

**Correlation between proteinuria  
and histological findings in lupus  
nephritis patient.**

# Authors

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# Introduction

SLE is an autoimmune multisystem disease

with different clinical and immunological manifestations

characterized by presence of antinuclear antibodies.

# Introduction cont....

SLE can affect every organ in the body.

Kidney is the commonest vital organs that may be involved in SLE.

Early detection of renal involvement is essential to prevent irreversible renal damage and renal failure.

# Introduction cont.....

Proteinuria is a very common urinary findings which indicate renal involvement in SLE.

# Introduction cont.....

Simple urine analysis and 24 hours urine protein estimation are two important tests for detection and quantify protein in urine.

These tests are cost effective and easily approachable to the patients.

# Introduction cont.....

Renal biopsy is another investigation which is done to identify extent of renal damage.

In different studies (*Zappitelli atudy, CHU, Amines, France study, Lokmanya municipal medical college hospital study*) it was observed that **proteinuria had a positive correlation with extent of renal damage.**

# Introduction cont.....

AS there is scarcity of such study in our country,

this study was designed to observe whether there had any positive correlation between proteinuria and histological findings in lupus nephritis.

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# Introduction cont.....

When renal biopsy is not possible,

result of the study may be helpful for treatment of lupus nephritis.

# Methods

It was an Observational Cross Sectional study done in medicine and Nephrology department, CMCH.

Study period was 1 Year.

Study populations was selected based on inclusion and exclusion criteria.

Sample size was calculated as 30 .

# Methods cont.....

## ***Inclusion criteria:***

1. SLE patients having proteinuria >500mg/day.
2. Age 15 – 55 years
3. Voluntarily given consent to participate in the study.

# Methods cont.....

## ***Exclusion criteria:***

1. Lupus nephritis patients with co-morbid condition such as ESRD ,CNS and cardiac involvement, uncontrolled hypertension, DM etc.
2. Lupus nephritis with contraindications for renal biopsy such as bleeding disorder, solitary kidney etc.
3. Subjects who do not provide written consent to participate in the study.

# Methods cont.....

After taking informed written consent from all eligible subjects, clinical history and examination were done.

All relevant tests were done in a renowned local laboratory.

For doing renal biopsy patient was admitted in Nephrology unit of CMCH.

# Methods cont.....

Two biopsy tissue samples were taken and one preserved in the normal saline and another one preserved in the formalin solution.

Both samples were sent to Combined Military Hospital, Dhaka for histopathology and direct immunofluorescence test (DIF).

# Methods cont.....

**Data collection Methods:** All relevant information for each individual study subject were recorded on a pre- tested data sheet after getting written consent.

# Methods cont.....

**Data analysis:** Data was processed and analysis was done by expert statistician using computer based software SPSS- 19(Chicago, Illinois, USA).

Qualitative variables were analyzed by Chi-squared test, Spearman's correlation and continuous variables were analyzed by t- test and ANOVA.

P value was considered as statistically significant when it is less than 0.05.

# Results

## 1. Distribution of patients according to age:

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<i>Age in Groups</i>	<i>Frequency</i>	<i>Percentage (%)</i>
< 20 Years	6	20.0
<b>21 – 40 Years</b>	<b>22</b>	<b>73.3</b>
>40 Years	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

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# Results cont.....

## 2. Distribution of patients according to clinical variables:

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	<i>Clinical Variables</i>	<i>Frequency</i>	<i>Percentage (%)</i>
	Mild	19	63.3
Anaemia	Moderate	9	30.0
	Nil	2	6.7
	<b>Present</b>	<b>28</b>	<b>93.3</b>
Oedema			
	<b>Absent</b>	<b>2</b>	<b>6.7</b>

# Results cont.....

## 3. Distribution of patients according to urine examination findings:

	<i>Urine Examination Findings</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Proteinuria	Trace(<250 mg/dl)	2	6.7
	+(250 mg/dl)	12	40.0
	++(<500 mg/dl)	8	26.7
	+++(<1000 mg/dl)	8	26.7
	Nil	0	0
Haematuria	Significant	16	53.3
	Not Significant	7	23.3
	Nil	7	23.3

# Results cont.....

## 4. Distribution of patients according to 24 hour total urine protein:

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<i><b>Total Urinary Protein</b></i>	<i><b>Grading Frequency</b></i>	<i><b>Percentage (%)</b></i>
500 mg – 1 gm / Day	7	23.3
<b>1 – 2 gm / Day</b>	<b>10</b>	<b>33.4</b>
2 – 3 gm / Day	7	23.3
>3 gm / Day	6	20.0
<b>Total</b>	<b>30</b>	<b>100.0</b>

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# Results cont.....

## 5. Distribution of patients according to renal biopsy findings:

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<i>Renal Biopsy</i>	<i>FindingFrequency</i>	<i>Percentage (%)</i>
Class II	2	6.7
Class III	9	30.0
<b>Class IV</b>	<b>12</b>	<b>40.0</b>
Class V	4	13.3
Acute Post Infection GN	1	3.3
Inadequate Specimen	2	6.7
<b>Total</b>	<b>30</b>	<b>100.0</b>

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## 6. Distribution of biopsy findings with proteinuria analyzed by ANOVA:

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower limit	Upper bound
Class II	2	1.42550	.960958	.679500	-7.20837	10.05937
Class III	9	1.47149	.972612	.324204	.72387	2.21910
Class IV	12	1.96767	.843933	.243622	1.43146	2.50388
Class V	4	4.08360	1.419412	.709706	1.82500	6.34220
Acute Post Infection GN	1	1.50000	.	.	.	.
Inadequate Specimen	2	2.60900	2.105764	1.489000	-16.31054	21.52854
Total	30	2.09196	1.287798	.235119	1.61109	2.57283

# Results cont.....

## 7: ANOVA test of proteinuria with different classes of Lupus Nephritis(ANOVA):

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	21.290	5	4.258	3.813	.011
Within Groups	26.804	24	1.117		
Total	48.094	29			

# Results cont.....

8: Correlation or proteinuria with histological type					
			Renal Biopsy Finding : Histology & DIF	Total Urinary Protein Grading	
Spearman's rho	Renal Biopsy Finding : Histology & DIF	Correlation Coefficient	1.000	.435*	
		Sig. (2-tailed)	.	.016	
		N	30	30	
	Total Urinary Protean Grading	Correlation Coefficient	.435*	1.000	
		Sig. (2-tailed)	.016	.	
		N	30	30	

# Discussion

There was a female preponderance in the studied patients, where all patients were found female.

Regarding the age group of patients, most of the patients included were 20-40 years of age.

Mean age was 28.42 years.

Few(10%) patients came from hilly area of Bangladesh who were tribal in origin.

# Discussion cont.....

Most of the patients came from average socioeconomic status, none from higher class.

Maximum were house wife.

Some patients had history of abortion and fetal loss.

Literacy rate was low among the study population.

# Discussion cont.....

Most common hematological abnormality was anaemia( 57.5%).

Three plus(+++) proteinuria was found in 8(26.6%) patients.

## Discussion cont.....

There is frequent association between hypertension and renal disease in SLE. Our study could not establish any statistical significant association between renal involvement and hypertension.

Our study also had 6 patients of thyroid disorder in the form of autoimmune thyroiditis and 4 patient of DM.

# Discussion cont.....

Regarding examination of renal biopsy, no patient was found in Class 1 group as selection criteria of patients having proteinuria <500mg/day.

Most of the patients were in class III(9(30%) and class IV(40%).

# Discussion cont.....

A patient had histologic features of post streptococcal glomerulonephritis but had significant proteinuria with other diagnostic features of lupus nephritis.

# Discussion cont.....

Renal biopsy findings were correlated with urinary protein loss.

**Here, the correlation coefficient value was 0.435 indicating positive relationship between them.**

# Discussion cont.....

Again, significance value of Spearman test was 0.016.

So the test is significant at 5% level of significance.

# Discussion cont.....

A study done by Gamboa\* on 15 patients with lupus showed a significant association with proteinuria with different histological types.

Our study also revealed similar findings.

\* *Gamboa TJM. Lupus nephropathy. Clinical, chemical and histological correlations of 15 cases. Presna Med Mex 1975;40(9-10):291-300*

# Conclusion

So, it can be said that LN have different histological type with deterioration of renal function in terms of high proteinuria.

Changes of proteinuria follow significant correlation with different histological types.

# Recommendation

As positive correlation was found, it may be utilized for the treatment of those patients of LN where renal biopsy cannot be done (As for example due to poverty, patient's refusal, co morbid conditions, contraindications and lack of facilities in remote area).

THANK YOU