

Abstract Submission No.: A-0916**Glomerular galactose-deficient IgA1(KM55) positive may be associated with poor prognosis in DKD patients**

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Objectives : Diabetic kidney disease (DKD) and IgA nephropathy (IgAN) are prevalent renal diseases with a high incidence rate. It remains uncertain whether the pathological changes associated with DKD combined with IgA deposition (DKD-IgA deposition) are linked to a worsened prognosis.

Methods : To address this question, we conducted an analysis comparing the clinicopathological characteristics and prognosis of DKD-IgA deposition patients to DKD patients as controls.

Results : The results revealed that DKD-IgA patients exhibited higher cholesterol levels compared to DKD patients (6.2 ± 2.0 vs. 5.4 ± 1.9 mmol/L, $p=0.042$). The group with DKD-IgA deposition had a significantly shorter follow-up duration (10.9 ± 10.6 months) compared to the control group (20.4 ± 18.7 months, $p=0.029$). However, they exhibited higher levels of serum creatinine at the end of the follow-up period ($343.8 \pm 328.0 \mu\text{mol/L}$ vs. $182.1 \pm 124.6 \mu\text{mol/L}$, $p=0.031$). Kaplan-Meier analysis showed a higher cumulative incidence of poor events in the DKD-IgA deposition group ($p=0.036$). In addition, we also detected galactose deficient IgA1 (KM55) in the kidneys and serum of patients with DKD-IgA deposition. Of the 24 patients with DKD-IgA deposition, 54.5% (24/44) showed positive glomerular KM55 results. Immunofluorescence analysis revealed that KM55 and IgA were predominantly colocalized in the mesangial and capillary regions. Furthermore, the subgroup with KM55 positivity had a shorter disease duration compared to the KM55 negative subgroup (66.0 vs. 120.0 months, $p=0.048$). The serum levels of galactose-deficient IgA1 (Gd-IgA1) (6296.4 ± 1535.4 vs. 4057.4 ± 1082.0 ng/mL, $p=0.010$) and C4 (0.4 ± 0.1 vs. 0.3 ± 0.1 g/L, $p=0.020$) were significantly higher in the KM55 positive subgroup than in the KM55 negative subgroup. Furthermore, it was observed that the KM55 positive subgroup exhibited a considerably higher incidence of reaching the renal endpoint compared to the control group (64.3% vs. 20.0%, $p=0.047$).

Conclusions : These study results suggest that individuals with DKD who display glomerular IgA deposition alongside KM55 positivity may experience a more unfavorable prognosis.