ULTRASOUND VERSUS CT-SCAN GUIDED KIDNEY BIOPSY

Amit Joshi, Suresh Pasya, Gaurav Jain, Peter Hart.
Section of Nephrology, John H. Stroger Hospital of Cook County, Chicago, Illinois, 60612, USA

Ultrasound (US) guided kidney biopsy has been standard procedure to evaluate medical renal disease. Over the period of time, use of computed tomography (CT) to localize kidney has become increasingly popular. Although it helps with precise biopsy needle location, data regarding the safety and success of this method are not very extensive.

We retrospectively examined the efficacy and complication rate in 210 successive patients who underwent percutaneous native kidney biopsy at our institute. In the US-group (n=108), biopsy was performed using manual 14- gauze needle or 18-gauze needle with automated biopsy gun. All patients (n=102) in the CT-group had biopsy using automated gun with 18-gauze needle. We considered ≥5 glomeruli adequate sample size as pathologic diagnosis could be obtained in almost all the cases in our series. Major complications included bleeding requiring PRBC transfusion, AV fistula, septicemia attributed to procedure, biopsy of non-renal tissues, hematomas requiring intervention or death. Macroscopic hematuria, and subcapsular or peri-nephric hematoma without need for intervention or PRBC transfusion were categorized under minor complications.

Mean number of glomeruli obtained was similar with either method (CT= 22 vs. US=21.7). Five or more glomeruli could be obtained in 99% (101 out of 102) of the cases in the CT-group and 86% (93 out of 108) of the cases in the US-group. Total numbers of major complications were also similar in both groups (CT=9 vs. US=10). More numbers of minor complications were noted in the CT-method (10 vs. 2). In the CT-group, hematoma was detected right away at the time of kidney biopsy. Patients in the US-group were screened only if they had excessive pain or a significant drop in the hematocrit.

Overall, CT-guided kidney biopsy technique is not inferior to the US-guided method. Although CT-guided method uses smaller needle size, it allows more precise needle placement and thus adequate tissue yield. Higher incidence of minor complications in the CT-group was partly because patients in the US-group were not specifically examined for hematoma at the time of biopsy.