, respectively. At the patient level, 33% and 75% experienced at least one episode. Treatment gaps persisted, with 36% of patients with potassium <3.5 mEq/L and 34% with potassium <4.0 mEq/L did not receive indicated potassium supplementation (Figure 1). Incident PD patients showed a non-significant trend toward more visits with potassium <4.0 mEq/L than prevalent patients (0.5 [0–0.67] vs 0.33 [0.17–0.5]; p=0.3).

Conclusions: Despite a proactive potassium supplementation protocol, hypokalemia remained common in PD, particularly at the <4.0 mEq/L threshold, and about one-third of

affected patients missed indicated supplementation. These findings underscore a gap between protocol and practice and support closer potassium monitoring, stronger protocol adherence, and targeted dietary counseling during the transition to PD.

Keywords: Hypokalemia, peritoneal dialysis, potassium supplementation

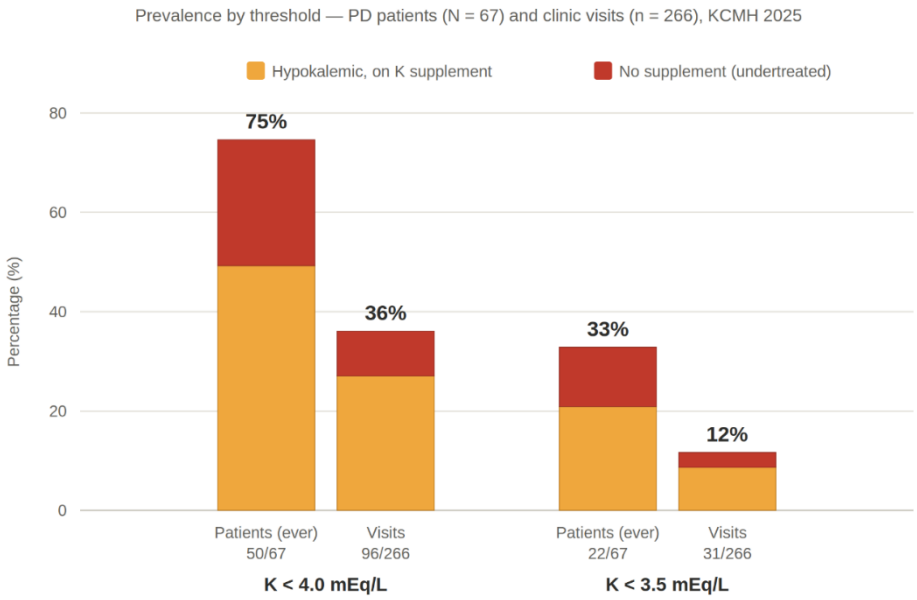

Figure 1: Proportions of patients and clinic visits meeting hypokalemia thresholds of serum potassium <3.5 and <4.0 mEq/L, stratified by potassium supplementation status.

ITS Nanopore Sequencing Reveals Lumen-Specific Fungal DNA Profiles in Hemodialysis Catheters Largely Missed by Culture

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Background: Hemodialysis catheter lumens may harbor fungal communities missed by conventional culture. We used ITS-targeted nanopore sequencing to define the intraluminal mycobiome and compare its diagnostic yield with paired culture.

Methods: We performed a cross-sectional mycobiome profiling study of paired arterial/inflow and venous/outflow hemodialysis catheter lumen swabs from patients with suspected CRBSI and non-infected controls. Each specimen underwent parallel conventional fungal culture and ITS-targeted Oxford Nanopore sequencing. Quality-filtered reads were taxonomically assigned, expressed as relative abundance, and grouped into prespecified fungal guilds. Sequencing adequacy was assessed by rarefaction. Alpha diversity was measured using Chao1 and Shannon indices, while beta diversity was assessed by Bray–Curtis dissimilarity and PERMANOVA with 999 permutations. Molecular detection yield was compared with site-matched culture, and community structure was examined by lumen site, catheter type, CRBSI status, and outcome.

Results: Between January 2023 and January 2024, 70 HD catheter specimens from 66 patients were analysed; 27 specimens (39%) were from suspected CRBSI cases and 43 (61%) from controls. ITS nanopore sequencing generated interpretable profiles in 46 arterial and 55 venous lumen samples. Fungal DNA was detected in nearly all sequenced specimens,

whereas conventional culture was positive in only one, indicating a >40-fold difference in detection yield. Fungal community structure differed significantly by lumen site (PERMANOVA $F=3.56$, $R^2=0.035$, $p=0.001$). Arterial lumens were enriched with *Candida albicans* and *Candida tropicalis*, while venous lumens showed predominance of environmental and xerophilic taxa, including *Wallemia canadensis*, *Aureobasidium leucospermi*, and *Lodderomyces elongisporus*. Catheter type further influenced arterial-lumen composition (PERMANOVA $F=2.32$, $R^2=0.050$, $p=0.005$). Fungal diversity was not associated with CRBSI status or mortality, suggesting that ITS signals may reflect colonization, transient fungal DNA, or environmental carryover rather than proven invasive infection.

Conclusions: ITS-targeted nanopore sequencing identified lumen-specific fungal DNA profiles in hemodialysis catheters that were largely missed by culture. Arterial lumens were *Candida*-enriched, whereas venous lumens showed more environmental and xerophilic fungi, suggesting distinct possible seeding routes. Because these signals were not associated with CRBSI or mortality, they should be interpreted as fungal DNA detection rather than proven infection, pending validation with contamination controls and viability assays.

Keywords: hemodialysis catheter; ITS nanopore sequencing; catheter-related bloodstream infection; Candida; Wallemia

Changes in Nutritional and Body Composition Parameters among Incident Peritoneal Dialysis Patients During the First Year of Multidisciplinary Care

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Background: Protein-energy wasting and loss of lean body mass are common among patients initiating peritoneal dialysis (PD). Multidisciplinary care, including dietitian-led nutritional assessment and monitoring, may help optimize nutritional status during the early phase of PD treatment. We evaluated longitudinal changes in nutritional and body composition parameters among incident PD patients receiving multidisciplinary care.

Methods: We conducted a retrospective longitudinal study of incident PD patients attending a multidisciplinary PD clinic with dietitian-led nutritional monitoring at King Chulalongkorn Memorial Hospital, Thailand, between January-December 2025. Nutritional status was assessed using laboratory markers and bioimpedance spectroscopy. Serial measurements of serum albumin, hemoglobin, dry weight, overhydration, lean tissue index (LTI), and fat tissue index (FTI) were collected during the first year of follow-up. Longitudinal trends were evaluated using linear mixed-effects models.

Results: Eighteen incident PD patients were included. Serum albumin increased significantly over time (+0.41 g/dL/year, $p<0.001$), accompanied by a significant increase in dry weight (+5.04 kg/year, $p<0.001$). FTI showed an increasing trend (+1.45 kg/m²/year, $p=0.148$), while LTI remained stable (+0.20 kg/m²/year, $p=0.844$). Overhydration tended to decrease during follow-up (−0.86 L/year, $p=0.111$). Hemoglobin remained stable (+0.23 g/dL/year, $p=0.695$). Improvements in nutritional markers occurred without worsening fluid status (Figure 1).

Conclusion: Among incident PD patients receiving multidisciplinary care with dietitian involvement, nutritional status improved over time, characterized by increasing serum

albumin and body weight, preservation of lean tissue mass, and stable hydration status. Early multidisciplinary nutritional support may play an important role in optimizing nutritional status after PD initiation.

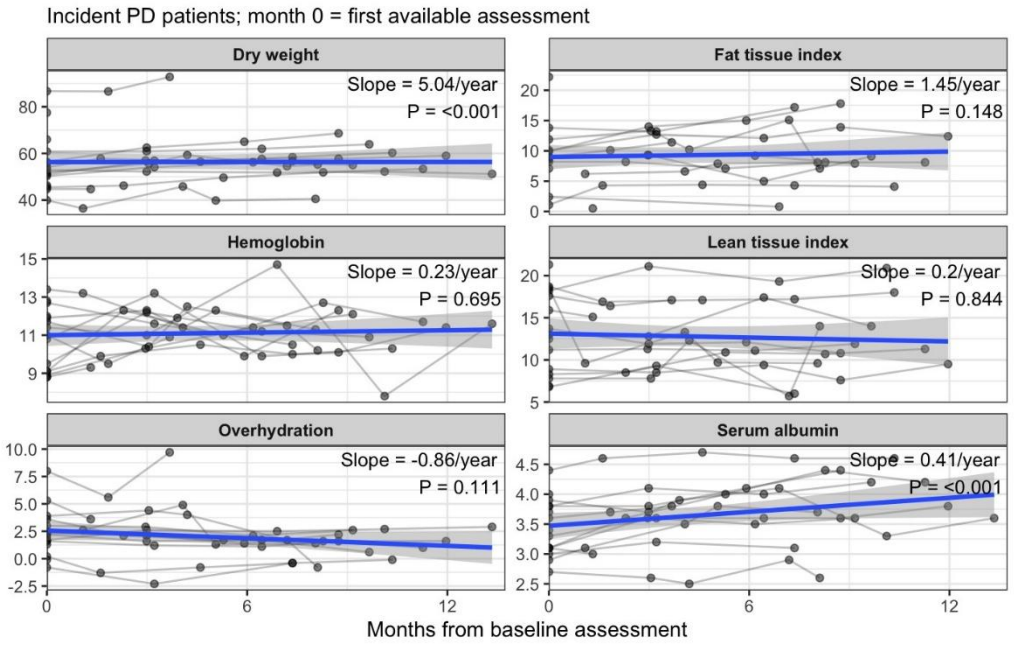

Figure 1. Longitudinal changes in nutritional and body composition parameters during the first year after peritoneal dialysis initiation

Outcomes and Factors Associated with Successful Fluoroscopic Manipulation of Peritoneal Dialysis Catheters

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Background: Mechanical peritoneal dialysis (PD) catheter dysfunction is a common cause of technique failure that often leads to temporary hemodialysis or surgical revision. Fluoroscopic manipulation provides a minimally invasive salvage option, but data in Thai patients are limited

Objective: To evaluate 30-day success rate of fluoroscopic manipulation for PD catheter dysfunction and to identify predictors of success.

Materials and Methods: We performed a retrospective chart review of adults with end-stage kidney disease who underwent fluoroscopic manipulation for refractory PD catheter dysfunction at Siriraj Hospital between January 2017 and February 2026. Patients with prior fluoroscopic manipulation were excluded. The primary endpoint was adequate catheter function at 30 days; secondary endpoints were adequate function at 3 and 6 months, recurrent dysfunction beyond 30 days, dysfunction-free catheter survival, and procedure-related complications.

Results: Fifty-seven interventions were analyzed. Immediate success was 83.0%, and 39 of 57 patients (68.4%) had adequate function at 30 days. Function persisted in 29 of 52 (55.8%) at 3 months and 19 of 43 (44.2%) at 6 months. Recurrent dysfunction after 30 days occurred in 8 of 39 patients (20.5%). On multivariable analysis, secondary failure (adjusted OR= 4.67, 95% =1.12–19.43) and post-procedural catheter tip position in pelvic (adjusted OR 6.99, 95% CI 1.30–37.66) independently predicted 30-day success. The complication rate was 12.3% (7/57) with peritonitis is the majority 10.5% (6/57).

Conclusion: In this study, fluoroscopic manipulation achieved favorable short-term outcomes especially in secondary failure group with an acceptable safety profile. Achieving a post-procedural pelvic tip position represents the key procedural endpoint.

Keywords: Peritoneal dialysis catheter dysfunction; Fluoroscopic manipulation

Averaged PTH and Mortality in Thai Hemodialysis Patients: Determinants from the National TRT Registry

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Introduction: Dysregulation of parathyroid hormone (PTH) is common in patients with end-stage kidney disease (ESKD) on hemodialysis and has been linked to adverse outcomes. However, data from Asian dialysis populations remain limited. This study aimed to evaluate the association between averaged PTH levels and all-cause mortality in Thai hemodialysis patients.

Methods: We conducted a retrospective cohort study using the Thai Renal Replacement Therapy (TRT) registry from January 2018 to December 2022. Adult ESKD patients on maintenance hemodialysis for ≥3 months with at least one annual intact PTH (iPTH) measurement were included. Kaplan–Meier survival analysis and Cox proportional hazards models were used to assess associations between PTH quartiles and all-cause mortality.

Results: A total of 16,526 patients were analyzed. Five-year survival rates progressively increased across PTH quartiles: 75.6%, 77.5%, 79.9%, and 90.5% for Q1 (<133.1 pg/mL), Q2 (133.1–292 pg/mL), Q3 (292.1–561 pg/mL), and Q4 (>561.1 pg/mL), respectively (log-rank $p<0.001$). In multivariable Cox regression, patients in Q1 had significantly higher mortality compared with higher quartiles (adjusted HR 1.38; 95% CI 1.03–1.84; $p=0.028$). This association persisted in subgroups aged >65 years, non-diabetic patients, and those with normal serum albumin. Independent predictors of low PTH included shorter dialysis vintage (<5 years), lower serum phosphate, and hypoalbuminemia.

Conclusion: Low serum PTH is independently associated with increased all-cause mortality in Thai hemodialysis patients, whereas high PTH was not. These findings highlight the clinical risks of PTH oversuppression and underscore the importance of balanced CKD–MBD management.

Keywords: Parathyroid hormone, Hemodialysis, End-stage kidney disease, Mortality, CKD–MBD

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