ORIGINAL ARTICLE

Frequency of Histopathological Patterns of Lupus Nephritis according to classification by WHO among Pakistani patients

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ABSTRACT

Background: Systemic lupus erythematosus (SLE) is an autoimmune disorder, multisystemic in nature more common in females of childbearing age. There are certain risk factors which predispose to this disease. It affects various organs, kidney is among them. Almost 60% patients having SLE ultimately leads to kidney dysfunction at some stage of the life.
Aim: To find out pattern of histopathological findings of lupus nephritis as per WHO classification on kidney biopsy in Pakistan.
Methodology: This cross-sectional study was completed in department of Medicine, Fatima Memorial Hospital, Lahore, from March 2016 to May, 2018. Total sample size was 165 patients. Only patients who fulfilled the 2012 SLICC (Systemic Lupus International Collaborating Clinics) criteria were included in the study. SPSS version 25.0 was used data analysis.
Results: Age of the patients was between 31-50 years i.e. 114(69.09%), mean and SD was 43.96±4.84 years, females were more commonly affected by calculating 99(59.70%). Patterns of lupus nephritis as per WHO classification and renal biopsy were noted which shows 18(10.91%) had Class I, 53(32.12%) Class II, 43(26.07%) Class III, 35(21.20%) Class IV, 10(6.06%) Class V and 6(3.64%) had Class VI.
Conclusion: Class II and Class III Lupus Nephritis are the most common modalities found in patients of SLE. Every patient with Lupus Nephritis should undergo a Renal Biopsy for correct diagnosis of the class of this disease and further management accordingly.
Keywords: Lupus Nephritis, SLE, renal biopsy

INTRODUCTION

Systemic lupus erythematosus (SLE) is an autoimmune disease presenting with signs and symptoms related to any organ of the body.[1] Common forms of SLE include Neuropsychiatric Lupus, Lupus Nephritis, Lupus cerebritis among others[2].

Possible mechanisms involved in this disorder include suggestive role of autoantibodies against nuclear elements[4] Other factors include: behavioural factors, immune activity and health characteristics[5].

Many studies have been carried out to find more about etiology and pathophysiology of SLE, still it remains elusive in many aspects. [14] There is a need to carry out more studies in this area to focus on the significance of timely diagnosis and early institution of management strategies of kidney dysfunction in order to make the quality of life better.

Lupus nephritis can be diagnosed with the help of history and laboratory investigations including: blood tests, ultrasound scans, urine routine examination and most importantly a kidney biopsy. On urine examination, a nephritic picture with red blood cell casts and proteinuria can be seen. It can be classified into six stages as recommended by The World Health Organization. These include: Class I: Minimal mesangial lupus nephritis, Class II: Mesangial proliferative lupus nephritis, Class III: Focal lupus nephritis, Class IV: Diffuse lupus nephritis, Class V: Membranous Nephritis, Class VI: Glomerulosclerosis.

METHODOLOGY

This was a cross-sectional study, completed in department of Medicine, Fatima Memorial Hospital, Lahore after IRB permission, from the month of March 2016 to May, 2018 after we got go ahead from ethical committee of the hospital. One hundred and sixty five patients was fulfilled the inclusion/exclusion criteria enrolled from

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Out Patient Department of Nephrology/Department of Medicine, Fatima Memorial Hospital, Lahore. An informed consent was taken from the patients to use their information in the study. Renal biopsy was performed by the consultant from department of Nephrology as per standard protocols. Specimens were sent to the Pathology Department.

RESULTS

A total of 165 participants were enrolled after evaluating the inclusion/exclusion criteria to calculate the frequency of histopathological patterns of this entity. Age distribution shows most of the patients were between 31-50 years age group i.e. 69%, 25.5% between 51-70 years, and 5.4% were between 15-30 years of age, mean and Standard deviation 43.8±4.7 years (Table 1). Gender distribution of the patients shows 148(89.70%) female and 17(10.30%) were males (Table 1).

Table 1: Age and Gender Distribution of patients with regard to Class of Lupus nephritis as per WHO Classification on renal Biopsy

Age(in Years)	n	%age
15-30	9	5.45
31-50	114	69.09
51-70	42	25.46
Mean±SD	43.76±4.74	
Gender		
Female	148	89.70
Male	17	10.30
Classification on Renal Biopsy		
Class I	18	10.91
Class II	53	32.12
Class III	43	26.07
Class IV	35	21.20
Class V	10	6.06
Class VI	6	3.64
Total	165	100

Documentation of classes of lupus nephritis on renal biopsy were documented in Table No. 3, where 18(10.91%) had Class I, 53(32.12%) Class II, 43(26.07%) Class III, 35(21.20%) Class IV, 10(6.06%) Class V and 6(3.64%) had Class VI (Table 1). Stratification for age and gender were done and presented in Table 2.

Table-2: Stratification for age and gender

Classification on Renal Biopsy	n	Age (in years)			Gender	
		15-30 (n=9)	31-50 (n=114)	51-70 (n=42)	Male	Female
Class I	18	5(55.56%)	7(6.14%)	6(14.29%)	16	2
Class II	53	2(22.22%)	29(25.44%)	22(52.38%)	48	5
Class III	43	1(11.11%)	34(29.82%)	8(19.05%)	39	4
Class IV	35	1(11.11%)	29(25.44%)	5(11.90%)	31	4
Class V	10	0	9(7.89%)	1(2.38%)	8	2
Class VI	6	0	6(5.26%)	0	6	0
Total	165	9(100%)	114(100%)	42(100%)	148	17

DISCUSSION

Females have more chances to develop SLE[14,15]. Almost 60% of patients with SLE develop kidney dysfunction at certain stage. The presentation of lupus nephritis is variable to some extent. It can present as asymptomatic, mild asymptomatic proteinuria and may also present as rapidly progressive glomerulonephritis. Some degree of glomerular proteinuria can be found in many cases. We decided to do this study keeping in mind the fact that in our country only couple of studies[8,9] has been published with a very small sample size (2004 and 2006), these studies were completed more than 10 years ago and also in their results are not in accordance with the findings of Dhakal SS and co-workers[3] as they showed class III as the commonest lesion[9] which demands for a new study to evaluate the frequency of different classes of lupus nephritis.

The results of our study demonstrated that most of the patients fell in the age group of 31-50 years. This shows that the morbidity is more common in this age group. Morbidity was also high in female sex. These findings are consistent with the findings of the study completed by Muhammad N et al[9] where it was documented that 84% of the patients were of the age group of 20-40 years and 92% of the patients were females[9]. Findings of renal biopsy were recorded as per the WHO. 10.9% had Class I, 32.1% Class II, 26% Class III, 21.2% Class IV, 6% Class V and 3.6% had Class VI.

Our findings, which showed Class III as the most common variant of Lupus Nephritis, are consistent with other studies carried out in Pakistan. However study conducted by Dhakal SS et al shows some differences. They recorded that there were grade 2 changes in 13 (35.1%) patients and grade 3 changes in 9 (24.3%) patients. The differences in the incidence and prevalence as well as in severity of this disease are already documented. Various factors have their role in these variations. The age and gender stratification of our study corresponds well with other studies with similar objectives.

CONCLUSION

Class II and Class III Lupus Nephritis are the most common modalities found in patients of SLE. Every patient with Lupus Nephritis should undergo a Renal Biopsy for correct diagnosis of the class of this disease and further management accordingly. Meanwhile all tertiary care hospitals should have a surveillance mechanisms to screen for this complication in patients of SLE.

Recommendation: All the patients who are suspected to have Lupus Nephritis, should undergo a proper assessment & should undergo renal biopsy to classify the disease pattern so that these group of patient be sorted out earlier for classifying the disease. Awareness about benefits of early diagnosis should be explained to patients and junior healthcare staff as well.

Limitations: As the prevalence of lupus nephritis is high in Pakistan and this was a single centre study so results cannot be generalized to whole population. Further, large scale Multi centre studies from all provinces are required for earlier detection of this problem and maintain a registry of these patients for the record keeping and analysing it in future for producing better recommendations for all country to detect the disease earlier and manage these cases effectively with help of nephrologists and Rheumatologists

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