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**Relatively high levels of albumin are associated with renal survival,  
depending on the level: Findings from the KNOW-CKD cohort**

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**Objectives:** Hypoalbuminemia is a well-known risk factor for mortality, and correlations of hypoalbuminemia with clinical outcomes have been clearly documented in patients with end-stage renal disease. However, scarce information is available from prospective studies on renal outcomes in chronic kidney disease (CKD) patients with relatively high albumin levels ( $\geq 4.0$  g/dL). Thus, this study analyzed the differences in renal outcomes associated with albumin levels in outpatients with albumin levels of  $\geq 4.0$  g/dL, who had yet to start dialysis.

**Methods:** A total of 2213 subjects from the KNOW-CKD cohort were divided into 4 groups (Q1, Alb $<4.0$ ; Q2,  $4.0 \leq$ Alb $<4.2$ ; Q3,  $4.2 \leq$ Alb $<4.5$ ; Q4,  $4.5 \leq$ Alb; g/dL) and analyzed. The Jonckheere-Terpstra test or linear-by-linear test was used to analyze baseline characteristics. Cox proportional hazard models were used to analyze renal outcomes in these 4 groups. Renal events were defined as a composite outcome including doubling of creatinine, a 50% decline of the eGFR, or the start of maintenance ( $>3$  months) dialysis or transplantation.

**Results:** The patients in lower-albumin groups tended to be older, were more likely to be female, and had higher rates of diabetes and hypertension ( $P < 0.001$ ). Q1 had higher systolic blood pressure, urine albumin-to-creatinine ratio, uric acid, phosphate, potassium, chloride, and hsCRP, as well as lower levels of eGFR, hemoglobin, HDL cholesterol, TCO<sub>2</sub>, and 25-vitamin D. Compared to Q1, the risk of renal events in Q2, Q3, and Q4 decreased in stepwise fashion (HR [95% CI] = 0.498 [0.374 - 0.664], 0.404 [0.310 - 0.525], 0.363 [0.266 - 0.495], respectively). Additionally, diabetes, higher systolic blood pressure, Phosphate, and ALP and lower hemoglobin were the risk factors of renal events.

**Conclusions:** In conclusion, we observed a stepwise survival gain in the  $4.0 \leq$ Alb groups, and slight increases from albumin levels 4.0 g/dL non-trivially improved renal survival. Therefore, a higher serum albumin target might be suitable for CKD patients.