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Urinary Sediment Microscopy in Acute Kidney Injury Associated with COVID-19

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On the Cover

Description of frequency and characteristics of urinary sediment findings. Panel A: Microscopic examination of the urinary sediment (Sedi) was performed in a subset of patients with CoV-AKI (12%, 20/161). Findings consistent with acute tubular injury (ATI) (as per Perazella and Chawla scores) were found in the majority (85%, 17/20). Frequency of coarse granular casts (GC) identified either alone, or along with waxy casts (WxC) or renal tubular epithelial cell casts (RTECC) is shown. Panel B: Distribution of cases with ATI cast score (as per Perazella and Chawla scores), significant hematuria, significant leukocyturia, or combination of those elements. Panel C: Representative images of photomicrographs of slides of urinary sediment specimens examined by microscopy. Top left: abundant muddy brown granular casts under bright field at low power magnification (10X eyepiece, 10X objective); top center: specimen treated with Sternheimer-Malbin stain showing numerous (straight and convoluted) waxy casts surrounded by small fragmented coarse granular casts under bright field at low power magnification (10X eyepiece, 40X objective); bottom left: renal tubular epithelial cell casts under bright field at high power magnification (10X eyepiece, 40X objective); bottom center: abundant coarse granular casts under dark field at low power magnification (10X eyepiece, 10X objective, zoomed by digital camera additional 10X); bottom right: specimen treated with Sternheimer-Malbin stain showing a muddy brown granular cast under dark field at high power magnification (10X eyepiece, 40X objective). Adapted from Figure 1 of “Urinary Sediment Microscopy in Acute Kidney Injury Associated with COVID-19” by Cesar F. Hernandez-Arroyo, Vipin Varghese, Muner M.B. Mohamed, and Juan Carlos Q. Velez. KIDNEY360 1: 819–823, 2020. doi:10.34067/KID.0003352020.