Patient Voice

299 The Impact of Household Income on Kidney Care: Poverty Impacts Self-Care and Stress
Stephen Weed
See related editorial and article on pages 306 and 367, respectively.

Editorials

301 Air Pollution and Kidney Disease
Ziyad Al-Aly and Benjamin Bowe
See related article on page 311.

304 When Increase in Serum Creatinine Doesn’t Imply Kidney Damage
Linda Fried
See related article on page 349.

306 Social Determinants of Glomerular Disease
Michelle M. O’Shaughnessy
See related Patient Voice and article on pages 299 and 367, respectively.

308 Secular Trends in Survival Outcomes of Kidney Transplantation for Children: Is the Future Bright Enough?
Sandra Amaral
See related article on page 392.

Original Articles

Chronic Kidney Disease

311 Particulate Matter and Albuminuria, Glomerular Filtration Rate, and Incident CKD
Matthew F. Blum, Aditya Surapaneni, James D. Stewart, Duanping Liao, Jeff D. Yanosky, Eric A. Whitsel, Melinda C. Power, and Morgan E. Grams
See related editorial on page 301.

320 Sex and Glomerular Filtration Rate Trajectories in Children
Stéphanie Bonnéric, Geeta Karadkhele, Cécile Couchoud, Rachel E. Patzer, Larry A. Greenbaum, and Julien Hogan

330 A Coaching Program to Improve Dietary Intake of Patients with CKD: ENTICE-CKD

341 Life Course Socioeconomic Status, Allostatic Load, and Kidney Health in Black Americans
Joseph Lunyera, John W. Stanifer, Clemontina A. Davenport, Dinushika Mohottige, Nrupen A. Bhavsar, Julia J. Scialla, Jane Pendergast, L. Ebony Boulware, and Clarissa Jonas Diamantidis

349 Urine Markers of Kidney Tubule Cell Injury and Kidney Function Decline in SPRINT Trial Participants with CKD
See related editorial on page 304.
Diabetes and the Kidney

Carbamylated Lipoproteins and Progression of Diabetic Kidney Disease

Glomerular and Tubulointerstitial Diseases

Socioeconomic Position and Incidence of Glomerular Diseases
Mark Canney, Dilshani Induruwage, Anahat Sahota, Cathal McCrory, Michelle A. Hladunewich, Jagbir Gill, and Sean J. Barbour
See related Patient Voice and editorial on pages 299 and 306, respectively.

Hypertension

Klotho Gene in Human Salt-Sensitive Hypertension
Lorena Citterio, Simona Delli Carpini, Sara Lupoli, Elena Brioni, Marco Simonini, Simone Fontana, Laura Zagato, Elisabetta Messaggio, Cristina Barlassina, Daniele Cusi, Paolo Manunta, and Chiara Lanzani

Mineral Metabolism

Conversion from Intravenous Vitamin D Analogs to Oral Calcitriol in Patients Receiving Maintenance Hemodialysis
Ravi I. Thadhani, Sophia Rosen, Norma J. Olsilun, Len A. Usvyat, Lorien S. Dalrymple, Franklin W. Maddux, and Jeffrey L. Hymes

Transplantation

Survival after Kidney Transplantation during Childhood and Adolescence
Anna Francis, David W. Johnson, Anette Melk, Bethany J. Foster, Katrina Blazek, Jonathan C. Craig, and Germaine Wong
See related editorial on page 308.

Research Letter

Association of APOL1 Risk Genotype and Air Pollution for Kidney Disease
Ishan Paranjpe, Kumardeep Chaudhary, Manish Paranjpe, Ross O’Hagan, Sayan Manna, Suraj Jaladanki, Arjun Kapoor, Carol Horowitz, Nicholas DeFelice, Richard Cooper, Benjamin Glicksberg, Erwin P. Bottinger, Allan C. Just, and Girish N. Nadkarni

Genomics of Kidney Disease

Proteomics and Metabolomics in Kidney Disease, including Insights into Etiology, Treatment, and Prevention
Ruth F. Dubin and Eugene P. Rhee

Kidney Case Conference: How I Treat

Electrolyte Disorders in Kidney Transplantation
Clifford D. Miles and Scott Gregory Westphal

Perspectives

Management of Membranous Nephropathy after MENTOR
Claire Trivin-Avillach and Laurence H. Beck Jr.

Personalizing Donor Kidney Selection: Choosing the Right Donor for the Right Recipient
David P. Foley and Deirdre Sawinski

How the Kidney Health Initiative Catalyzes Innovation in a Dynamic Environment
Raymond C. Harris and Zachary Cahill
Case Description:
An 84-year-old man with a history of stage 3 CKD and recent diagnosis of Waldenström’s macroglobulinemia presented with confusion, acute kidney failure, and purpuric papules on the lower extremities, 3 weeks after starting treatment with rituximab. Laboratory evaluation revealed elevated cryoglobulin levels (33%), normal serum viscosity (1.4 centipoise), monoclonal serum IgM κ at 374 mg/dl, negative rheumatoid factor, low serum C3 and C4 (45 and 9 mg/dl, respectively), high serum free κ light chains (212.7 mg/dl) and a κ/λ ratio of 3.78. Cryoglobulin immunofixation showed a monoclonal IgM κ (type I) cryoglobulin. Urinalysis showed proteinuria (100 mg/dl), hematuria (10–19 RBCs/HPF), and fine granular casts. A skin biopsy was indicated for assessment of lower extremity rash, and a kidney biopsy was performed due to acute kidney failure.

Image Description:
Left image: Purpuric papules and plaques with focal erosion and crusting are noted on the bilateral lower extremities.
Center image: Skin biopsy with numerous intracapillary hyaline thrombi, consistent with cryoglobulin (H&E stain, 200×).
Right image: Kidney biopsy showing most of the glomerular capillaries were occluded by hyaline thrombi positive for IgM κ on immunofluorescence that had no definitive substructure on electron microscopy (not shown) (H&E stain, 400×).

Teaching Points:
The findings were consistent with type I cryoglobulinemia. Approximately 10% of patients with Waldenström’s macroglobulinemia develop type I cryoglobulinemia, which may be precipitated by rituximab treatment due to a sudden rise in IgM levels. In our patient, this has led to renal and cutaneous hyaline thrombi formation, despite normal serum viscosity. In vitro studies have shown that rituximab as well as intravenous immunoglobulin can stimulate IL-6 production by monocytes, and IL-6 stimulates IgM secretion by lymphoplasmacytic lymphoma cells (the neoplastic population that secretes IgM in Waldenström’s macroglobulinemia). This is usually a transient phenomenon with later recovery of kidney function and should not be construed as an indication of treatment failure. This patient received intravenous cyclophosphamide, plasmapheresis, and hemodialysis. His mental status and kidney function improved, and dialysis was discontinued 4 weeks after presentation. He is currently on ibrutinib, and at most recent follow-up, serum creatinine was 1.23 mg/dl, IgM decreased to 339 mg/dl, cryoglobulin level was 3%, and urine protein was 30 mg/dl.

(Images and text were provided by Clarissa A. Cassol, MD, and Catherine Chung, MD, Department of Pathology, Ohio State University, Columbus, Ohio; and Amy G. Johnson, MD, and Sethu Madhavan, Department of Internal Medicine, Ohio State University, Columbus, Ohio)