Research Article

Evaluation of the role of 24h urinary protein in Diagnosis of Lupus Nephritis Activity

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Abstract
Background: Lupus nephritis (LN) is a form of glomerulonephritis and constitutes one of the most severe organ manifestations of SLE. LN is histologically classified into six distinct classes that represent different manifestations and severities of renal involvement in SLE. Most patients with SLE who develop LN do so within 5 years of an SLE diagnosis, although it is not uncommon for LN to develop at later times. In many cases, LN is the presenting manifestation that results in the diagnosis of SLE. Urinary protein excretion in a 12-h or 24-h urine collection provides the best estimate of proteinuria. For practical reasons, urinary protein-to creatinine ratio in early morning or random daytime urine samples has replaced urinary protein excretion in 24-h urine collections in many centres, although this approach has not been carefully validated. **Objectives**: This work aims to evaluate the role of proteinuria in Diagnosis of Lupus Nephritis. **Methods**: The study was conducted on 60 cases of Systemic Lupus Erythmatosis, The age of patients ranged from 27.5 to 43 patients were subjected to routine and special investigations which included C.B.C (complete blood count) using celltac G, Nihon KHODEN CORPORATION, AUTOMATED HEMATOLOGY ANALYZER, japan). And renal functions including blood urea and serum creatinine using auto-analyzer SELECTRA, ELITech Group, clinical chemistry automation systems, Finland). **Results**: Patients with persistent proteinuria, such as protein excretion of more than 0.7–0.8 g daily 1 year after treatment initiation, or kidney function deterioration despite adequate treatment ('refractory LN') should be assessed for other possible causes, including potential nephrotoxic side effects of medications. **Conclusion:** 24h urinary protein is considered corner stone in Diagnosis of Lupus Nephritis Activity.
Keywords: Lupus Nephritis, Diagnosis

Introduction
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5 years of an SLE diagnosis, although it is not uncommon for LN to develop at later times. In many cases, LN is the presenting manifestation that results in the diagnosis of SLE (Kamińska et al., 2020) .

Subjects and Methods
This study included 60 patients chosen from Rheumatology department in Minia University hospital in addition to 20 healthy controls during the period from December 2018 to April 2019. Formal consent was obtained from patients and controls. This study was approved by the ethical committee of faculty of medicine, Minia university.

All patients were subjected to careful history taking, clinical examination, routine and special investigations and 24h urine collection for urinary protein assessment.

Statistical analysis

Data were statistically analyzed using SPSS program. The statistical difference between groups was expressed in p value which was considered significant when it was < 0.05.

Results

We noticed that 24h urinary protein is considered a good indicator for Lupus Nephritis activity.

Table (1): Comparison of Urine analysis parameters among study groups;

	Active renal (I)	Active non renal (II)	Inactive (III)	Control (IV)	p value
	(n=20)	(n=20)	(n=20)	(n=20)	
Urinary pus Mean±SD (Range)	15.3±12.9 (1.5-42.5)	2.5±1.5 (0-5.5)	3±1.8 (0-6)	1.6±0.8 (0-3.5)	<0.001*
Urinary RBCs Mean±SD (Range)	6.9±5.6 (1-22.5)	2.6±1.3 (0.5-5)	1.9±1.2 (0-4.5)	1.8±0.7 (1-3)	<0.001*
Urinary protein 24h Median (*IQR*)	238 (95-300)	36 (17.5-47)	33 (30.5-36.5)	10.5 (7.5-14)	<0.001*
Urinary cast Nil Granular Hyaline	14 (70%) 4 (20%) 2 (10%)	20 (100%) 0 (0%) 0 (0%)	20 (100%) 0 (0%) 0 (0%)	20 (100%) 0 (0%) 0 (0%)	0.001*
PC ratio Median (*IQR*)	0.6 (0.2-0.9)	0.3 (0.2-0.4)	0.1 (0.1-0.2)	0.1 (0.1-0.2)	<0.001*

Table (1); shows that there were high statistical significant differences between groups as regard urinary pus, urinary RBCs, urinary protein 24h, urinary cast and PC ratio (p<0.001) which indicate importance of 24h urinary protein in diagnosis of lupus nephritis activity.

Discussion

Our study showed that 24h urinary protein excretion is significantly higher in patient group with active renal nephritis than those healthy persons and gradualy decrease according to the severity (Liao et al., 2015) . Urinary protein excretion in a 12-h or 24-h urine collection provides the best estimate of proteinuria (Moroni et al., 2018). For practical reasons, urinary protein-to creatinine ratio in early morning or random daytime urine samples has replaced urinary protein excretion in 24-h urine collections in many centers, although this approach has not been carefully validated (Simmons et al., 2015).

The aim of work: To evaluate the role of 24h urinary protein in diagnosis of lupus Nephritis activity.

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