

CLINICAL UTILITY OF RENAL ULTRASOUND IN ACUTE
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Acute kidney injury(AKI) occurs in hospitalized patients especially the critically ill with an incidence of 16% to 23%. A small incremental rise in serum creatinine has been shown to portend a higher mortality. A renal ultrasound(RUS) is commonly obtained in AKI to exclude obstruction. Conversely, the cause of AKI in the hospitalized patient most commonly occurs from acute tubular necrosis, acute interstitial nephropathy or contrast-induced nephropathy. Therefore, in a patient with previously stable renal function, the likelihood of an acute obstruction leading to AKI is low.

We have conducted a systematic review of RUS studies performed during the period of 2003-2005 at a tertiary referral center. Data collected included age, sex, cause of AKI, history of chronic kidney disease, history of abdominal malignancy, benign prostatic hypertrophy or GU malformation.

A total of 4443 inpatient RUS were performed over the three year period, of which 2854 studies were selected after exclusion of patients if they were transplant recipients, institutionalized, pregnant or pediatric. Forty-seven cases of the 2854 (1.6%) were identified to have an obstructive etiology of AKI. A higher predictive risk of obstructive uropathy was found in men over 65, history of BPH or history of prior nephrolithiasis. No difference was seen in patients with prior cancers in this population. 28% of patients had a previous RUS performed and 17% had >2 prior RUS ordered. 65% of RUS were done with Doppler measurements of arterial blood flow.

The use of RUS as a standard diagnostic test in all cases of AKI does not change the clinical impression or therapeutic treatment plan in most of the patients in a general medical population. Additionally, most RUS were ordered with Doppler readings of the renal arteries. While the utility of Doppler studies is important in the diagnosis of renal artery stenosis, it provides little diagnostic information in the setting of AKI and increases cost per ultrasound examination. We propose the selective use of RUS in the evaluation of AKI to be limited to cases of high pre-test probability or when clinically indicated in an attempt to reduce unnecessary testing and clinical costs.