Value of urine soluble CD163 as a biomarker for diagnosis and evaluation of lupus nephritis

Thesis

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Summary

Systemic lupus erythematosus (SLE) is a prototype autoimmune disease that affects females and involves a wide array of systems. The disease follows a waxing and waning course, with exacerbations leading to organ damage over time.

Lupus nephritis (LN) is a form of glomerulonephritis and is one of the most serious organ manifestations of SLE. LN is classified histologically into six different classes that have different manifestations and complications of renal involvement in SLE**.**

CD163 is a 130-kDa type I glycosylated transmembrane protein related to the cysteine-rich scavenger receptor superfamily type B. CD163-positive macrophages are found in several human glomerular diseases, such as LN. Soluble CD163 is released from the cleavage of the CD163 macrophage receptor by metalloproteinase and is released into inflammatory tissue, urine, blood, synovial fluid, and cerebrospinal fluid**.** Urine-soluble CD163 (Us CD163), not serum CD163, correlated with the severity of LN**. In this study, we evaluated Us CD163 in urine of patients with active lupus nephritis and patients diagnosed with SLE but without active lupus nephritis as a biomarker for diagnosis and evaluation of lupus nephritis.**

This study was conducted at Fayoum university hospitals and included (77) participants. They categorized into (52) patients (Group 1) with SLE classified according to EULAR /ACR classification criteria for systemic lupus erythematosus 2019 matched with (25) age and sex healthy controls (Group 2).Group (1) was divided into two subgroups Based on results of renal SLEDAI, the patients were classified into active LN patients (ALN) if renal SLEDAI score of ≥ 4 and no-renal activity (NRA) SLE patients those had inactive renal disease if renal SLEDAI = 0 at the time of their clinic visit**.** And we

measured the level of usCD163 in urine by ELISA technique.

(17) patients with active lupus nephritis were done renal biopsies in this study and Renal biopsies were classified according to the International Society of Nephrology and the Renal Pathology Society 2003 classification of LN and scored by the National Institutes of Health (NIH) activity and chronicity indices. In our study, UsCD163 has shown a statistically significant value higher in active LN compared to no renal activity patients with $p < 0.001$. Also, UsCD163 level is correlated with total SLEDAI and r SLEDAI with P value 0.001. Another finding is UsCD163 was higher in patients with positive anti-ds-DNA antibodies than those with negative results with P value 0.001. Also, there was a significant correlation between 24-hour urinary protein and UsCD163 with p-value 0. 001.Also, UsCD163 had a power for differentiating SLE cases from controls area under the curve (AUC) and confidence interval (CI) (AUC = 75.5% , CI =95%) .The optimal cut-off value for us CD163 is (4.58 ng/ml) at which sensitivity is (75%) and specificity is (52%).also, usCD163 had a power for differentiating SLE cases with lupus nephritis from cases of SLE with no renal activity (AUC) and (CI) (AUC =92.5, CI=95%).The cut-off value for UsCD163 is (5.031 ng/ml) with sensitivity (88.9%) and specificity(80%).