**Audit of Ultrasound Guided Renal Biopsy**

**Descriptor:**

To audit diagnostic adequacy and complications of ultrasound guided renal biopsies.

**Background:**

Renal biopsies assess the histopathological diagnosis of native and transplant renal disease. Adequate samples are necessary for diagnosis and to enable prompt treatment of patients.

## The Cycle

**The standard:**

Renal transplant - Banff Criteria(1,2)

Adequate sample: 10+ glomeruli and 2+ arteries

Marginal sample: 7 - 10 glomeruli and 1 artery

Unsatisfactory sample: < 7 glomeruli or no arteries

Native kidney – local pathology guideline, literature(3)

Adequate sample: 10+ glomeruli

Unsatisfactory sample: <10 glomeruli

Optimal Needle Gauge: 16G (4,5)

**Target:**

Diagnostic adequacy:  >75% (3,5,6)

Re-biopsy rate: <5% (6)

Major complications requiring further intervention: <1% (5,6)

Minor complications e.g. macroscopic haematuria, perirenal haematoma <5% (5,6)

## Assess local practice

**Indicators:**

Number of glomeruli per sample

Presence of arteries

Complications

**Data items to be collected:**

All departmental ultrasound guided renal biopsies from RIS

Operator (consultant, trainee)

Transplant and native: number of glomeruli

Transplant: number of arteries

Complications: from RIS/radiology software and discharge summaries/clinic letters

**Suggested number:**

100, or all biopsies over 1 year

**Suggestions for change if target not met:**

Present audit results at local & regional meetings

Seminar with operators concerning technique and importance of sample adequacy

Close supervision of trainees

Each operator to analyse their results

Trainees results reviewed at end of placement / appraisal

In room pathologist for ‘hot’ assessment

Appoint a lead consultant to supervise biopsies

Re-audit annually

**References:**

1. Racusen LC, Solez K, Colvin RB et al. The Banff 97 working classification of renal allograft pathology. Kidney Int. 1999;55:713–23
2. Roufosse C, Simmonds N, Clahsen-van Groningen M et al.  2018 Reference Guide to the Banff Classification of Renal Allograft Pathology. 2018; 102:1795-1814
3. Geldenhuys L, Nicholson P, Sinha N et al. Percutaneous native renal biopsy adequacy: a successful interdepartmental quality improvement activity. Can J Kidney Health Dis. 2015; 2:8
4. Nicholson ML, Wheatley TJ, Doughman TM et al. A prospective randomized trial of three different sizes of core-cutting needle for renal transplant biopsy. 2000 ;58:390-5.
5. Schwarz A, Gwinner W, Hiss M et al. Safety and adequacy of renal transplant protocol biopsies. 2005; 5:1992-6.
6. H Ramotar, Smith J. Single operator/trainer renal biopsy complications in a tertiary centre: service provision audit. Leeds Teaching Hospitals audit.

**Submitted by:**

Catriona Stoddart

**Co-authors:**

Christopher Miller

Haripriya Ramotar

Hannah Lambie

Jonathan Smith

**Published Date:**

Thursday 29 August 2019

**Last Reviewed:**

Thursday 29 August 2019