CODEN [USA]: IAJPBB ISSN : 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187
http://doi.org/10.5281/zenodo.4075353

Available online at: http://www.iajps.com *Research Article*

STUDY TO DETERMINE THE PATTERN OF PRIMARY GLOMERULONEPHRITIS IN PAKISTAN

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Article Received: August 2020 **Accepted:** September 2020 **Published:** October 2020

Abstract:

Introduction: *Glomerulonephritis is classified into several different pathological patterns, which are generally divided into non-proliferative or proliferative types. Glomerulonephritis accounts for 25-45% of cases of end-stage renal disease (ESRD) in developing countries. The aim of this study is to determine the type of glomerulonephritis among inpatients and outpatients of the nephrology unit to reflect the pattern of glomerulonephritis.*

Place and Duration: *The study was conducted at the Nephrology department of Jinnah Hospital Lahore for one-year duration from June 2019 to June 2020 to determine the type and percentage of primary glomerulonephritis reflecting the pattern of glomerulonephritis in the Pakistani population.*

Methods: *The current study duration was 12 months, and 128 patients with glomerulonephritis were enrolled in the study. Statistical analysis was performed using the Statistical Package for Social Sciences. In the present study, it was observed that the majority (31.3%) of patients were aged 31 to 40 years, and the mean ± SD age was 32.94 ± 12.66 years, ranging from 18 to 70 years.*

Results: *The present study found that 64.8% were male and 35.2% female. The male-to-female ratio was 1.8: 1. Depending on the type of glomerular kidney assessed by histopathology, it was found that in Glomerular Non-proliferative Kidney: 12 (10.61%) patients are of minimal Change disease (MCD), 9 (7.96%) Focal Segmental Glomerulosclerosis (FSGS), 25 (22.12%) Membrane glomerulonephritis (MGN). In proliferative glomerular nephrosis: membrane-hyperplastic glomerular nephrosis - 13 (11.5%), IgA nephropathy -13 (11.5%), mesangial proliferative glomerular nephrosis -14 (12.39%), Focal Segmental Proliferative Glomerulonephtis-14(14.2%), 2 (1.8%) Rapidly Progressive glomerulonephritis (RPGN and chronic sclerosing glomerulonephritis is -11 (9.7%).*

Conclusion: *Our study to determine the pattern of primary glomerulonephritis found nearly similar results in the South Asian populations, as has been shown by various studies in the region. We have some differences in research in the West, Europe, America, and the Middle East, which may be due to environmental, genetic, racial, social and economic differences.*

Key words: *primary glomerulonephritis, renal bipolarity, histological typing*

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Please cite this article in press Ans Dastgir et al, ***Study To Determine The Pattern Of Primary Glomerulonephritis In Pakistan.,*** *Indo Am. J. P. Sci, 2020; 07(10).*

INTRODUCTION:

Glomerulonephritis (GN) means "glomerulonephritis," and although the inflammation is not seen in all varieties (glomerulonephritis is sometimes used to refer to it), the name sticks Biopsy-proven glomerulonephritis (GN) varies around the world due to racial, genetic, social, environmental and economic differences[1-2]. Recent research suggests a changing pattern of GN distribution in different parts of the world. They are classified into several different pathological patterns that are generally categorized into non-proliferative or proliferative types. The histological pattern of glomerulonephritis is important in terms of the treatment method[3-4]. Glomerulonephritis is an important cause of morbidity and mortality among all age groups in Pakistan[5]. Glomerulonephritis accounts for 25-45% of end-stage kidney disease (ESRD) cases in developing countries such as Pakistan. A study was conducted to establish the type of glomerulonephritis among inpatients and outpatient nephrology units, to reflect the pattern of glomerulonephritis in the Pakistani population.

MATERIAL AND METHODS:

The study was conducted at the Nephrology department of Jinnah Hospital Lahore for one-year duration from June 2019 to June 2020 to determine the type and percentage of primary glomerulonephritis reflecting the pattern of glomerulonephritis in the Pakistani population. Patients were selected from all types of glomerulonephritis who were hospitalized in the Nephrology Department of the Hospital. A patient with suspected glomerulonephritis was initially clinically diagnosed. The patient was then diagnosed on the basis of the urinary heat coagulation test, urine test, 24-hour urine protein, urine creatinine ratio and other biochemical tests. Eventually, the patient was diagnosed histologically and treatment was administered, and then treatment was continued. For the kidney biopsy, the patient was prepared for a biopsy. The patient was examined for BT, CT, platelet count and written consent was obtained. Two samples from each patient were processed, one for light microscopy and the other for immunofluorescence microscopy. Light microscopy specificity fixed in 10% formalin. Second specimen for direct immunofluorescence testing (DIF), preserved in normal saline. The current study duration was 12 months, and 128 patients with glomerulonephritis were enrolled in the study. Inclusion criteria were all patients (of both genders) with all types of glomerular kidney, age 18 and over. Exclusion criteria were patients with proteinuria other than glomerulonephritis, such as DM, UTI, and hypertension. After recording a detailed history of the patient, a physical examination was performed. A patient who met the inclusion criteria was included in the study. Detailed history, physical examination and investigation were recorded in a pre-designed questionnaire. After the data collection was completed, a statistical analysis was performed using the Social Sciences Statistical Package (SPSS) for a personal computer (version 19.0). Values are expressed as frequency, mean, standard deviation, or percentage as appropriate. Written consent was obtained from each subject.

RESULTS:

The table above presents the age distribution of the studied patients and it was observed that the mean ± SD age was 32.94 ± 12.66 years and ranged from 18 to 70 years. However, the maximum figure of 40 (31.3%) was found in the age group 31 to 40 years. The results are shown in the table above. The pie chart shows the gender distribution of the studied patients and observed that the man was 83 years old (64.8%), which was the dominant result, and the woman was 45 (35.2%). Throughout the study, the percentage of men among women was 1.8: 1.

Table I: *Age distribution of the study patients (n=128)*

Age (in year)	Number of patients	Percentage
<20	26	20.3
21-30	40	31.3
31-40	30	23.4
41-50	22	17.2
51-60	6	4.7
61-70	4	3.1
Mean ± SD	32.94	±12.66
Range (min-max)	(18	-70)

The data are shown in the pie chart below:

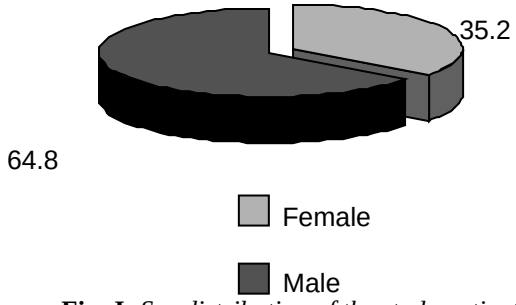

Fig.-I: *Sex distribution of the study patients (n=128)*

Depending on the type of glomerular kidney assessed in the histopathological examination, it was found that in the Glomerular Non-proliferative Kidney: 12 (10.61%) is a minimal change disease (MCD), 9 (7.96%) is Focal Segmental Glomerulosclerosis (FSGS), Membranous glomerulonephritis (MGN). In proliferative glomerular nephrosis: membrane-hyperplastic glomerular nephrosis - 13 (11.5%), IgA nephropathy -13 (11.5%), mesangial proliferative glomerular nephrosis -14 (12.39%), focal segmental glomerular hyperplasia-16 (14.2%)), Rapidly progressive glomerulonephritis (RPGN) - 2 (1.8%). and chronic sclerosing glomerulonephritis - 11 (9.7%).

Table-II

Type of glomerulonephritis on the histopathology. (n=128)

Type	Number of patients (n=113)	Percentage
Non-Proliferative *glomerulonephritis*		
Minimal Change Disease (MCD)	12	10.61
Focal Segmental Glomerulosclerosis (FSGS)	9	7.96
Membranous Glomerulonephritis (MGN)	25	22.12
Proliferative glomerulonephritis (56)		
Membranoproliferative *glomerulonephritis*	13	11.50
IgA Nephropathy	13	11.50
Mesangial Proliferative *glomerulonephritis*	14	12.39
Focal Segmental Proliferative *glomerulonephritis*	14	12.39
Rapidly Progressive *glomerulonephritis* (RPGN)	2	1.80
Chronic Sclerosing Glomerulonephritis	11	9.73

DISCUSSION:

This study was conducted to establish the type and percentage of glomerulonephritis reflecting the pattern of GN in the Pakistani population. A total of 128 consecutive patients with glomerulonephritis, aged 18 to 70 years, who presented to the nephrology department were enrolled in the study. Patients with proteinuria other than glomerulonephritis, such as DM, UTIs, and hypertension, and patients less than 18 years of age were excluded from the study. The results of this study were discussed and compared with previously published relevant studies[6-7]. In the present study, it was observed that the majority (31.3%) of patients were aged 31 to 40 years, and the mean ± SD age was 32.94 ± 12.66 years, ranging from 18 to 70 years. Rahul et al. Observed an almost similar age range, and the mean age of the patients undergoing the procedure was 34 years. this study. In another study by U Das, KV Dakshinamurty, A Prayaga, a mean age of patients was 32.27 ± 18.37 (range 10-80) years, which is also similar to this study. The present study found that 64.8% were male and 35.2% female. The male-female ratio was 1.8: 1, indicating male dominance in this study[8]. Rahul et al. Observed that there were 139 (61.50%) men and 87 (38.49%) women, with a male to female ratio of 1.5: 1 which is almost similar to this study. In another study by U Das, KV Dakshinamurta, A Prayaga, the study found a male-to-female ratio of 1.4: 1, which is also similar to this study[8-9]. Depending on the type of

glomerular kidney assessed in the histopathological examination, it was found that in the non-proliferative glomerular kidney it amounts to 40.69%, and the proliferative glomerular kidney 49.58%. Ibrahim and Fayed in their study observed that proliferative glomerular kidneys occurred in 497 cases (53.78%) and glomerular non-proliferative kidneys occurred in 427 cases (46.22%), which is similar to this study. In this study, the most common primary glomerulonephritis is membranous glomerulonephritis (22.12%)[10]. This was followed by Mesangial Proliferative Glomerulonephritis -14 (12.39%), Focal Segmental Proliferative Glomerulonephritis 14 (12.39%). Jalalah, in a study based on a retrospective review of an 18-year archival kidney biopsy (1989-2007), showed that the most common primary glomerular nephrosis is membranous glomerular nephrosis, accounting for 25.7%, which is almost similar to this study[11-12]. But he found focal segmental glomerulosclerosis at 21.3%, while we found focal segmental glomerulosclerosis at 7.96%, which is not similar to this study. To identify patterns of glomerulonephritis in Pakistan, Rabbani et al. Examined 511 consecutive kidney biopsy reports at Aga Khan University Hospital over an 18-year period from January 2001 up to December 2008. Membranoproliferative disease (28%) was the most common histological change. The second most frequent lesion was membranous glomerulus (19%). The proportion of membranous glomerulonephritis differs from this study at 13 (11.5%), but the proportion of membranous glomerulonephritis (22.12%) is almost similar to this study[13]. In the study by Nasir Ahmed, MD Mohosin, Nurul Huda found diffuse membranous-proliferative glomerulonephritis 40.90%, focal segmental glomerulosclerosis - 22.72%, minimal lesion disease - 18.18%, membranous glomerulonephritis 9.09%, IgA nephropathy -4.5%. We have some differences compared to this study. Diffuse mesangial proliferative glomerulonephritis was the second most frequent lesion (15.79%), followed by focal segmental glomerulonephritis (11.58%), minimal lesion disease (10.53%), membranous glomerulonephritis (7 37%), IgA nephropathy (6.85%), chronic sclerosing glomerulonephritis (2.11%), and crescent glomerulonephritis (2.11%). We have some differences compared to this study. Our study to determine the pattern of primary glomerulonephritis in the Pakistan and South Asian populations, as has been shown by various studies in the region[14]. However, there are some differences that may arise from the lack of clear guidelines for histological typing worldwide. We have some differences in research in the West, Europe, America, and the Middle East, which may be due to environmental, genetic, racial, social and economic differences[15].

CONCLUSION:

Our study to determine the pattern of primary glomerulonephritis in the Pakistan and South Asian populations, as has been shown by various studies in the region. We have some differences in research in the West, Europe, America, and the Middle East, which may be due to environmental, genetic, racial, social and economic differences.

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