Association between plasma soluble RAGE and renal function is unaffected by medication usage and enzymatic antioxidants in chronic kidney disease with type 2 diabetes

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ABSTRACT

Background: This study aimed to investigate the relationship between soluble RAGE and estimated glomerular filtration rate (eGFR) in patients with chronic kidney disease (CKD) after controlling for the potential confounding factors such as medication usage and enzymatic antioxidants.

Methods: A total of 222 CKD patients whose eGFR is less than 60 ml/min/1.73 m² and 111 non-CKD individuals were recruited. The study subjects were classified based on their diabetes status. The plasma glutathione peroxidase (GPx) and superoxide dismutase (SOD) activities as well as plasma soluble RAGE level were measured.

Results: The plasma GPx and SOD activities were significantly lower and the plasma soluble RAGE level was significantly higher in the CKD patients than in the non-CKD individuals, regardless of the diabetes status. Soluble RAGE was significantly correlated with eGFR in both diabetic CKD (D-CKD) and non-diabetic CKD (ND-CKD) patients. The association between soluble RAGE and eGFR remained largely unaffected by the confounding factors in D-CKD patients. However, the confounding effect of enzymatic antioxidants in the relationship between eGFR and soluble RAGE was observed in ND-CKD patients.

Conclusion: The increased plasma level of soluble RAGE is a better indicator of renal function decline in diabetic CKD patients instead of non-diabetic CKD patients.

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