Diagnostic adequacy of paediatric native renal biopsy specimens

Pittendrigh L[1], Bowen C[2], Goodwin S[3], Ramage IJ[1]

Departments of Nephrology[1], Pathology[2] and Radiology[3], Royal Hospital for Sick Children, Glasgow, UK, G3 8SJ

Introduction

Consensus in the tissue requirements for diagnosis in native renal biopsy specimens is lacking with variations in number of glomeruli, tubules and vessels reported in addition to number of cores.

Published paediatric data has indicated adequacy if ≥10 glomeruli are present or if a histological diagnosis could be made[1]. This may be sufficient with diffuse glomerular involvement. However, with focal disease or if a quantitative assessment of glomerular involvement directs either prognosis or treatment 10 glomeruli are unlikely to be an accurate representation of the disease process and it is suggested that there is a minimum requirement of 20 glomeruli[2].

Increasingly renal biopsies are undertaken by interventional radiologists who may not have a clinical appreciation of the implications of tissue adequacy on diagnostic accuracy in different renal pathologies.

Aim

The aim of our study was to determine the diagnostic failure rate of percutaneous native renal biopsy specimens using differing published diagnostic criteria in specimens.

Method

We undertook a retrospective review of native renal biopsy specimens between 2009 to 2014 at a tertiary referral centre for paediatric nephrology.

Results

137 procedures were performed

- All biopsies undertaken within the 5 year period were included
- All proceedures were performed by an Interventional Radiologist
- Median age 10 years, Range 1-16 years

Total number of glomeruli

Median no. per sample: 20 glomeruli

Range 0-78 glomeruli

≥ 10 glomeruli were obtained in 111 (81%) of cases

≥ 20 glomeruli were obtained in 71 (52%) of cases

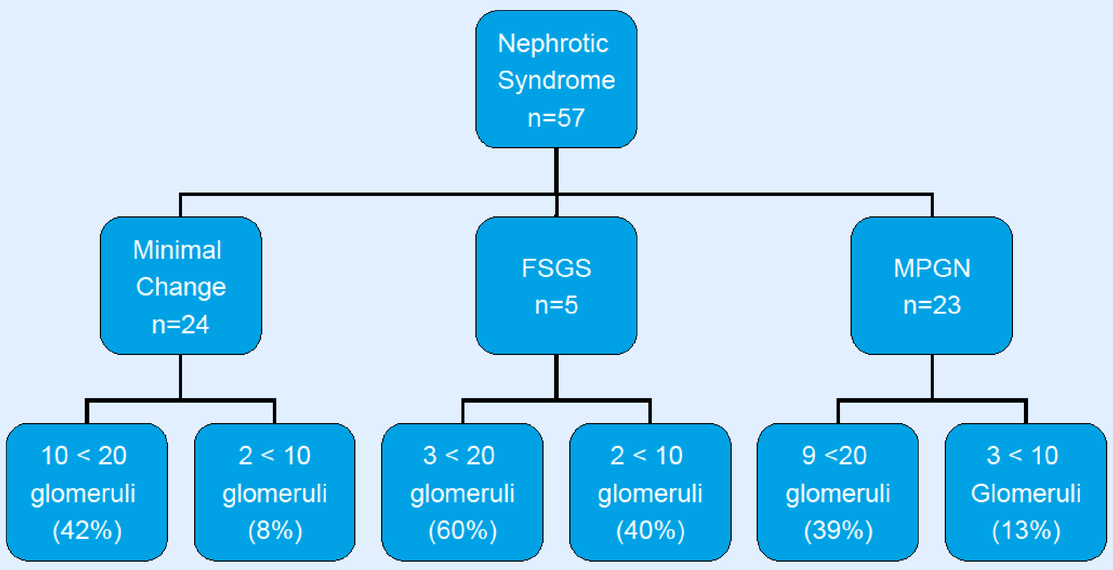
No histological diagnosis

No histological diagnosis could be made in 12 (9%) cases

- 8 (67%) of which contained <10 glomeruli
- In 7 cases the report stated that the biopsy was inadequate for purpose
- In 5 cases the histological findings were non-specific

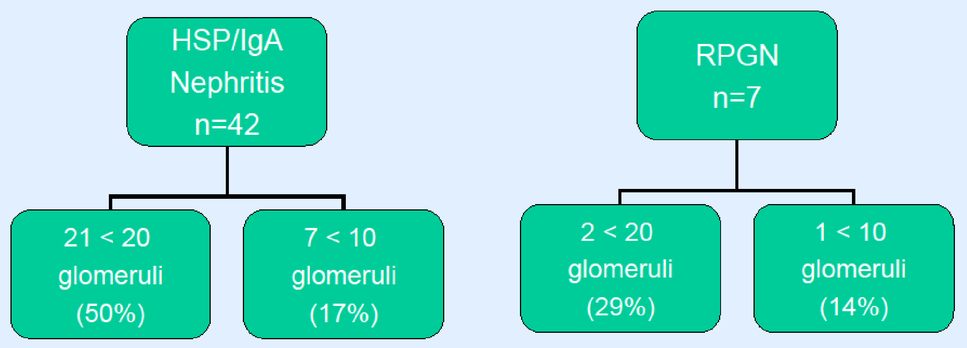
Results

Specimens from cases with nephrotic syndrome; histological diagnosis and number of samples with < 20 glomeruli



FSGS = focal segmental glomerulosclerosis, MPGN = membranoproliferative glomerulonephritis

Specimens with a histological diagnosis of HSP/IgA nephritis or RPGN; number of samples with <20 glomeruli



RPGN = rapidly progressive glomerulonephritis

Conclusion

Whilst a histological diagnosis was obtained in over 90% of cases the paucity of glomeruli may result in an under representation of FSGS in the nephrotic patient population where published data suggests that 20 glomeruli are considered.

Similarly in the IgA/HSP group the paucity of glomoeruli impacts on the prognostic adequacy and subsequent therapeutic intervention.

In cases where specific quantitative histological features are required for diagnosis, prognosis or to determine treatment communication between Nephrologist and Interventional Radiologist regarding individual sample requirements would facilitate adequate specimen collection and diagnostic accuracy.

References

1. Hussain F, Mallik M, Marks S, Watson A. Renal biopsies in children: current practice and audit of outcomes. Nephrol. Dial. Transplant. 2010; 25(2): 485-489
2. Howard et al. The Importance of Sample Size in the Interpretation of the Renal Biopsy. Am J Nephrol. 1988;8: 85-89

52 ERA 914--SP

N) Paediatric Nephrology.

Louise Pittendrigh

DOI: 10.3252/pso.eu.52era.2015

ePosters supported by F. Hoffmann- La Roche Ltd.

52 ERA EDTA CONGRESS London 2015 United Kingdom MAY 28th

PosterSessionOnline.com