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# Prevalence of lupus nephritis in diagnosed patients of systemic lupus erythematosis (SLE) presenting to nephrology division, Khyber teaching hospital Peshawar

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***Abstract*---**Objective: To determine the prevalence of lupus nephritis in patients diagnosed with systemic lupus erythematosis (SLE). Settings: This observational study was conducted at the department of nephrology, Khyber Teaching Hospital, Peshawar Pakistan. Participants were enrolled from 1st January 2022 to 31st March 2022. Materials and methods: Patients diagnosed with SLE were enrolled. SLE was confirmed based American college of rheumatology criteria for SLE (positive ANA ≥1:80 and clinical score 10 or more). Lupus nephritis was confirmed when serum creatinine was more than

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1.5mg/dl and urinary protein loss more than 0.5gm/day. Results: A total of 109 patients were enrolled. Mean age of the patients was 29.80 ± 5.245 years. 68 participants (62.4%) were female. Lupus nephritis was observed in 56 patients (51.4%). Correlation of lupus nephritis showed significant association with age and gender of the patient. Conclusion: Lupus nephritis is fairly common in patients with SLE in our population. Young female patients are more likely having it.

***Keywords***---lupus nephritis, systemic lupus erythematosis, prevalence.

## Introduction

Renal involvement in systemic lupus erythematosis is frequent. 38% of SLE patients had renal disease. Patients with African, Hispanic, and Asian descent have higher rates and more severe cases [1]. Despite being a typical early sign, it occurs at any point during the progression of the illness. The appearance might range from explicit nephropathy and proteinuria to subtle test abnormalities. Notwithstanding recent developments, some studies indicate that end-stage renal failure progression and fatality have not reduced in the preceding ten years [2, 3]. A better approach to treating both primary etiopathogenesis pathways and concurrent illnesses will ameliorate the course of nephritis. During induction as well as maintenance treatment, the use of intravenous cyclosporine and oral MMF is beneficial.[4] While unproven in carefully designed studies, results from of targeted B cell suppression regimens have been encouraging.[5] Recent therapy recommendations have included these immunomodulatory techniques and the management of comorbidities [6, 7]. Future therapeutic approaches' worth will be evaluated in light of the existing standard of care.

In many regions, systemic lupus erythematosus isn't considered an uncommon illness. It is increasingly being recognized, presumably as a result of growing knowledge of the protein expressions and the accessibility of serum tests.[8]. Systemic lupus erythematosus (SLE) individuals who experience renal involvement (40–75%) have this grave condition. The most common cause of SLE-related death continues to be lupus nephritis, despite significant advancements in its care.[9, 10] Data on lupus nephritis, its epidemiology and properties in Pakistan appear to be somewhat inadequate. Reviewing the prevalence and clinical and laboratory characteristics of lupus nephritis in Pakistan was the primary goal of this investigation.

## Methodology

### Settings

This observational study was conducted at the department of nephrology, Khyber Teaching Hospital, Peshawar Pakistan. Participants were enrolled from 1st January 2022 to 31st March 2022.

**Participants**

Patients diagnosed with SLE, visiting the nephrology clinic for renal assessment were enrolled. The yard stick for the diagnosis of SLE utilized was the one defined by American Rheumatologic Association. Renal involvement (lupus nephritis) was defined by derangement in the renal function tests and excessive protein loss in urine measured as more than 0.5gm/day. Biopsy was performed in selected cases where diagnosis was doubtful or the serum based test and proteinuria were not conclusive. The histopathological picture was grade according to WHO classification for lupus nephritis. Patients taking treatment for SLE, diabetes mellitus, HIV and HBV infection were excluded.

**Data collection and analysis**

Approval was taken from research review committee and ethical board. Informed consent was taken from all study members. Baseline information including age, gender, disease duration was recorded. Detailed history was taken followed by thorough physical examination. Blood sample were taken for evaluation of serum creatinine and urea. 24 hour urinary sample was collected for estimation of daily protein loss. Creatinine more than 1.5mg/dl and urinary protein loss more than 0.5gm/day was considered confirmatory for the presence of lupus nephritis. Data was recorded in IBM SPSS version 24. Numerical data was presented as mean and standard deviation. Categorical variables were presented in frequencies and percentages. Statistical test of significance utilized included chi square and student t test. P value ≤0.05 was considered statistically significant.

**Results**

A total of 109 patients were registered during the study period. Age of the patients ranged from 18 to 50 years. Mean age was 29.80 ± 5.245 years. 74 patients (67.9%) had age less than 35 years. 68 participants (62.4%) female. Mean weight 55.22 ± 7.101 kg and mean BMI was 21.381 ± 1.020kg/$m^2$. 61 participants (56.0%) had BMI more than 21.0kg/$m^2$. Mean disease duration was 32.061 ± 12.511 months. 77 patients (70.6%) had disease duration more than 24 months. Lupus nephritis was recorded in 56 patients (51.4%) with SLE. Most common presenting complaint of patients with lupus nephritis included edema (55.4%) and weakness and malaise (48.2%). Most common laboratory findings included proteinuria (100%), followed by other casts (89.0%) and hematuria (55.6%). Subgroup analysis of patients with lupus nephritis showed that majority of the patients with lupus nephritis were female (41 patients, 60.3%). Lupus nephritis was more prevalent in patients aging less than 35 years (47 participants, 63.5%).

Table I
Baseline characteristics

| Demographics And Baseline Characteristics | Mean ± Std. Deviation |
|---|---|
| 1. PATIENT AGE (Years) | 29.80 ± 5.245 |
| 2. PATIENT WEIGHT(Kg) | 55.22 ± 7.101 |
| 3. BMI (kg/$m^2$) | 21.381 ± 1.020 |
| 4. DISEASE DURATION (months) | 32.061 ± 12.511 |

Table 2
Subgroup group analysis of patients with lupus nephritis

| | | Lupus Nephritis | | Total | P value |
|---|---|---|---|---|---|
| | | Present | Absent | | |
| Age | 18-35 years | 47<br>63.5% | 27<br>36.5% | 74<br>100.0% | 0.001 |
| | 36-50 years | 09<br>25.7% | 26<br>74.3% | 35<br>100.0% | |
| Gender | Male | 14<br>34.1% | 27<br>65.9% | 41<br>100.0% | 0.008 |
| | Female | 41<br>60.3% | 27<br>39.7% | 68<br>100.0% | |
| Disease duration | Less than 24 months | 16<br>50.0% | 16<br>50.0% | 32<br>100.0% | 0.852 |
| | more than 24 months | 40<br>51.9% | 37<br>48.1% | 77<br>100.0% | |

**Discussion**

SLE-related literature is difficult to come across in our country. A study [11] described the cutaneous signs of lupus in Pakistani patients, while Suleman et al. [12] explored the applicability of the American Rheumatology Association categorization to local lupus patients. We think that the underreporting of lupus in Pakistan has contributed to the myth that SLE is not a widespread illness there. Yet only a community-based investigation can reveal the real prevalence of SLE. Contrary to expectations, our survey found a lower rate of renal dysfunction (51.4%) than other studies conducted on subcontinent and asian populations.[13] This shows that our population's percentage of renal involvement falls between that of Asians and Caucasians.

In individuals with lupus nephritis, we discovered a reduced prevalence of malar rash. Nevertheless, Anay J M et al [14] found that patients who had nephritis had a greater prevalence of mouth ulcers and malar rash. This was found in a population based comprehensive research conducted in Colombia.[15] According to our study, which is in line with several previous studies, individuals with renal dysfunction are a high-risk category in terms of grave outcomes like mortality. Given that the mean disease duration length for our patients is shorter than three years, we suspect that the worse outcomes in our patients is far greater than that shown by our study.

In comparison to western and middle-eastern population, those with biopsy-proven SLE had a lower male to female ratio.[16] Yet, the average age matched other research.[17] The Chinese population has a greater rate of Grade III lesions, which may indicate that the kind of renal lesions is influenced by a hereditary component.[18] The pathophysiology of lupus nephritis has been attributed to autoantibodies activation and destruction of renal parenchyma. It has been discovered that lupus nephritis patients have high-titer antibodies to dsDNA, for instance, and that these antibodies' levels fluctuate with the illness.[19] The

development of lupus nephritis is undoubtedly aided by DNA-anti dsDNA antibody complexes, according to studies.

**Conclusion**

We have learned that lupus nephritis is fairly common in our population. It was observed that several clinical traits have varying prevalence in our patients with lupus nephritis compared to numerous previous research. Patients with SLE should be screened for lupus nephritis to ensure early diagnosis and prompt treatment.

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