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ISSN 2348-0416
USA CODEN: JASRHB

Journal of Applied Science And Research, 2016, 4 (3):36-42
(*http://www.scientiaresearchlibrary.com/arhcive.php*)

Epidemiological profile of glomerular kidney disease in Morocco.

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ABSTRACT

The epidemiological approach of glomerular diseases is still underdeveloped in our country. The aim of our study is to know the frequency of glomerular nephropathies in our context; describe their different demographic, clinical and biological, and their etiological and evolutionary profile. We conducted a retrosprctive study in the nephrology department of the university hospital Mohammed VI, between January 2009 and December 2015. We collected 550 patients including 284 men (51.63%). The average age at diagnosis was 30.2 +/- 13.6 years. The clinical picture was dominated by the edematous syndrome (88.5%), hematuria (63.2%) and hypertension (37.3%). Glomerular nephritis were primitive in 61.2 % of cases, the glomerulopathy with minimal glomerular lesions and membranoproliferative glomerulonephritis accounted for the most common histological types with respectively 37.8 % and 21.2 % of cases. Secondary glomerular nephritis were for 38.8 % of cases, their etiologies were dominated by lupus nephritis (65%), infectious diseases (10%) and vasculitis (12.5%). 78% of our patients received symptomatic treatment, the extra renal purification was indicated in 20% of cases. In primitive glomerulopathies the use of corticosteroids alone was proposed in 50.7 % of cases and corticosteroids associated with immuno suppressive in 18.6 % of cases. Complete remission was achieved in 44.3 % of cases, and partial remission in 25.8%, treatment failure was noted in 11.2 % and renal death in 15.7 % of cases.

Keyword : glomerular nephropathy- Epidemiology- Adult- renal biopsy.

INTRODUCTION

Glomerular nephritis represent a pathological condition characterized by a lesion of the structure and function of the renal glomeruli, with inflammatory or non-inflammatory origin. They are a common clinical problem, both in the city of practice than in hospital. The overall development risk to the ESRD patient is 1 of 4 [1].

One of the main difficulties in determining their epidemiological situation in our country is the lack of national registries. The aim of our study was to know the frequency of glomerular nephropathies in our context; describe their different demographic, clinical and biological, and their etiological and evolutionary profile.

MATERIALS AND METHODS

We conducted a retrospective study led in the nephrology department of the University Hospital Mohammed VI, between January 2009 and December 2015. The diagnostic test, which was based on in this survey, was renal biopsy. We selected and investigated 585 cases of adult patients older than 16 years; in which the pathological diagnosis of glomerulonephritis was clearly defined. We studied the demographics, clinical, biological, histological, treatment and outcome. The files with incomplete clinical or paraclinical data were excluded, as well as cases of diabetic nephropathy that were not biopsied. In total, we selected 550 cases of renal glomerular. Statistical calculations were performed using SPSS 10.0 software for Windows and Excel 2007.

RESULT AND DISCUSSION

It is about 550 patients including 284 men (51.63%).The average age at diagnosis was 30.2 +/- 13.6 years with extremes of 16 and 74 years. The male predominance was found in the age groups of 20-29 years and > 50 years. The majority of patients were from the regions of southern and central Morocco (84.6%), and mainly in urban areas (65.4 %). 68.8 % of our patients were viewed within less than one month; but only 45.2 % of them were referred to a specialist and received an early diagnosis (<1 month) (Table 1) .

Table 1: consultation and diagnosis time

	Délai de consultation	**Délai de diagnostic**
< 1 mois	68,8 %	45,2 %
1 < < 6 mois	16,3 %	36,9 %
6 < < 12 mois	9,5 %	12,3 %
>12 mois	5,4 %	5,6 %

The clinical picture was dominated by the edematous syndrome (88.5%), hematuria (63.2%) and hypertension (37.3%). Laboratory tests showed an average proteinuria of 4.0 +/- 3.7 g/24h with a range of 0.3 and 14g/24h.

Nephrotic syndrome was noted in 371 patients (67.4%) and an initial renal failure was noted in almost a third of cases. Nephrotic syndrome was the main indication for renal biopsy (65 %), followed by abnormalities of the urinary sediment (17.1%) and rapidly progressive glomerulonephritis syndrome (RPGN).

Glomerular nephritis were primitive in 61.2 % of cases, the frequency is higher in the age groups 20-29 and 30-39 years (41.5%). The male sex is predominant in all primitive kidney diseases (54.5%) except in membranoproliferative glomerulonephritis. Glomerulopathy with minimal glomerular lesions (MGL) and MPGN represented the most common histological types with 37% and 23.8 % of cases (Figure 1).

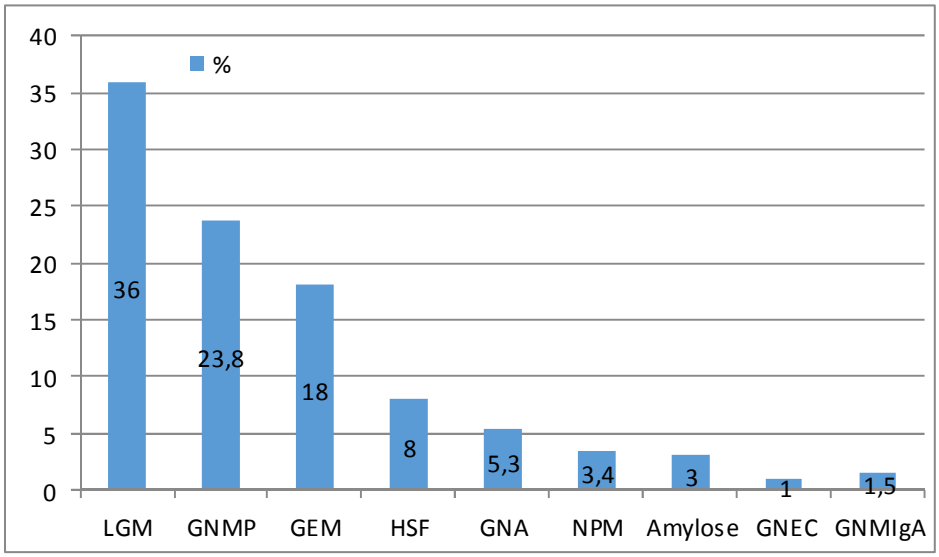

Figure 1: Frequency of primary glomerular diseases:

MGL : Glomerular with minimal glomerular lesions , MPGN : membranoproliferative glomerulonephritis , GEM: glomerulonephritis extra membranous, FSH : focal segmental hyalinosis , AGN : acute glomerulonephritis, MPn : mesangial proliferative nephropathy , ECGN : extracapillary Glomerulonephritis , GNMIgA : glomerulonephritis with mesangial deposit of IgA.

Comparison of clinical presentations of glomerular nephritis at the time of renal biopsy , notes that the pure and impure nephrotic syndrome were the most common form revealing primitive glomerulopathies (65.5%).However , it is the nephrotic syndrome and rapidly progressive glomerulonephrit is that were the predominant picture in secondary forms (62.7%).

Secondary glomerular kidney diseases have affected 38.8 % of cases. Lupus nephritis (65%), infectious diseases (10%) and vasculitis (12.5%) dominated their etiologies. Amylose and diabetic nephropathy have represented respectively 7.5 % and 5 % of cases.

In our series , we counted 125 cases of lupus nephritis which is 22.7% of all glomerular disease, the average age was of 29.5 +/- 7.3 years with extreme ages of 19 and 42 years. There was a frequency peak of 53 interesting the age group 20-29 years old, female predominance was clear (115F/10M). Renal involvement was inaugural of the disease in 40% of cases, they were all female. The histological lesions found were divided according to the classification of the International Society of Nephrology / Renal Pathology Society (2003), as follows (figure2):

Class I: normal renal parenchyma in optical microscope in 4 % of cases.

Class II: mesangial GN in 20 % of cases.

Class III: focal segmental proliferative GN in 32 % of cases.

Class IV: diffuse proliferative GN in 40 % of cases.

Class V: EMG in 4% of cases

Therapeutically, 78% of our patients received symptomatic treatment, based on antihypertensives (75.5%), antiproteinuric (72.7%), diuretics (74.5%) and anticoagulants (73, 8%). The extra renal purification was indicated in 20% of cases. In primitive glomerulopathies the use of corticosteroids alone was proposed in 50.7 % of cases and corticosteroids associated with immunosuppressive in 18.6 % of cases.

All lupus nephritis have been put under oral or intravenous corticosteroids, 73.5 % under cyclophosphamide , azathioprine 15.3% , and 7% under Mycophenolatesmofitil. For secondary glomerular nephritis, treatment has been primarily etiological.

Among the 550 cases studied, we lamented 10 deaths. 65 patients were messages forwarded to their referring physicians following completion of the renal biopsy, 110 patients were lost to sight, and only 350 of them or 63.6 % received follow up over 6 months , with an average of 8 , 8 months +/- 1.1 (Figure 3) .

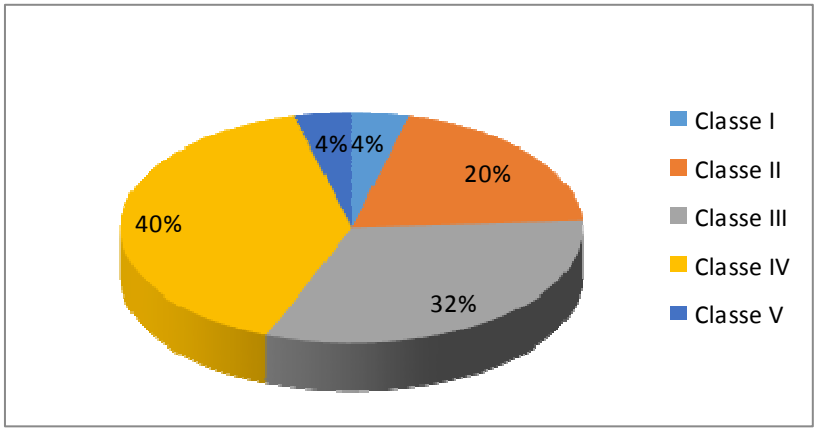

Figure 2: histological classes of lupus glomerulonephritis.

After a 6- month follow complete remission was achieved in 44.3 % of cases, and partial remission in 28.8%. Treatment failure was noted in 11.2 % and renal death in 15.7 % of cases. 134 patients or 24.3 % of patients progressed to chronic renal failure, and they are as follows: 34 cases of moderate CKD, 16 patients with severe CKD, and 84 cases of renal death with recourse to hemodialysis.

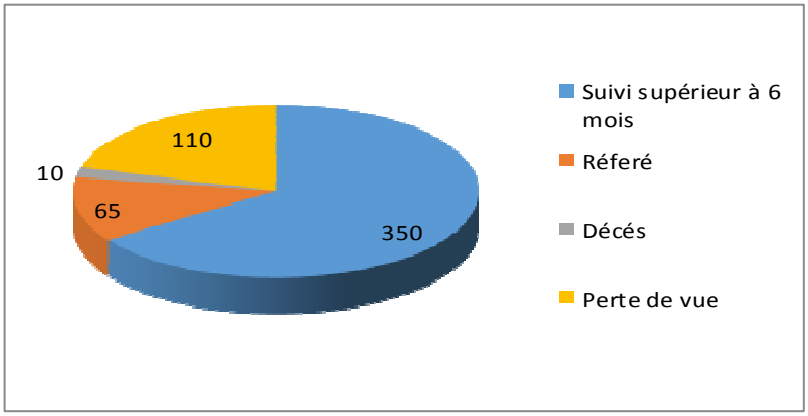

Figure 3 : Overall Trend glomerular nephritis

Glomerular nephropathies (GN) have a prevalence in the general population between 5 and 6 cases / 1000 inhabitants. The annual incidence of diagnosis is 8/100 000 [1]. In our series, we have diagnosed 550 cases of glomerular nephropathies over 7 years of which 61.2% are primitive.

Since GN may be subclinical , and given the variability of access to renal biopsy between different health systems , it is likely that changes in incidence rates found among different countries is due to diagnostic differences rather than a true difference in incidence of the disease (table 2). And it is worth noting that the populations studied are different by both the number of patients, their ethnic

origins and their place of residence. Some studies have restrictive inclusion criteria regarding age, others are either prospective or retrospective, and they are conducted during different periods.

Table 2: Comparison of the frequency of primitive and secondary glomerular nephritis in the literature

Pays	Auteurs	Type de registre	Nombre de biopsies	GN Primitives (en%)	GN secondaires (en%
Egypte	Barsoum [2]	Monocentrique	1234	61,3	-
Sénégal	Abdou [3]	Monocentrique	115	69,5	23,5
Afrique du Sud	Okpechi [4]	Monocentrique	1284	34,3	48,15
France	Simon [5]	Monocentrique	1742	51,5	-
Espagne	Rivera [6]	National	4824	55,8	20,4
Italie	Schena [7]	National	13835	59,9	25,4
Maroc	Notre série	Monocentrique	550	61,2	38,8

The young age of the patients characterized our population with an average age of 30.2 years. The average age varies according to the authors and the age of inclusion in the study, between 43 and 52 years. Simon [1] states that the annual incidence of glomerular nephropathy in the elderly is not significantly different from that of the young adult population, only the frequency of histological forms are distinct. In our series, the frequency of nephrotic syndrome is higher than those found in

European data. This high rate can be partly explained by the fact that our patients consulted at an advanced stage of their disease when clinical tolerance is worse, while Western teams tend to biopsy more clinically few symptomatic glomerulopathies and whose only anomalies are found to the study of urinary sediment .

The prevalence of primary glomerulonephritis has been little studied and most of the published data are European. A review of the literature revealed incidence rates between 0.2 / 100,000 / year and 2.5 / 100,000 / year in adults. The lack of uniform coding clinically and histologically studies makes comparison difficult.

In our series, we have diagnosed 336 cases of primary GN, 61.2 %. The MGL has represented the most common histological type with 37 % of cases. The age range in our patients was between 19 and 49 years, with a peak incidence in the age group of 20-29 years. There was a slight male predominance. Abdulmassih [8] notes that the frequency of MGL glomerulonephritis in adults increases with age and that this increase is associated with certain medications including anti – inflammatory drugs. MPGN represented 23.8% of our GN series, this rate is consistent with the results reported by Khalifa [9] and Okpechi [4]. In contrast, other authors [10] and especially Western ones [1-8-11-12] insist on the sharp decline over time in the incidence of nephropathy in parallel to that of AGN. This decrease in industrialized countries is interpreted as the consequence of improved conditions of hygiene and routine antibiotic therapy performed early in streptococcal or not acute nasopharyngeal infections. Teenagers and young adults' disease (34.6 years) is consistent with the average age of our patients that was 30.7 years. In our series, a male predominence was observed with a sex ratio of 1.3. In European countries, the EMG is the second more frequent primitive glomerulonephropathy after IgA nephropathy, with rates varying around 20% according to the authors [13-14]. In our series, the frequency of the EMG was 18%. The mean age of diagnosis was 38.6 ± 15.7 years. Male dominance in the EMG is reported by most authors [12,14] . She was found in our study with a sex ratio of 1.6. IgA mesangial glomerulopathy, or Berger's disease, is currently the most widespread primary chronic glomerulonephritis in the world. IgA nephropathy is observed at any age, but clinical manifestations become more obvious between 20 and 40 years. The male / female ratio varies from less than 2/1 in Japan to more than 6/1 in the North and the United States Europe. IgA nephropathy appears to be more common in Caucasian and Asian patients than black ones [14-15]. Global distribution disparities are explained by a genetic influence but especially by a different political indication of renal biopsy and microscopic hematuria screening. The frequency of lupus nephritis in our population was 22.7 %, compared to all glomerular nephritis, this lower rate is partly explained by the fact that lupus disease is multisystemic, so patients are followed in other medical specialties. Ben Maiz [16] reported that the incidence of lupus nephritis increased 9.8 % to 16.1 % in adults making suspect the role of sun exposure and the large increasing use of cosmetics. Lupus primarily affects young women (90% of cases), with an average age of 32 years (16,35) . Our study found a comparable average age of 31.5 years and female predominance was also noted, 24 women for one man. Renal manifestations of lupus are rarely indicative of the disease. Nevertheless, they are early, occurring most often in the early years of evolution of lupus; however, they may not appear until later, several years after the onset of the disease. In our study, renal involvement was inaugural of the disease in 40% of cases; moreover, it occurred on average 3.5 years after the installation of extra- renal signs of pathology in 60 % of cases. Furthermore, lupus nephritis in our series is characterized by the severity of the clinical and laboratory table explained by the frequency of proliferative forms, and requiring the use of powerful immunosuppressive drugs.

CONCLUSION

The epidemiological approach of glomerular diseases is still underdeveloped in our country. We found that they were often diagnosed at an advanced stage when the clinical expression was dominated by nephrotic syndrome and renal failure. This should lead us to question ourselves about the ways of early diagnosis and prevention treatments to be implemented in order to curb if not slow down this evolutionary course, given the impact of the management of kidney patients on the socioeconomic state.

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