

## Retrospective Analysis Demonstrates No Difference in Percutaneous Native Renal Biopsy Adequacy Between Nephrologists and Radiologists in University Hospital Crosshouse

**Authors :** Nicole Harley, Mahmoud Eid, Abdurahman Tarmal, Vishal Dey

**Abstract :** Histological sampling plays an integral role in the diagnostic process of renal diseases. Percutaneous native renal biopsy is typically performed under ultrasound guidance, with this service usually being provided by nephrologists. In some centers, there is a role for radiologists in performing renal biopsies. Previous comparative studies have demonstrated non-inferiority between outcomes of percutaneous native renal biopsies performed by nephrologists compared with radiologists. We sought to compare biopsy adequacy between nephrologists and radiologists in University Hospital Crosshouse. The online system SERPR (Scottish Electronic Renal Patient Record) contains information pertaining to patients who have undergone renal biopsies. An online search was performed to acquire a list of all patients who underwent renal biopsy between 2013 and 2020 in University Hospital Crosshouse. 355 native renal biopsies were performed in total across this 7-year period. A retrospective analysis was performed on these cases, with records and reports being assessed for: the total number of glomeruli obtained per biopsy, whether the number of glomeruli obtained was adequate for diagnosis, as per an internationally agreed standard, and whether a histological diagnosis was achieved. Nephrologists performed 43.9% of native renal biopsies (n=156) and radiologists performed 56.1% (n=199). The mean number of glomeruli obtained by nephrologists was 17.16+/-10.31. The mean number of glomeruli obtained by radiologists was 18.38+/-10.55. T-test demonstrated no statistically significant difference between specialties comparatively (p-value 0.277). Native renal biopsies are required to obtain at least 8 glomeruli to be diagnostic as per internationally agreed criteria. Nephrologists met these criteria in 88.5% of native renal biopsies (n=138) and radiologists met this criteria in 89.5% (n=178). T-test and Chi-squared analysis demonstrate there was no statistically significant difference between the specialties comparatively (p-value 0.663 and 0.922, respectively). Biopsies performed by nephrologists yielded tissue that was diagnostic in 91.0% (n=142) of sampling. Biopsies performed by radiologists yielded tissue that was diagnostic in 92.4% (n=184) of sampling. T-test and Chi-squared analysis demonstrate there was no statistically significant difference between the specialties comparatively (p-value 0.625 and 0.889, respectively). This project demonstrates that at University Hospital Crosshouse, there is no statistical difference between radiologists and nephrologists in terms of glomeruli acquisition or samples achieving a histological diagnosis. Given the non-inferiority between specialties demonstrated by previous studies and this project, this evidence could support the restructuring of services to allow more renal biopsies to be performed by renal services and allow reallocation of radiology department resources.

**Keywords :** biopsy, medical imaging, nephrology, radiology

**Conference Title :** ICRMI 2023 : International Conference on Radiology and Medical Imaging

**Conference Location :** London, United Kingdom

**Conference Dates :** March 16-17, 2023