

# CJASN<sup>®</sup>

Clinical Journal of the American Society of Nephrology

September 2021 • Vol. 16 • No. 9

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### 1435 Understanding and Overcoming the Challenges Related to Cardiovascular Trials Involving Patients with Kidney Disease

*Julie H. Ishida, Cynthia Chauhan, Barbara Gillespie, Ken Gruchalla, Peter A. McCullough, Susan Quella, Alain Romero, Patrick Rossignol, David C. Wheeler, Meaghan A. Malley, Melissa West, and Charles A. Herzog*

## Review

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### 1445 Fatigue in CKD: Epidemiology, Pathophysiology, and Treatment

*L. Parker Gregg, Maurizio Bossola, Mauricio Ostrosky-Frid, and S. Susan Hedayati*

### On the Cover

#### *What is the Diagnosis?*

A 67-year-old man presented after a seizure. He had stable chronic kidney disease (CKD) stage 5 with a serum creatinine in the range of 4 mg/dl until 2021, when it rose to 4.9 mg/dl in January 2021 and 7.5 mg/dl (with blood urea nitrogen [BUN] 200 mg/dl) in March 2021. He declined dialysis at that time.

His family reported that he became progressively more tremulous, less verbally responsive, and lost weight over the subsequent 2 months. He suffered a seizure and was brought to our institution with BUN 172 mg/dl and serum creatinine 7.8 mg/dl. Computed tomography scan demonstrated small kidneys with irregular cortex and no hydronephrosis (left image). He had asterixis, persistent hiccups, and disorientation. These symptoms were felt to be manifestations of the uremic syndrome. His skin had findings consistent with uremic frost (middle and right images).

#### **Image Description:**

Physical examination revealed a white powdery substance with a frosted appearance, predominantly on the scalp and tragus. Scrapings were taken of the powder, and these were dissolved in saline, which demonstrated high levels of urea.

#### **Teaching Points:**

Uremic frost is a cutaneous manifestation of advanced CKD that is rare in the modern era due to earlier initiation of dialysis. It is seen exclusively in patients with chronic, extreme elevation in BUN. Uremic frost forms due to high urea content of sweat in uremic patients, which leaves white, frost-like urea crystals on the skin upon evaporation (1). The patient was initiated on kidney replacement therapy. By day 8 of hospitalization, the uremic frost had resolved, and the patient was lucid with no tremors and good oral intake.

#### **Reference**

1. Pol-Rodriguez MM, Wanner M, Bhat P, Grossman ME: Uremic frost in a critically ill patient. *Kidney Int* 73:790, 2008  
(Text and images provided by Raphael Rosen and Andrew Stephen Bomback, Columbia University Irving Medical Center, Department of Medicine, Division of Nephrology, New York, New York.)