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Kidney biopsy in glomerular disease: a hospital based study

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ABSTRACT

Introductions: Kidney biopsy is the standard tool to diagnose glomerular disease (GD). There is lack of national registry of kidney biopsy for the type, incidence and prevalence of GD. We aim to review kidney biopsy at Patan Hospital for profile of GD in local scenario.

Methods: This was a chart review of patients who underwent kidney biopsy at Patan Hospital, Nepal, from October 2013 to September 2015. We analyzed the data for indication of kidney biopsy, types of GD and complication of biopsy.

Results: There were 117 patients who had kidney biopsies. Immunoglobulin A Nephropathy was seen in 42 (35.8%) and Lupus Nephritis in 38 (32.5%). Sub nephrotic range proteinuria with or without active urinary sediments was found in 75 (64%). Blood transfusion was required in 3 (2.5%) patients after biopsy. There was no surgical intervention or mortality related to biopsy.

Conclusions: IgA Nephropathy was the commonest glomerular disease. Kidney biopsy was a safe and effective procedure.

Keywords: glomerular disease, kidney biopsy, nephropathy

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INTRODUCTIONS

The incidence and prevalence of kidney disease varies, with Immunoglobulin A nephropathy (IgA N) as the leading cause of glomerular disease (GD) worldwide[1] and GD is the third most common cause of end stage renal disease.[2] Kidney biopsy is the gold standard to diagnose, and provide guidance for the specific treatment and prognosis.[3] Data on type, incidence of GD is lacking locally. We also do not have national biopsy registry. This study aims to find out the types of renal diseases diagnosed by kidney biopsies at Patan Hospital, Nepal.

METHODS

This was a chart review of patients who underwent kidney biopsies at Patan Hospital, Patan Academy of Health Sciences, Lalitpur, Nepal, from October 2013 to September 2015. Biopsies were done by nephrologist using Bard gun after ultrasound marking of the kidneys. Children under the age of 10 years were given intravenous anaesthesia by anaesthesiologist and biopsy taken under real time ultrasound guidance. The biopsy tissue was sent to India for light microscopic and immunofluorescent examination. The demographics of the patients (age, sex), 24-hour urine protein, indication for biopsy and post procedural complication were recorded and analysed by SPSS 20. Indication of renal biopsy was classified as sub nephrotic range in patients with <3g/day of proteinuria and nephrotic range as >3g/day.

RESULTS

Total 117 patients' biopsy data were eligible for analysis (five were excluded out of 122 biopsies due to insufficient tissue yield). Female were 70 (59%) and male 47 (41%), age 3 to 79 years, (Figure 1).

Sub nephrotic range proteinuria with or without active urinary sediment was the indication for biopsy in 75 (64%). Nephrotic range proteinuria was seen in 42 (36%). The IgA N was seen 42 (35.8%), eight of them had crescent formation. Lupus Nephritis (LN) was seen in 38 (32.5%), 20 (52.5%) class IV LN as per International Society of Nephrology (ISN) pathological classification. Focal Segmental Glomerulosclerosis (FSGS) was 11 (9.4%), (Table 1).

We had 8 (6.8%) postpartum biopsy in patients with nephrotic range proteinuria during pregnancy, (Figure 2). Three (37.5%) of them were IgA N with crescent formation and had impaired renal function.

Three patients had bleeding after procedure and needed blood transfusion. There was no mortality related to biopsy.

DISCUSSIONS

Our study showed that IgA N was the most common type of nephropathy. Studies done in china,[8,9] Australia,[10] United Sates,[1] have reported similar findings.

Other studies done in Nepal reports mixed results. Kafle et al. reports LN (20.6%) was the leading cause followed by FSGS (19.6%), and IgA N (9.8%) during the year 2007-9, compared to more membranous glomerulonephritis (42.3%) and cause and only few cases of IgA N (2.9%) and LN (1.5%) in earlier years.[4] Also from Nepal, Ghimire et al. in their analysis of data from year 2011 to 2012 showed more cases of meningoproliferative glomerulonephritis (24%) followed by Minimal change disease (21.3%), LN (13.3%) and IgA N (6.7%).[5] These reports may be a reflection of changing pattern of renal disease locally. Our findings of 64% female, and overall 89% patients below the age of 50 years is in line with other reports locally from Nepal reporting young age and female preponderance. The ISN class IV lupus nephritis (52.5%) was the commonest type of LN.[7]

Different studies from Nepal report different findings. There is a need for national biopsy registry to find the type, incidence and prevalence of glomerular disease locally.

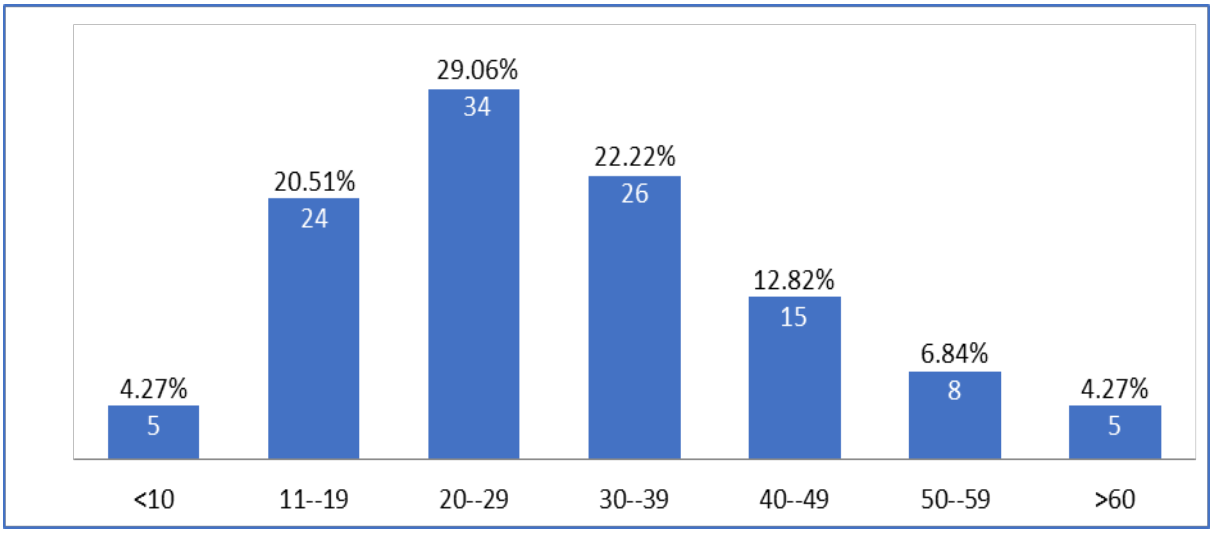

Figure 1. Age distribution (years) of patients with renal disease who had kidney biopsy (n=117)

Table 1. Kidney biopsy diagnoses findings patients with renal disease who had kidney biopsy (n=117)

Histological diagnosis	Number		Percentage
Immunoglobulin A nephropathy (IgA N)	42	8 crescents	34.43%
Lupus Nephritis	38		31.15%
Focal Segmental Glomerulosclerosis (FSGS)	11		9.02%
Membranous Glomerulopathy	7		5.74%
Membranoproliferative Glomerulonephritis	5		4.10%
Minimal Change Disease	5		4.10%
Post infectious Glomerulonephritis	4		3.28%
Diabetic Nephropathy	2		1.64%
Chronic Glomerulosclerosis	3		2.46%

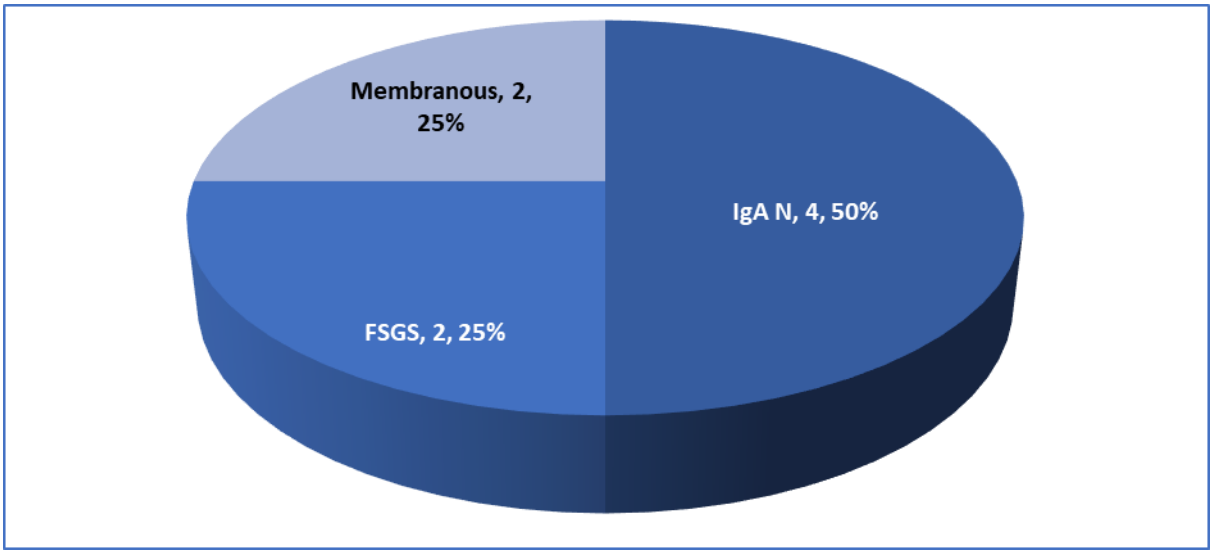

Figure 2. Biopsy findings in postpartum patients (n=8) with nephrotic range proteinuria during pregnancy

Kidney biopsy is a safe procedure and can be done as an outpatient procedure. Bleeding is

the common and life-threatening complication associated with kidney biopsy.[11-12] We had 3

(2.5%) patients with bleeding who required blood transfusion. No surgical intervention was needed and we had no mortality associated with the procedure.

CONCLUSIONS

The kidney biopsy revealed Immunoglobulin A nephropathy (IgA N) as the leading cause of glomerular disease (GD).

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