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MORPHOLOGICAL FEATURES OF GLOMERULONEPHRITIS IN SYSTEMIC LUPUS ERYTHEMATOSUS

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Relevance. Systemic lupus erythematosus (SLE) is a systemic autoimmune disorder characterized by a higher prevalence in women and a tendency to develop glomerulonephritis (GN). The involvement of the kidneys in SLE is a strong predictor of morbidity and mortality in patients, with a frequency of 20-49%. However, lupus nephritis should be viewed in the context of the disorder's multi-organ involvement. African American women between the ages of 35 and 44 have a higher mortality rate, according to research.

Aim: to analyze kidney biopsies for morphological changes and investigate various clinical and laboratory parameters in SLE patients with GN.

Materials and methods. A retrospective study was conducted on 37 SLE patients who underwent renal biopsies. The study focused on evaluating glomerular parameters such as mesangial proliferation, necrosis, focal and global glomerulosclerosis, leukocytes, microthrombi, and crescents. Hematoxylin & eosin, PAS, Masson trichrome, Congo red, Jones silver stains were used for light microscopy evaluation. Immunofluorescent (IF) staining for IgG, IgA, IgM, C3c, C1q, fibrinogen, k, and λ light chains was performed on paraffin sections of all the cases. Clinical features such as arterial hypertension, anemia, nephrotic syndrome, and renal failure were also investigated. Immunological tests such as ANA and anti-DNA confirmed the presence of SLE in patients. The cases were categorized into classes of lupus nephritis based on the results.

Results and discussion. This study found that the frequency of lupus nephritis occurrence in SLE patients is higher in females (n=35/94.6%) compared to males (n=2/5.4%) with a female to male ratio of 17.5 to 1. The age of patients ranged from 20 to 64 years, with a mean age of 33.9±11.7 years. The number of glomeruli in biopsies ranged from 3 to 34, with a median of 15 (25% -75% range: 1121). According to morphological changes in the glomeruli, 1st, 2nd, 3rd, 4th, and 5th classes of GN were identified in n=1/2.7%, n=2/5.4%, n=16/43.2%, n=17/45.9%, and n=1/2.7% cases, respectively. Almost all patients (n=36/97.3%) with lupus nephritis showed some degree of mesangial proliferation, ranging from 0-3 degrees (1st degree was seen in 15 cases, 2nd degree in 19 cases and 3rd degree – in 2 cases). Endothelial proliferation was observed in 27 (73.0%) cases, while necrosis was observed in 5 (13.5%) cases, ranging from 7.7% - 33.3% of glomeruli. Focal segmental glomerulosclerosis was seen in 26 (70.3%) cases, and global glomerulosclerosis was seen in 27 (73.0%) cases. The presence of glomerular crescents was seen in 17 (45.9%) cases. The study found that IgG, C3, C1q were detected in 36 (97.3%) and IgA, IgM in 35 (94.6%) biopsies, indicating a "full house" expression of all IF components in lupus nephritis. Clinical and laboratory research revealed that nephrotic syndrome was present in 10 (27.0%) cases, arterial hypertension in 16 (43.2%), and anemia in 13 (35.1%). The median values of proteinuria were 1.2 (25% -75% range: 0.8-2.6) and ranged from 0.03 - 6.6 g/l.

Conclusions: GN is a more prevalent complication of SLE, with a female to male ratio of 17.5:1. Lupus nephritis classes 3 (43.2%) and 4 (45.9%) were the most frequent in the studied population. The use of kidney biopsy and histological examination can aid in the selection of appropriate treatment for SLE patients with GN.