

REVERSIBLE CAUSE OF ACUTE KIDNEY INJURY IN A PATIENT WITH RAPIDLY PROGRESSIVE GLOMERULONEPHRITIS

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Rapidly progressive glomerulonephritis (RPGN) is characterized by progressive deterioration in kidney function, along with the nephritic syndrome. Immunosuppressive therapy must be initiated for RPGN to ensure recovery. Deterioration of kidney function in spite of such therapy can represent a diagnostic and therapeutic dilemma.

A 47-year-old male presented with joint pains, weakness, tea colored urine for few days, and a swollen right foot. He had blood urea nitrogen (BUN) of 22 mg/dl, serum creatinine (Cr) of 2.2 mg/dl, and albumin of 2.4 g/dl. Urine analysis (UA) showed large blood, 2+ proteins, and numerous dysmorphic red cells. C-reactive protein (CRP) was 194.6 mg/l. Complement(C) 3 and C4 were normal and perinuclear antineutrophil cytoplasmic antibody (P-ANCA) titer was 1:640. All other rheumatologic titers were negative. Steroid therapy was initiated; kidney biopsy showed necrotizing crescentic glomerulonephritis (GN) of pauci immune type. He was discharged on cyclophosphamide and prednisone. A week later on follow up, the patient had a Cr of 5.2 mg/dl, a BUN of 110 mg/dl, CRP level was <5 mg/l and UA showed glomerular hematuria. Steroids and cyclophosphamide doses were escalated. A repeat biopsy showed improving pauci immune crescentic GN and severe acute tubular necrosis (ATN) with numerous intra-tubular red blood cells. A diagnosis of ATN caused by severe hematuria superimposed on the original pauci-immune crescentic GN was made. He was discharged on prednisone & cyclophosphamide. His Cr stabilized at 1.7 mg/dl after 6 months.

Severe hematuria accompanying pauci immune crescentic GN can cause acute renal failure due to ATN. The mechanism of action is due to intratubular obstruction and a direct toxic effect on the tubular epithelial cells by the erythrocytes. Diagnosing this condition is important, since treatment for ATN is supportive, and escalation of the immunosuppression for the worsened kidney function in such a case is unnecessary. The long term outcomes of ATN from hematuria in patients with RPGN are unknown.