

Nonpharmacologic Causes of Acute Kidney Injury

Cause	Examples
Prerenal	
Volume depletion	Renal losses; GI fluid losses; hemorrhage; burns
Decreased cardiac output	Heart failure; massive pulmonary embolus; acute coronary syndrome
Systemic vasodilation	Sepsis; cirrhosis; anaphylaxis; anesthesia
Intrinsic	
Acute tubular necrosis	Ischemic: prolonged prerenal AKI from hypovolemia, sepsis, or other causes of hypoperfusion Pigment: rhabdomyolysis; intravascular hemolysis
Acute interstitial nephritis	Etiologies of acute interstitial nephritis are similar to those for chronic tubulointerstitial nephritis. Acute interstitial nephritis may lead to chronic tubulointerstitial nephritis with protracted exposure (see Table 20)
Acute glomerulonephritis	Infection-related glomerulonephritis; cryoglobulinemia; IgA; lupus nephritis; renal vasculitis, including ANCA-associated; anti-GBM antibody disease
Acute vascular syndromes	Macrovascular: renal artery occlusion; renal vein thrombosis; polyarteritis nodosa Microvascular: Disease-associated TMA: HUS; atypical HUS; TTP; HELLP; scleroderma renal crisis; hypertensive emergency Atheroembolic disease
Intratubular obstruction	Paraprotein; myeloma; TLS
Postrenal	
Upper tract obstruction	Nephrolithiasis; blood clots; external compression
Lower tract obstruction	BPH; neurogenic bladder; blood clots; cancer; urethral stricture

AKI = acute kidney injury; ANCA = antineutrophil cytoplasmic antibody; BPH = benign prostatic hyperplasia; GBM = glomerular basement membrane; GI = gastrointestinal; HELLP = hemolysis, elevated liver enzymes, and low platelets; HUS = hemolytic uremic syndrome; TLS = tumor lysis syndrome; TMA = thrombotic microangiopathy; TTP = thrombotic thrombocytopenic purpura.