

CJASN[®]

Clinical Journal of the American Society of Nephrology

September 2022 • Vol. 17 • No 9

Patient Voice

1267 Getting a Kidney: Where Is Patient Choice?

Michael "Jack" Lennon

See related article on page 1363.

Editorials

1269 Unraveling the Mysteries of CKD of Uncertain Etiology

Pablo Garcia and Shuchi Anand

See related article on page 1293.

1272 Transplant Nephrology

Michel Chonchol, Orlando M. Gutierrez, Mahboob Rahman, David M. Charytan, and Mitchell Rosner

See related article and Perspectives on pages 1372, 1403, and 1407, respectively.

1275 Mitigating Pain in People Undergoing Hemodialysis

Sara N. Davison

See related article on page 1337.

1278 Improving the Utilization of Deceased Donor Kidneys by Prioritizing Patient Preferences

Sumit Mohan and S. Ali Husain

See related article on page 1363.

1281 Advancing Kidney Health Equity: Influences of Gender-Affirming Hormone Therapy on Kidney Function

Dinushika Mohottige and Delphine S. Tuot

See related article on page 1305.

Original Articles

Chronic Kidney Disease

1284 Urine Uromodulin as a Biomarker of Kidney Tubulointerstitial Fibrosis

Hannah Melchinger, Frida Calderon-Gutierrez, Wassim Obeid, Leyuan Xu, Melissa M. Shaw, Randy L. Luciano, Michael Kuperman, Gilbert W. Moeckel, Michael Kashgarian, F. Perry Wilson, Chirag R. Parikh, and Dennis G. Moledina

1293 Potential Mechanisms Involved in Chronic Kidney Disease of Unclear Etiology

Michael W. Holliday Jr., Qingtian Li, Edlyn G. Bustamante, Jingbo Niu, Luping Huang, Ilse M. Espina, Jose R. Dominguez, Luan Truong, Kristy O. Murray, Lei Fan, Samaya J. Anumudu, Maulin Shah, Rebecca S.B. Fischer, Chandan Vangala, Sreedhar Mandayam, Jose Perez, Jenny S. Pan, Sehrish Ali, Ahmed A. Awan, and David Sheikh-Hamad

See related editorial on page 1269.

Clinical Nephrology

1305 The Effect of Gender-Affirming Hormone Therapy on Measures of Kidney Function: A Systematic Review and Meta-Analysis

Emily Krupka, Sarah Curtis, Thomas Ferguson, Reid Whitlock, Nicole Askin, Adam C. Millar, Marshall Dahl, Raymond Fung, Sofia B. Ahmed, Navdeep Tangri, Michael Walsh, and David Collister

See related editorial on page 1281.

Glomerular and Tubulointerstitial Diseases

1316 Automated Prediction of Kidney Failure in IgA Nephropathy with Deep Learning from Biopsy Images

Francesca Testa, Francesco Fontana, Federico Pollastri, Johanna Chester, Marco Leonelli, Francesco Giaroni, Fabio Gualtieri, Federico Bolelli, Elena Mancini, Maurizio Nordio, Paolo Sacco, Giulia Ligabue, Silvia Giovanella, Maria Ferri, Gaetano Alfano, Loreto Gesualdo, Simonetta Cimino, Gabriele Donati, Costantino Grana, and Riccardo Magistri

Maintenance Dialysis

1325 Three Times Weekly Dosing of Daprodustat versus Conventional Epoetin for Treatment of Anemia in Hemodialysis Patients: ASCEND-TD: A Phase 3 Randomized, Double-Blind, Noninferiority Trial

Daniel W. Coyne, Ajay K. Singh, Renato D. Lopes, Christine K. Bailey, Tara L. DiMino, Chun Huang, Jeffrey Connaire, Anjay Rastogi, Sung-Gyun Kim, Marcelo Orias, Sapna Shah, Vickas Patel, Alexander R. Cobitz, and Christoph Wanner

1337 Effect of Music in Reducing Pain during Hemodialysis Access Cannulation: A Crossover Randomized Controlled Trial

Emi Inayama, Yosuke Yamada, Masatsugu Kishida, Mineaki Kitamura, Tomoya Nishino, Keiko Ota, Kanae Takahashi, Ayumi Shintani, and Tatsuyoshi Ikenoue
See related editorial on page 1275.

1346 Incidence and Risk Factors for Dialysis Reinitiation among Patients with a History of Dialysis Dependency

Elaine Ku, Raymond K. Hsu, Charles E. McCulloch, Lowell Lo, Timothy Copeland, Salpi Siyahian, Barbara Grimes, and Kirsten L. Johansen

Transplantation

1353 Implications of Accumulated Cold Time for US Kidney Transplantation Offer Acceptance

Masoud Barah, Vikram Kilambi, John J. Friedewald, and Sanjay Mehrotra

1363 Patient Preferences for Waiting Time and Kidney Quality

Sanjay Mehrotra, Juan Marcos Gonzalez, Karolina Schantz, Jui-Chen Yang, John J. Friedewald, and Richard Knight
See related Patient Voice and editorial on pages 1267 and 1278, respectively.

1372 Survey of Salary and Job Satisfaction of Transplant Nephrologists in the United States

Neeraj Singh, Mona D. Doshi, Jesse D. Schold, Luke Preczewski, Christina Klein, Enver Akalin, Nicolae Leca, Kimberly Nicoll, Todd Pesavento, Darshana M. Dadhania, John Friedewald, Milagros Samaniego-Picota, Roy D. Bloom, and Alexander C. Wiseman
See related editorial and Perspectives on pages 1272, 1403, and 1407, respectively.

Research Letter

1382 Central Venous Catheter Malfunction in Children: A Bioengineering Approach

Claudia Bruno, Rayan Moumneh, Emilie Sauvage, Lynsey Stronach, Kathryn Waters, Ian Simcock, Owen Arthurs, Silvia Schievano, Claudio Capelli, and Rukshana Shroff

Critical Care Nephrology and Acute Kidney Injury

1385 Acute Kidney Injury in Critically Ill Patients with Cancer

Shruti Gupta, Prakash Gudsoorkar, and Kenar D. Jhaveri

Kidney Case Conference: How I Treat

1399 Choosing the Right Treatment in Patients with Lupus Nephritis

Juan Manuel Mejia Vilet, Zhi-Hong Liu, and Tak Mao Chan

Perspectives

1403 The Importance of Transplant Nephrology to a Successful Kidney Transplant Program

Sharon M. Moe, Daniel C. Brennan, Mona D. Doshi, Robert S. Gaston, Susan B. Gurley, Muhammad A. Mujtaba, Rebecca J. Schmidt, Mark S. Segal, J. Kevin Tucker, Alexander C. Wiseman, and Michelle A. Josephson
See related articles on pages 1272, 1372, and 1407, respectively.

1407 Existing Transplant Nephrology Compensation Models and Opportunities for Equitable Pay

Michelle A. Josephson, Alexander C. Wiseman, J. Kevin Tucker, Mark S. Segal, Rebecca J. Schmidt, Muhammad A. Mujtaba, Susan B. Gurley, Robert S. Gaston, Mona D. Doshi, Daniel C. Brennan, and Sharon M. Moe
See related articles on pages 1272, 1372, and 1403, respectively.

1410 Music for Health: From Ear to Kidney

Niloofar Nobakht, Mohammad Kamgar, Robert M. Bilder, and Ehsan Nobakht

Reviews

1413 Chronic Kidney Disease and Severe Mental Illness: Addressing Disparities in Access to Health Care and Health Outcomes

Clodagh Cogley, Claire Carswell, Kate Bramham, and Joseph Chilcot

1418 Extracellular Vesicles as Theranostic Tools in Kidney Disease

WeiJun Huang, Xiang-Yang Zhu, Amir Lerman, and Lilach O. Lerman

On the Cover

What is the diagnosis?

A 50-year-old male presented with loss of appetite, dyspnea, and AKI following coronavirus 2019 (COVID-19) infection 3 months ago. The AKI required hemodialysis support. Other medications at the time of presentation included erythromycin 500 mg/day, an oral corticosteroid, and telmisartan 20 mg daily for hypertension. Fundus examination was unremarkable. Routine urine analysis showed 1+ protein and no cellular elements. Urine protein-creatinine ratio and serum creatinine were 0.6 g/g and 7.8 mg/dL, respectively. Earlier records documented normal kidney function 1 year ago. Of note, it was discovered that the patient was taking a vitamin C supplement 1 g/day that was initiated during COVID-19 illness and continued for 3 months. Biopsy was performed in view of nonrecovery of kidney function at 3 months.

Image Description:

Kidney biopsy revealed diffuse acute tubular injury with attenuated epithelium lining. Most of the tubules showed fan-shaped transparent crystals arranged radially within tubular lumens distorting luminal contours. Crystals are birefringent under polarizer. Mild degree of interstitial fibrosis is noted. Glomerular and vascular compartments showed nonspecific findings. Immunofluorescence was negative with entire panel (IgG/A/M, C3/C1q, Kappa/Lambda) of antisera.

Teaching Points:

AKI in patients infected with COVID-19 may be associated with multifactorial etiologies such as sepsis, hypoperfusion, cytokine storm, possible direct cytopathic effect of the virus, thrombotic microangiopathy, pigment nephropathy, and therapeutic complications. Kidney complications may also be secondary to antibiotics and vitamin C supplements. The unproven rationale for supplementing vitamin C in COVID-19 is to prevent sepsis-induced cytokine production and reduce proinflammatory biomarkers and disease-related mortality. However, endogenous conversion of ascorbic acid to oxalate causes hyperoxaluria. Fontana *et al.* have reported two cases of intravenous vitamin C supplementation-induced oxalate nephropathy with dosage of 50 mg/kg four times per day in patients with COVID-19 infection (1). We believe that continued overdosage of vitamin C led to formation of oxalate crystals. Less than half of patients with oxalate nephropathy require KRT and remain dialysis dependent. Our patient remained dialysis dependent at the end of 4 weeks despite withdrawal of vitamin C following biopsy findings. We attribute nonrecovery to the interstitial fibrosis noted on the histology and hence progressing to CKD. Clinicians should keep occurrence of oxalate nephropathy with vitamin C supplementation among the differentials of AKI in COVID-19 patients.

Reference:

1. Fontana F, Cazzato S, Giovanella S, Ballestri M, Leonelli M, Mori G, Alfano G, Ligabue G, Magistrone R, Cenacchi G, Antoniotti R, Bonucchi D, Cappelli G: Oxalate nephropathy caused by excessive vitamin C administration in 2 patients with COVID-19. *Kidney Int Rep* 5: 1815–1822, 2020.

(Image and text provided by Mahesha Vankalakunti, Manipal Hospital, Bengaluru, India; Kiran K. Gowda, Manipal Hospital, Bengaluru, India; and Madhusudan H. Channegowda, Mangala Hospital, Hassan, India)