ABSTRACT

Title

Pre operative imaging prior to ureterorenoscopy (URS) and percutaneous nephrolithotomy (PCNL): Can plain X-ray KUB, renal ultrasonography (RUS) and retrograde pyelography (RGP) be an equivalent alternative for intravenous urography (IVU)?

Keywords: Intravenous Urogram (IVU), Renal ultrasonography(RUS), X ray Kidney ureter bladder(X-ray KUB), Retrograde pyelogram(RGP), Percutaneous nephrolithotomy(PCNL), Non contrast computed tomography(NCCT)

Aims and Objectives

With the availability of good resolution ultrasonography and retrograde pyelography (RGP), we sought to assess whether the treatment plan for percutaneous nephrolithotomy (PCNL) or Ureterorenoscopy (URS) will be altered without IVU or CECT

Material and methods

In this IRB approved, prospective observational study all eligible patients scheduled for URS or PCNL underwent RUS in addition to IVU prior to surgery. Post-operatively, two consultant urologists blinded to the treatment reviewed the RUS, X-ray KUB and RGP. After making the treatment plan, IVU and treatment offered were studied. Any change in plan attributable to IVU was documented. The agreement between index test and
reference test was given using Kappa statistics for categorical outcomes. The degree of assessment between the primary investigator and the consultants and also agreement with regards to renal function was calculated using Kappa statistics.

**Results**

Out of total sample size of 144, 95(65%) patients underwent PCNL and 50(35%) patients underwent URS. Out of the 144 patients, according to the principal investigators evaluation there was normal and abnormal ultrasound in 89(61%) and 55(39%) patients respectively. There was agreement between both consultants and the principal investigators evaluation with respect to involved renal unit involved (p=0.0). In 89 patients with normal RUS, there was change of plan only in 8(4%) patients who underwent change in the treatment suggested on the basis of X ray KUB RUS, RGP alone(table 8). In the remaining, 81(91%) patients the plan of treatment remained unchanged and the above 3 imaging tests were enough to suggest appropriate management.

**Conclusion**

URS and PCNL may be safe in radiopaque stones with normal renal architecture on RUS. Functional study may be beneficial in altered renal architecture. RGP and X-ray KUB provides a good pelvicalyceal anatomy to decide puncture for PCNL. Degree of parenchymal abnormality correlates well with drainage on IVU.