VALUE OF IMMUNOHISTOCHEMICAL EXPRESSION OF PODOCALYXIN IN ACTIVE LUPUS NEPHRITIS

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Objectives:

Podocalyxin is electronegative sialoglycoprotein that prevents podocyte foot process from collapsing. Podocytes loss seems to be a marker for glomerular disease activity or adverse prognosis. We aimed to detect an association between glomerular immunohistochemical (IHC) expression of podocalyxin and the degree of podocyte effacement detected by electron microscopy in patients with lupus nephritis and to evaluate role of IHC expression of podocalyxin as a novel marker for disease activity in lupus nephritis.

Methods:

Thirty two renal biopsies of active lupus nephritis patients were studied. Clinical and laboratory data collected included [Serum creatinine, 24h urinary protein, antinuclear antibodies (ANA) and anti-double strand DNA antibodies (anti-dsDNA)], Light (L/M) and electron microscopic (E/M) evaluation for renal biopsy specimens were performed. Immunohistochemistry with monoclonal antipodocalyxin antibodies was used for Identification of detached podocytes. Evaluation of immunohistochemical expression was done by means of a semi-quantitative score that was graded from 0 to 4+ according to the percentage of glomerular involvement. The grade score was set as 0 =0%, 1+ =1-25%, 2+ =26-50%, 3+ =51-75% and 4+ =76-100%.The NIH activity and chronicity indices were calculated in each case.

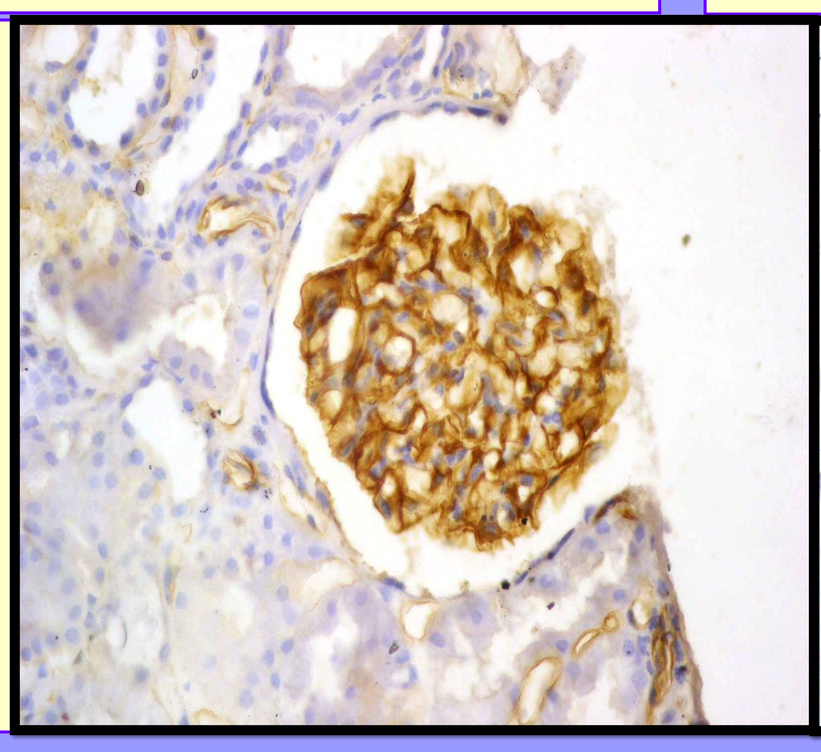

Figure (1)

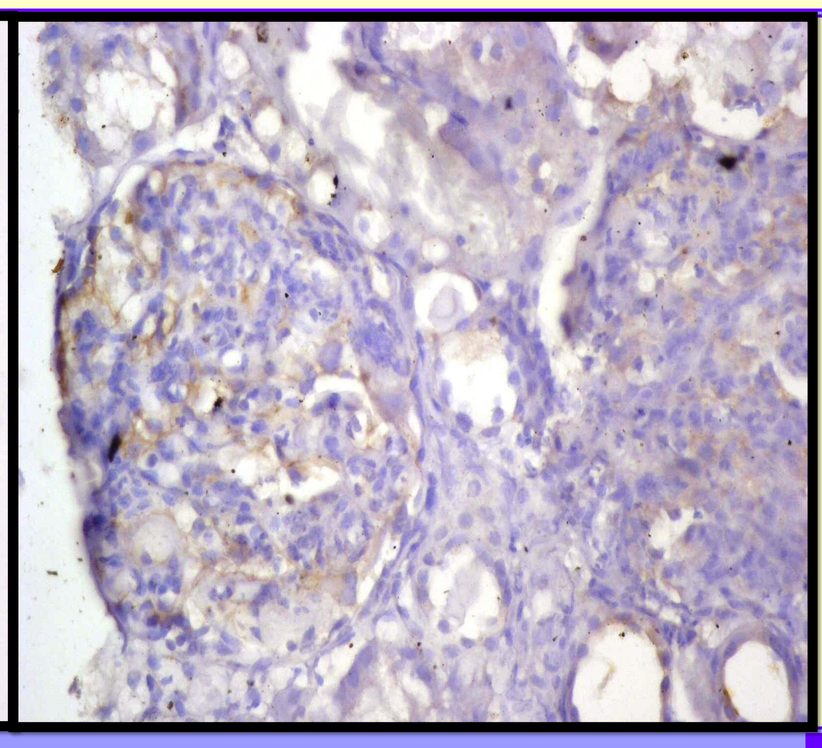

Figure (2)

Results:

26 (81.2%) of the cases were females and 6 (18.8%) were males with The mean of age was (21.41±10.13) years. 22(68.8%) cases with Lupus nephritis class IV , 6 (18.8%) with class III and 4 (12.5%) with class V . Semi-quantitative score of IHC podocalyxin was 0 in 4 (12.5%) ,+1 in 8 (25%) ,+2 in 7 (21.9%),+3 in 8 (25 %) and +4 in 5 (15.6%) of the total cases . There was significant negative association between IHC Podocalyxin score and lupus nephritis class (r = - 0.701, P = 0.000), NIH activity parameters by LM as leucocyte infiltration, endocapillary proliferation, fibrinoid necrosis and cellular crescent (P <0.05) and disease activity index (r s = -.609, P < .0005) but not chronicity index . Figure (1) showed podocalyxin (IHC) expression in a case with mild activity index (4/24) showing strong global immunostaining of glomerular capillary walls while figure (2) showed podocalyxin IHC expression in a case with severe activity index (18/24) showing minimal focal immunostaining of capillary walls and podocytes. There was a Highly Significant negative correlation between IHC podocalyxin and podocyte effacement by E/M (rs = -0.903 ,P =0.000) and E/M immune deposits (r = -0.53,P =0.001) .Significant association between score IHC podocalyxin and degree of proteinuria ($\chi 2$ = 17.611, P = .024) and ANA ($\chi 2$ = 9.759,P= 0.045) .

Conclusions:

Immunohistochemical expression of podocalyxin significantly correlated to hisopathological and clinical activity of lupus nephritis and may associated with severity of the disease.

Reference:

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