THE KOREAN SOCIETY OF NEPHROLOGY
APCN & KSN 2024
June 13(Thu) - 16(Sun), 2024 Coex, Seoul, Korea
Promoting Sustainable Kidney Health: The Asia-Pacific and Beyond

Abstract Submission No.: A-0494

Association Analysis between Extracapillary Hypercellularity, Segmental Sclerosis and Clinical Features of Diabetic Kidney Disease

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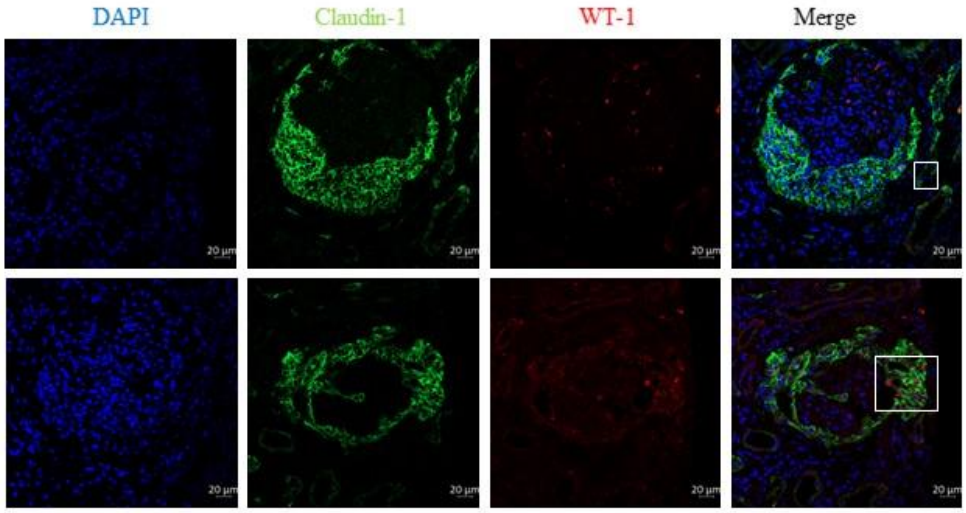
Objectives : EXHC and SS were poor prognostic pathological features of DKD. We analyzed the association between EXHC and SS and clinical features in DKD patients. We also evaluated the clinicopathological significance of EXHC and SS in DKD patients and investigated the cellular origin of the EXHC structure.
Methods : Clinical and pathological information were collected from DKD patients. These patients were divided into two groups: one presented with EXHC or SS, another one without. Welch t test, Pearson Chi-square test, or Mann-Whitney U test was used to compare the difference in these two groups. Association analysis was conducted using Pearson Correlation or Spearman Correlation analysis. Furthermore, the cellular origin and components of EXHC in patients with DKD were analyzed with immunofluorescence staining.
Results : We studied a total of 115 renal biopsy-proven DKD patients. There was significant difference in height between patients with EXHC and those without. There was significant difference in urea nitrogen, uric acid, 24-h proteinuria, urinary protein/creatinine ratio, urinary albumin/creatinine ratio, diabetic retinopathy in patients with SS compared with those without SS. EXHC correlated with patients' height. Association analysis revealed that SS correlated with serum creatinine, e-GFR, urea nitrogen, proteinuria, 24-h proteinuria, urinary protein/creatinine ratio, urinary albumin/creatinine ratio, and diabetic retinopathy. Moreover, as shown by immunofluorescence staining with Claudin-1 and WT-1, most of the EXHC structure was composed of Claudin-1 positive glomerular parietal epithelial cells and a portion was WT-1 positive podocytes.
Conclusions : We found that those in DKD patients with SS, serum creatinine, proteinuria, diabetic retinopathy, and e-GFR were worse than patients without SS. The finding that podocytes were observed in the EXHC structure suggested that they may played a role in the formation of this particular phenotype and needs further exploration in the future larger samples.

Figure.jpg


DAPI
Claudin-1
WT-1
Merge
20 μm