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## **The increased plasma levels of angiotensin-2 in patients with Asian diabetic chronic kidney disease**

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**Objectives:** Biomarkers associated with chronic kidney disease (CKD) may play a crucial role in patients with diabetic kidney diseases. Angiotensin-2 (Ang2) is a factor regulation angiogenesis and related with vascular endothelial cells. However, until now, there have been few reports about Ang2, especially in Asian patients with diabetic CKD. Thus, we evaluated the relationships between serum Ang2 and stage of diabetic CKD and albuminuria.

**Methods:** We divided patients with diabetic CKD into four groups: the CKD stage 3, stage 4 and stage 5 group. In total, 42 Asian patients with diabetic nephropathy and seven healthy controls without DM were enrolled in this study. We recognized levels of Ang2 through the multiplexing using Luminex® technology. We performed a comparative analysis of serum Ang2 levels in the CKD 3-4, CKD 5, and control groups.

**Results:** Serum levels of Ang2 in CKD stage 4 and stage 5 were significantly higher than those in the control group. However, there was no significant difference between CKD stage 3 or 4 and CKD stage 5 in serum levels of Ang2. Serum levels of Ang2 were all negatively correlated with estimated GFR ( $r = 0.32$ ,  $P < 0.05$ ). Additionally, Ang2 correlated with the urine albumin-to-creatinine ratio ( $r = 0.38$ ,  $P < 0.01$ ). However, in patients with diabetic nephropathy combined with macrovascular complications, serum level of Ang2 did not show a significantly increasing tendency as CKD stage increases.

**Conclusions:** Our data shows serum Ang2 level might be markers in Asian patients with diabetic CKD and proteinuria.