Abstract Type : Poster
Abstract Submission No. : 1430

Progression to chronic kidney disease according to albuminuria in diabetic nephropathy patients with preserved renal function

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Objectives: Albuminuria predicts progression of diabetic nephropathy (DN) but lacks specificity and sensitivity for the diagnosis of chronic kidney disease (CKD) and progressive decline in estimated glomerular filtration rate (eGFR). We evaluated the decline in renal function in patients with DN and analyzed the prognosis of renal function according to the level of albuminuria and the incidence of cardiovascular disease (CVD), cerebrovascular diseases, and peripheral artery disease (PAD) according to the level of albuminuria.

Methods: This retrospective study included 331 patients with eGFR > 60 mL/min/1.73 m^2 and urinary albumin/creatinine (Cr) ratio (ACR) > 30 mg/g Cr who were treated at the Chungnam National University Hospital between January 2012 and December 2018. Patients were divided into mildly increased albuminuria, moderately increased albuminuria, and severely increased albuminuria groups according to their urine ACRs of 30–300, 300–900, and >900 mg/g Cr, respectively. Renal outcomes and incidence of CVD, cerebrovascular disease, and PAD were compared among the three groups.

Results: More severe albuminuria was associated with higher rates of progression to CKD ($p < 0.001$) and >50% reduction in eGFR from baseline ($p < 0.001$). There was a statistically significant difference in the rate of PCI with angina or myocardial infarction ($p = 0.030$). However, cerebrovascular disease and PAD did not significantly differ among the three groups.

Conclusions: Among patients with DN who maintained a relatively preserved renal function with an eGFR > 60 mL/min/1.73 m^2, the rates of renal deterioration and progression to CKD were significantly more frequent in those with more severe albuminuria.