

# CJASN

Clinical Journal of the American Society of Nephrology

April 2015 • Vol. 10 • No. 4

## Editorials

---

**541 To Screen or Not to Screen: That Is Not (Yet) the Question**

*Delphine S. Tuot and Carmen A. Peralta*

*See related article on page 562.*

**544  Is Nutritional Vitamin D Supplementation Beneficial in Dialysis Patients?**

*Matthew J. Damasiewicz and Nigel D. Toussaint*

*See related article on page 611.*

**547 Reducing Arterial Stiffness in CKD: Revising the Paradigms**

*Julio A. Chirinos and Raymond R. Townsend*

*See related article on page 639.*

**551 Vascular Calcification in Predialysis CKD: Common and Deadly**

*Wei Chen and Michal L. Melamed*

*See related article on page 654.*

## Original Articles

---

### Acute Kidney Injury

**554 AKI in Hospitalized Children: Comparing the pRIFLE, AKIN, and KDIGO Definitions**

*Scott M. Sutherland, John J. Byrnes, Manish Kothari, Christopher A. Longhurst, Sanjeev Dutta, Pablo Garcia, and Stuart L. Goldstein*

### Chronic Kidney Disease

**562 Added Value of Screening for CKD among the Elderly or Persons with Low Socioeconomic Status**

*Priya Vart, Sjimen A. Reijneveld, Ute Bültmann, and Ronald T. Gansevoort*

*See related editorial on page 541.*

**571 Progression of Pediatric CKD of Nonglomerular Origin in the CKiD Cohort**

*Sahar A. Fathallah-Shaykh, Joseph T. Flynn, Christopher B. Pierce, Alison G. Abraham, Tom D. Blydt-Hansen, Susan F. Massengill, Marva M. Moxey-Mims, Bradley A. Warady, Susan L. Furth, and Craig S. Wong*

**578 Metabolically Healthy Obesity and Risk of Incident CKD**

*Yoshitaka Hashimoto, Muhei Tanaka, Hiroshi Okada, Takafumi Senmaru, Masahide Hamaguchi, Mai Asano, Masahiro Yamazaki, Yohei Oda, Goji Hasegawa, Hitoshi Toda, Naoto Nakamura, and Michiaki Fukui*

**584 Nonesterified Fatty Acids and Cardiovascular Mortality in Elderly Men with CKD**

*Zibo Xiong, Hong Xu, Xiaoyan Huang, Johan Ärnlöv, Abdul Rashid Qureshi, Tommy Cederholm, Per Sjögren, Bengt Lindholm, Ulf Risérus, and Juan Jesús Carrero*

### Clinical Nephrology

**592 Spectrum of Steroid-Resistant and Congenital Nephrotic Syndrome in Children: The PodoNet Registry Cohort**

*Agnes Trautmann, Monica Bodria, Fatih Ozaltin, Alaleh Gheisari, Anette Melk, Marta Azocar, Ali Anarat, Salim Caliskan, Francesco Emma, Jutta Gellermann, Jun Oh, Esra Baskin, Joanna Ksiazek, Giuseppe Remuzzi, Ozlem Erdogan, Sema Akman, Jiri Dusek, Tinatin Davitaia, Ozan Özkaya, Fotios Papachristou, Agnieszka Firszt-Adamczyk, Tomasz Urasinski, Sara Testa, Rafael T. Krmar, Lidia Hyla-Klekot, Andrea Pasini, Z. Birsin Özçakar, Peter Sallay, Nilgun Cakar, Monica Galanti, Joelle Terzic, Bilal Aoun, Alberto Caldas Afonso, Hanna Szymanik-Grzelak, Beata S. Lipska, Sven Schnaidt, and Franz Schaefer for the PodoNet Consortium*

**601 Estimating GFR in Adult Patients with Hematopoietic Cell Transplant: Comparison of Estimating Equations with an Iohexol Reference Standard**

*Sangeeta Hingorani, Emily Pao, Gary Schoch, Ted Gooley, and George J. Schwartz*

**ESRD and Chronic Dialysis**

**611  Nutritional Vitamin D Supplementation in Dialysis: A Randomized Trial**

*Ishir Bhan, Dorothy Dobens, Hector Tamez, Joseph J. Deferio, Yan Chun Li, H. Shaw Warren, Elizabeth Ankers, Julia Wenger, J. Kevin Tucker, Caitlin Trottier, Fridosh Pathan, Sahir Kalim, Sagar U. Nigwekar, and Ravi Thadhani*  
See related editorial on page 544.

**620 N-Terminal Pro-B-Type Natriuretic Peptide Variability in Stable Dialysis Patients**

*Magid A. Fahim, Andrew Hayen, Andrea R. Horvath, Goce Dimeski, Amanda Coburn, David W. Johnson, Carmel M. Hawley, Scott B. Campbell, and Jonathan C. Craig*

**Hypertension**

**630 Ambulatory Recording of Wave Reflections and Arterial Stiffness during Intra- and Interdialytic Periods in Patients Treated with Dialysis**

*Antonios Karpetas, Pantelis A. Sarafidis, Panagiotis I. Georgianos, Athanase Protogerou, Pantelis Vakianis, Georgios Koutroumpas, Vasileios Raptis, Dimitrios N. Stamatiadis, Christos Syrganis, Vassilios Liakopoulos, Georgios Efstratiadis, and Anastasios N. Lasaridis*

**639 Effect of Lisinopril and Atenolol on Aortic Stiffness in Patients on Hemodialysis**

*Panagiotis I. Georgianos and Rajiv Agarwal*  
See related editorial on page 547.

**Mineral Metabolism/Bone Disease**

**646 Comparison of Fracture Risk Prediction among Individuals with Reduced and Normal Kidney Function**

*Kyla L. Naylor, Amit X. Garg, Guangyong Zou, Lisa Langsetmo, William D. Leslie, Lisa-Ann Fraser, Jonathan D. Adachi, Suzanne Morin, David Goltzman, Brian Lentle, Stuart A. Jackson, Robert G. Josse, and Sophie A. Jamal*

**654 Vascular Calcification in Patients with Nondialysis CKD over 3 Years**

*José L. Górriz, Pablo Molina, M. Jesús Cerverón, Rocío Vila, Jordi Bover, Javier Nieto, Guillermina Barril, Alberto Martínez-Castelao, Elvira Fernández, Verónica Escudero, Celestino Piñera, Teresa Adragao, Juan F. Navarro-Gonzalez, Luis M. Molinero, Cristina Castro-Alonso, Luis M. Pallardó, and Sophie A. Jamal*  
See related editorial on page 551.

**Nephrolithiasis**

**667 Calcium and Phosphorus Regulatory Hormones and Risk of Incident Symptomatic Kidney Stones**

*Eric N. Taylor, Andrew N. Hoofnagle, and Gary C. Curhan*

---

**Renal Physiology**

**676 Integrated Control of Na Transport along the Nephron**

*Lawrence G. Palmer and Jürgen Schnermann*

---

**Role of the Medical Director**

**688 Maintaining Safety in the Dialysis Facility**

*Alan S. Kliger*

---

**Attending Rounds**

**696 A Patient with Acute Kidney Pain and High Blood Pressure**

*Debbie L. Cohen and Michael C. Soulen*

## In-Depth Review

---

### 703 Ocular Features in Alport Syndrome: Pathogenesis and Clinical Significance

*Judy Savige, Shivanand Sheth, Anita Leys, Anjali Nicholson, Heather G. Mack, and Deb Colville*

## Special Features


---

### 710 The National Institute of Diabetes and Digestive and Kidney Diseases Central Repositories: A Valuable Resource for Nephrology Research

*Rebekah S. Rasooly, Beena Akolkar, Lisa M. Spain, Michael H. Guill, Corey T. Del Vecchio, and Leslie E. Carroll*

### 716 American Society of Nephrology Quiz and Questionnaire 2014: Glomerular Diseases

*Andrew S. Bomback, Mark A. Perazella, and Michael J. Choi*

 eJournal club provides a timely and interactive electronic journal club experience by offering a forum in which CJASN readers have the opportunity to converse with the featured study authors. Visit [ejc.cjasn.org](http://ejc.cjasn.org) to learn more.

### On the Cover

*What's the diagnosis?* A 26-year-old man with lower extremity edema was referred to nephrology clinic for evaluation of 5.2 grams proteinuria. Past medical history was significant for multiple urinary tract infections as a child and hypertension diagnosed at age 19. Laboratory data were remarkable for a creatinine of 1.47 mg/dl, with an estimated GFR of 58 ml/min per 1.73 m<sup>2</sup>. Urinalysis demonstrated 3+ protein and 3+ blood. Urine sediment revealed 5-10 monomorphic red blood cells per high power field without cellular casts. Serum complement levels were normal and tests for dsDNA, ANA, ANCA, HIV, HBV and HCV were negative. Native kidney biopsy showed focal segmental glomerular sclerosis and numerous interstitial foam cells on light microscopy (upper panel, Masson trichrome stain). Routine immunofluorescence microscopy demonstrated no staining for immunoglobulin or complement. Electron microscopy revealed podocyte foot process effacement and diffuse thickening and splitting of the lamina densa of the glomerular basement membrane (lower panel), indicative of Alport syndrome. Diagnosis was confirmed with immunofluorescence microscopy that showed absence of alpha-5 chains of type IV collagen. Alport syndrome is a basement membrane disorder arising from mutations in genes encoding type IV collagen and is often associated with sensorineural hearing loss and ocular abnormalities. The initial renal presentation is usually asymptomatic hematuria starting in childhood which progresses to proteinuria, HTN and CKD. Rare patients present with nephrotic syndrome. Light microscopy typically shows varying degrees of focal segmental and global glomerular sclerosis that can mimic FSGS. The presence of numerous interstitial foam cells is observed most often with Alport syndrome; however, foam cells also occur in patients with other causes for nephrotic syndrome, although much less often and less numerous. Characteristic glomerular basement membrane ultrastructural features with absence of immunostaining for collagen IV alpha 5 chains allows a definitive diagnosis. (Image and text provided by Fernanda Payan Schober, MD, University of North Carolina Chapel Hill, Nephrology and J. Charles Jennette, MD, University of North Carolina Chapel Hill, Pathology and Laboratory Medicine)