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Association of apolipoprotein A1 and B with kidney function in patients with diabetes

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Objectives: Patients with chronic kidney disease (CKD) exhibit a myriad of metabolic derangements, including dyslipidemia characterized by hypertriglyceridemia and low levels of high-density lipoprotein-cholesterol. Epidemiological studies have demonstrated a relationship between the risk of atherosclerotic cardiovascular disease and plasma levels of apolipoprotein A. However, the associations between apolipoprotein A1 and apolipoprotein B with glomerular filtration rate (eGFR) are not well studied in patients with diabetes. The aim of our study was to investigate associations between apolipoprotein A1, B and eGFR in patients with diabetic kidney disease.

Methods: We examined at baseline 300 patients with diabetes and CKD and various degrees of renal impairment who were aged between 18 and 65 years. Blood samples for measurement of routine chemistry and lipid parameters were taken after an overnight fast of at least 12 h.

Results: We found statistically significant correlations between eGFR and apolipoprotein A1 ($p=0.01$).
Higher apolipoprotein A1 quartiles were associated with a lower prevalence of CKD [OR 0.74, $P=0.03$]. The apolipoprotein B/A1 ratio was significantly associated with eGFR across quartiles ($P<0.02$) and with CKD [OR 1.24, $P=0.02$]. Multiple linear regression analyses demonstrated inverse relationships of apolipoprotein A1 with all measures of kidney function even after adjustment for age, sex, waist circumference, triglycerides, and urinary albumin excretion ($P<0.05$).

Conclusions:

Higher serum apolipoprotein A1 was associated with lower prevalence of CKD and higher eGFR as well as a higher apolipoprotein B/A1 ratio was significantly associated with lower eGFR in patients with diabetes. Further evaluation is needed to be confirmed by future large studies.