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Indications, histological findings and complications of Renal Biopsy

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Abstract :

Introduction: Renal biopsy is an essential part of nephrological practice. It provides histological evidence for diagnosis, prognosis and treatment.
Materials and Methods : In this retrospective and descriptive study, we reviewed medical records to study the epidemiological, clinical and histological parameters and complications of 105 renal biopsies performed between January 2018 and December 2022.
Results: In our series, the mean age was 45 ± 17 years, with extremes of 14 and 88 years. The sex ratio was 1.1. Diabetes was present in (13.3%) patients, followed by arterial hypertension (10.4%) and lupus (5.7%). Kidney disease was revealed by an edematous syndrome in 73 cases (69.5%), arterial hypertension in 37 (35.2%), microscopic hematuria in 79 (75.2%) and oliguria in 4 patients (3.8%). Indications were dominated by nephrotic syndrome in 51 cases (48.5%), renal failure 34 (32.3%), lupus with renal involvement 6 (5.7%), nephritic syndrome 4 (3.8%), relapse of nephrotic syndrome 4 (3.8%), rapidly progressive glomerulonephritis syndrome 3 (2.85%) and finally 2 cases of resistance to initial treatment (1.9%). Glomerular nephropathy accounts for 78% of kidney disease diagnoses. They are primary in 44.7% of patients, and secondary in 31.4%. Tubulointerstitial nephropathy (6.6%) and vascular nephropathy (2.85%) are less common. The most frequent complications of the procedure were pain at the biopsy site in (14.2%) of cases, macroscopic hematuria (5.7%), and perirenal hematoma (0.95%).
Conclusion: This series presents an epidemiological contribution to studies carried out in other regions of Morocco, highlighting the importance of establishing a national renal biopsy registry.

Key words :

Renal Biopsy, Indications, Histology, Complications

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Main Article

Introduction:

Renal biopsy is an essential part of nephrological practice. It provides histological evidence to establish the diagnosis, assess prognosis and guide treatment.

Materials and Methods :

In this retrospective and descriptive study, we reviewed medical records to investigate the epidemiological, clinical, histological and complication parameters of 105 renal biopsies performed between January 2018 and December 2022.

Results:

In this series, the mean age was 45 ± 17 years with extremes of 14 and 88 years. There were 56 men (53.3%) and 49 women (46.6%) with a sex ratio of 1.1. Anamnestic data showed that the most common antecedents were diabetes in 14 patients (13.3%), followed by arterial hypertension in 11 patients (10.4%), while lupus in 6 patients (5.7%), smoking in 6 patients (5.7%) and a family history of kidney disease in 2 patients (0.95%) were less frequent.

Nephropathy was revealed by an edematous syndrome in 73 cases (69.5%), arterial hypertension in 37 cases (35.2%), microscopic hematuria in 79 cases (75.2%) and oliguria in 4 cases (3.8%).

Indications for renal biopsy were dominated by nephrotic syndrome in: 51 cases (48.5%), followed by renal failure: 34 cases (32.3%), lupus with renal involvement: 6 cases (5.7%), nephritic syndrome: 4 cases (3.8%), relapse of nephrotic syndrome: 4 cases (3.8%), rapidly progressive glomerulonephritis syndrome: 3 cases (2.85%) and finally: 2 cases of resistance to initial treatment (1.9%).

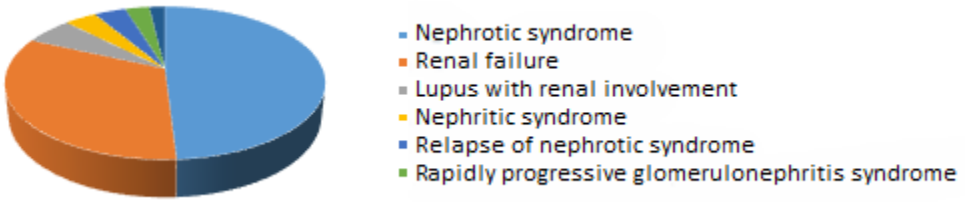

Figure 1: Indications for renal biopsy

All PBRs are examined by light microscopy and immunofluorescence. Glomerular nephropathy accounts for 78% of kidney disease diagnoses. They are primary in 60% of patients: minimal change disease (MCD) (20.9%), chronic glomerulonephritis (CGN) (12.38%), membranous nephropathy (MN) (10.4%), infection-related glomerulonephritis (IRGN) (6.6%), focal segmental glomerulosclerosis (FSGS) (4.7%), IgA nephropathy (IgAN) (3.8%), and C3 glomerulonephritis (C3GN) (0.95%).

Nephropathy	No. of cases (%)	Age	Men (%)	Women (%)
Primary glomerulonephritis	63 (60)	40,9 ± 15,5	34 (53,9)	29 (46)
MCD	22 (20,9)	38,3 ± 18,8	12 (54,5)	10 (45,4)
CGN	13 (12,38)	45,8 ± 14,8	6 (46,1)	7 (53,8)
MN	11 (10,4)	41,9 ± 16,1	6 (54,5)	5 (45,4)
IRGN	7 (6,6)	43,2 ± 18,7	4 (57,1)	3 (42,8)
FSGS	5 (4,7)	41,4 ± 15,5	3 (60)	2 (40)
IgAN	4 (3,8)	34,2 ± 9,5	2 (50)	2 (50)
C3GN	1 (0,95)	41	1 (100)	0

Table 1: Distribution of primary glomerulonephritis

Secondary glomerulonephritis (29.5%) reveal: diabetic glomerulosclerosis (DGS) (13.3%), lupus nephropathy (LN) (6.6%), renal amyloidosis (3.8%), membranoproliferative glomerulonephritis (MPGN) (3.8%), pauci-immune extracapillary glomerulonephritis (PIEGN) (0.95%) and linear IgG extracapillary glomerulonephritis (LIEGN) (0.95%).

Nephropathy	No. of cases (%)	Age	Men (%)	Women (%)
Secondary glomerulonephritis	31 (29,5)	59,2 ± 15	16 (51,6)	15 (48,3)
DGS	14 (13,3)	56,9 ± 10,1	9 (64,2)	5 (35,7)
LN	7 (6,6)	30,5 ± 18,9	1 (14,2)	6 (85,7)
Renal amyloidosis	4 (3,8)	64,2 ± 11,6	2 (50)	2 (50)
MPGN	4 (3,8)	49 ± 19,5	3 (75)	1 (25)
PIEGN	1 (0,95)	67	0 (0)	1 (100)
LIEGN	1 (0,95)	88	1 (100)	0 (0)

Table 2: Distribution of secondary glomerulonephritis

Tubulointerstitial nephropathy accounted for (6.6%) of cases, and vascular nephropathy for 3 patients (2.85%).

The most frequent complications of the procedure were pain at the biopsy site in (14.2%) of cases, macroscopic hematuria (5.7%), and perirenal hematoma (0.95%).

Discussion:

In our study, the mean age was 45 ± 17 years, with a slight male predominance, which has been found in several studies carried out in Africa [1] and Europe [2].

The clinical presentation in our series was edematous syndrome in 69.5% of our patients, followed by arterial hypertension in 35.2%. Furthermore, 24-hour proteinuria was greater than 3g/d in 56.1% of patients, and renal failure was found in 44.7% of patients, which is comparable to other series [1] [3]. Nephrotic syndrome was the primary indication for PBR, with a frequency of 48.5%. This result is similar to that found in Spain [4], Italy [5] and South Africa [1] . The presence of renal failure is the second most frequent indication (14%). This was also the case in a study carried out in France by Traore et al [6] .

The most frequently diagnosed lesion in our patients with primary glomerulonephritis is MCD (20.9%), followed by CGN (12.38%) and MN (10.4%). In the literature, MN is consistently cited as the most frequent cause of nephrotic syndrome in adults [8]. The predominant secondary glomerulonephritis in our series was DGS (13.3%), followed by LN (6.6%). The latter is the most frequent in the series cited in the literature [9] [10]. This may be explained by our policy of performing complement studies and immunological work-ups in patients with renal failure and early-onset diabetes, and the presence of extrarenal signs. The slightest abnormality in the urine sediment or in this work-up leads us to perform a renal biopsy, which is not the case in other clinics.

Post-biopsy complications occurred in 19.9% of patients, and concerned pain at the biopsy site in 14.2% of cases, macroscopic hematuria in 5.7%, and perirenal hematoma in 0.95%. This result is in line with other series. [7] [11]

Conclusion:

Our series reveals disparities in the regional distribution of the prevalence of renal diseases revealed by PBR in our kingdom. It also constitutes an epidemiological contribution highlighting the importance of setting up a national PBR registry.

Tables and Figures :

Figure 1: Indications for renal biopsy
Table 1: Distribution of primary glomerulonephritis
Table 2: Distribution of secondary glomerulonephritis

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All the authors declare no conflicts of interest

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