

can be present despite a superimposed prerenal state. The FeNa may also be $>1\%$ despite hypovolemia due to treatment with diuretics. Low FeNa is often seen early in glomerulonephritis and other disorders and, hence, should not be taken as *prima facie* evidence of prerenal azotemia. Low FeNa is therefore suggestive of, but not synonymous with, effective intravascular volume depletion, and should not be used as the sole guide for volume management. The response of urine output to crystalloid or colloid fluid administration may be both diagnostic and therapeutic in prerenal azotemia. In ischemic AKI, the FeNa is frequently $>1\%$ because of tubular injury and resultant impaired ability to reabsorb sodium. Several causes of ischemia-associated and nephrotoxin-associated AKI can present with FeNa $<1\%$, however, including sepsis (often early in the course), rhabdomyolysis, and contrast nephropathy.

The ability of the kidney to produce a concentrated urine is dependent upon many factors and relies on good tubular function in multiple regions of the kidney. In the patient not taking diuretics and with good baseline kidney function, urine osmolality may be >500 mOsm/kg in prerenal azotemia, consistent with an intact medullary concentration gradient and elevated serum vasopressin levels causing water reabsorption by passive diffusion from the collecting duct into a concentrated medullary interstitium, resulting in concentrated urine. In elderly patients and those with CKD, however, baseline concentrating defects may exist, making urinary osmolality unreliable in many instances. Loss of concentrating ability is common in most forms of AKI that affect the tubules and interstitium, resulting in urine osmolality <350 mOsm/kg, but this finding is not specific.

■ RADIOLOGIC EVALUATION

Postrenal AKI should always be considered in the differential diagnosis of AKI because treatment is usually successful if instituted early. Simple bladder catheterization can rule out urethral obstruction. Imaging of the urinary tract with renal ultrasound or CT scan should be undertaken to investigate obstruction in individuals with AKI unless an alternate diagnosis is apparent. Findings of obstruction include dilation of the collecting system and