

# CJASN<sup>®</sup>

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## Patient Voices

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**767 COVID-19 Vaccination for Patients Undergoing Long-Term Hemodialysis**

*Uwe K.H. Korst*

*See related article on page 843.*

**769 Medicare Bundled Payment Policy and Anemia Care: Perspectives from a Patient with Kidney Disease**

*Cher Thomas*

*See related article on page 851.*

## Editorials

---

**771 Conflicts of Interest and the Trustworthiness of Clinical Practice Guidelines**

*Anna Mathew and Catherine M. Clase*

*See related article on page 819.*

**774 Safety of SGLT2 Inhibitors in CKD: Walking the Fine Line**

*Mirela Dobre*

*See related article on page 835.*

**777 Fractional Excretion of Sodium (FENa): An Imperfect Tool for a Flawed Question**

*Harish Seethapathy and Andrew Z. Fennes*

*See related article on page 785.*

**779 Clinical Utility of COVID-19 Vaccination in Patients Undergoing Hemodialysis**

*Matthew J. Oliver and Peter G. Blake*

*See related article on page 843.*

**782 International Variation in Time on Peritoneal Dialysis: Time for a Closer Look?**

*Matthew B. Rivara*

*See related article on page 861.*

## Original Articles

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### Acute Kidney Injury and ICU Nephrology

**785 Diagnostic Performance of Fractional Excretion of Sodium for the Differential Diagnosis of Acute Kidney Injury: A Systematic Review and Meta-Analysis**

*Mohammad Abdelhafez, Tarek Nayfeh, Anwar Atieh, Omar AbuShamma, Basheer Babaa, Muath Baniowda, Alaa Hrizat, Bashar Hasan, Leslie Hassett, Abdurrahman Hamadah, and Kamel Gharaibeh*

*See related editorial on page 777.*

### Chronic Kidney Disease

**798 Apolipoprotein L1 High-Risk Genotypes and Albuminuria in Sub-Saharan African Populations**

*Jean-Tristan Brandenburg, Melanie A. Govender, Cheryl A. Winkler, Palwende Romuald Boua, Godfred Agongo, June Fabian, and Michèle Ramsay*

**809** **PCSK9 and Cardiovascular Disease in Individuals with Moderately Decreased Kidney Function**

Azin Kheirkhah, Claudia Lamina, Barbara Kollerits, Johanna F. Schachtl-Riess, Ulla T. Schultheiss, Lukas Forer, Peggy Sekula, Fruzsina Kotsis, Kai-Uwe Eckardt, and Florian Kronenberg, for the GCKD Investigators

**Clinical Nephrology**

**819** **Evaluation of Conflicts of Interest among Participants of the Japanese Nephrology Clinical Practice Guideline**

Anju Murayama, Kohki Yamada, Makoto Yoshida, Yudai Kaneda, Hiroaki Saito, Toyoaki Sawano, Sunil Shrestha, Rajeev Shrestha, Tetsuya Tanimoto, and Akihiko Ozaki  
See related editorial on page 771.

**Cystic Kidney Disease**

**827** **Total Kidney Volume Measurements in ADPKD by 3D and Ellipsoid Ultrasound in Comparison with Magnetic Resonance Imaging**

Pedram Akbari, Fatemah Nasri, Shirley X. Deng, Saima Khowaja, Seung H. Lee, William Warnica, Hua Lu, Anand Rattansingh, Mostafa Atri, Korosh Khalili, and York Pei

**Diabetes and the Kidney**

**835** **Fracture Risk of Sodium-Glucose Cotransporter-2 Inhibitors in Chronic Kidney Disease**

Andrea Cowan, Nivethika Jeyakumar, Yuguang Kang, Stephanie N. Dixon, Amit X. Garg, Kyla Naylor, Matthew A. Weir, and Kristin K. Clemens  
See related editorial on page 774.

**Maintenance Dialysis**

**843** **Severity of COVID-19 after Vaccination among Hemodialysis Patients: An Observational Cohort Study**

Damien R. Ashby, Ben Caplin, Richard W. Corbett, Elham Asgari, Nicola Kumar, Alexander Sarnowski, Richard Hull, David Makuolu, Nicholas Cole, Jian Chen, Sofia Nyberg, Kieran McCafferty, Faryal Zaman, Hugh Cairns, Claire Sharpe, Kate Bramham, Reza Motallebzadeh, Kashif Jamil Anwari, Alan D. Salama, and Debasish Banerjee, on behalf of the Pan-London COVID-19 Renal Audit Group  
See related Patient Voice and editorial on pages 767 and 779, respectively.

**851** **Medicare Bundled Payment Policy on Anemia Care, Major Adverse Cardiovascular Events, and Mortality among Adults Undergoing Hemodialysis**

Haesuk Park, Raj Desai, Xinyue Liu, Steven M. Smith, Juan Hincapie-Castillo, Linda Henry, Amie Goodin, Saraswathi Gopal, Carl J. Pepine, and Raj Mohandas  
See related Patient Voice on page 769.

**861** **Variation in Peritoneal Dialysis Time on Therapy by Country: Results from the Peritoneal Dialysis Outcomes and Practice Patterns Study**

Mark Lambie, Junhui Zhao, Keith McCullough, Simon J. Davies, Hideki Kawanishi, David W. Johnson, James A. Sloand, Mauricio Sanabria, Talerngsak Kanjanabuch, Yong-Lim Kim, Jenny I. Shen, Ronald L. Pisoni, Bruce M. Robinson, Jeffrey Perl, and the PDOPPS Steering Committee  
See related editorial on page 782.

## Research Letter

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**872** **Humoral Response to Third Dose of SARS-CoV-2 Vaccines in the CKD Spectrum**

Borja Quiroga, María José Soler, Alberto Ortiz, Esther Orero, Sandra Tejedor, Carlos Jesús Jarava Mantecón, Virginia Olinda Gómez Pérez, Antonio José Marín Franco, Christian Alfaro Sánchez, Marta Puerta Carretero, María Teresa Jalco Rodríguez, Manuel Antonio Carnerero Di Riso, Shaira Martínez, Carmen Calderón González, Michal Cervienka, Nicolás Macías Carmona, David Arroyo, Katia M. Pérez del Valle, Gabriel de Arriba, Auxiliadora Mazuecos, Juan Manuel Cazorla, Mónica Pereira, Emilio González Parra, María Gabriela Sánchez Márquez, Carolina Lancho Novillo, Carmen Toyos Ruiz, María Cinta Aguilar Cervera, Patricia Muñoz Ramos, Ana Sánchez Horrillo, Isabel Jimeno Martín, Néstor Toapanta, Secundino Cigarrán Guldris, Montserrat Folgueiras López, Rosalía Valero San Cecilio, Blanca Villacorta Linaza, Ignacio Minguela Pesquera, Raquel Santana Estupiñán, Rocío Zamora, Sagrario Soriano, Eduardo Muñoz de Bustillo, María Soledad Pizarro Sánchez, Ana Isabel Martínez Puerto, Alejandra Yugueros, Laura Muñoz Pacios, Alba Leyva, José Rojas, Ron T. Gansevoort, and Patricia de Sequera, on behalf of SENCOVAC collaborative network

## Errata

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**877** **Correction: Curcumin Therapy to Treat Vascular Dysfunction in Children and Young Adults with ADPKD: A Randomized Controlled Trial**

**879** **Statement of Clarification: Chronic Kidney Disease from Polyvinylpyrrolidone Deposition in Persons with Intravenous Drug Use**

## Critical Care Nephrology and Acute Kidney Injury

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### 880 Sepsis Management for the Nephrologist

Sharad Patel, Nitin Puri, and R. Phillip Dellinger

### 890 Mechanical Circulatory Support: Primer for Consultant Specialists

Christopher W. Tam, Liang Shen, Amanda Dijanic Zeidman, Ankur Srivastava, and Natalia S. Ivascu

## Kidney Case Conference: Nephrology Quiz & Questionnaire

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### 902 Hypertension with Kidney Failure

Matthew B. Rivara and Nisha Bansal

## Perspectives

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### 905 The Role of Glucagon-Like Peptide 1 (GLP-1) Receptor Agonists in the Prevention and Treatment of Diabetic Kidney Disease: Insights from the AMPLITUDE-O Trial

Kalie L. Tommerdahl, Jessica Kendrick, and Petter Bjornstad

### 908 Endothelin Receptor Antagonists for Kidney Protection: Lessons from the SONAR Trial

Hiddo J.L. Heerspink and Dick de Zeeuw

## Feature

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### 911 Cannabinoids for Symptom Management in Patients with Kidney Failure: A Narrative Review

Hayley Worth, Daniel V. O'Hara, Neeru Agarwal, David Collister, Frank Brennan, and Brendan Smyth

## Review

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### 922 Electrolyte and Acid-Base Disorders Associated with Cancer Immunotherapy

Nupur N. Uppal, Biruh T. Workeneh, Helbert Rondon-Berrios, and Kenar D. Jhaveri

### On the Cover

#### What is the diagnosis?

A 14-year-old female presented for medical care with edema and gross hematuria for 7 days. Laboratory examinations showed AKI (creatinine, 4.6 mg/dl) with nephrotic range proteinuria (UACR, 4.3 mg/g) as well as sterile pyuria and glomerular hematuria. Moreover, her serum ANA (>1:3200) and double-stranded DNA were positive with hypocomplementemia (C3, 0.12 g/L; C4, 0.04 g/L) and pancytopenia (white blood cell, 2.78 G/L; Hb, 69 g/L; Plt, 32 G/L). A tentative diagnosis of lupus nephritis was made, and a kidney biopsy was performed.

#### Image Description:

An enlarged and lobular glomerulus with prominent mesangial and endothelial proliferative features was seen. Marked endocapillary hypercellularity was noted with numerous inflammatory cell infiltrates. More conspicuously, neutrophils were seen migrating to the urinary pole of Bowman's capsule and into the proximal tubule (outlined by a black line) forming a rudiment of a neutrophil cast (\*). (HE staining; magnification, left ×200, right ×400)

#### Teaching Points:

Sterile pyuria is not uncommon in active glomerulonephritis or interstitial nephritis, such as acute glomerulonephritis, membranous proliferative glomerulonephritis, lupus nephritis, Kawasaki's disease, and analgesic nephropathy—and it usually correlates with the activity or the severity of disease. This picture vividly illustrated the forming of noninfectious neutrophil cast in proliferative lupus nephritis, which was originated from the circulated inflammatory cells crossing over the impaired filtration barrier and subsequently surging to the urinary pole of Bowman's capsule under fluid pressure.

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(Image and text provided by Hua Su, Cheng Wan, and Chun Zhang, Department of Nephrology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China)