The association between left atrial enlargement and the progression of chronic kidney disease: From the KNOW-CKD study

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Objectives: The effect of LVH on adverse outcomes in patients with CKD has been emphasized. However, it is not known the role of LA enlargement (LAE) in deterioration of renal function. In this study, we aimed to investigate the impact of LAE on the progression of CKD.

Methods: In the KNOW-CKD, a nation-wide prospective observational cohort study from 9 centers in Korea, a total of 2116 patients were included and were categorized into 4 groups according to LA diameter; normal LA and mild, moderate, and severe LAE groups. Primary outcome was a composite of a decline of estimated glomerular filtration rate of ≥ 50% and ESRD.

Results: The mean age was 53.7 ± 12.2 years and 1297 patients (61.3%) were male. There were 1386 (65.5%), 515 (24.3%), 154 (7.3%), and 61 (2.9%) subjects in normal LA, mild LAE, moderate LAE, and severe LAE groups, respectively. As the LAE aggravates, prevalence of coronary artery disease, CHF, and A.fib, LV mass index, and user of diuretics were increased and eGFR was decreased. During a mean follow-up duration of 32.3 ± 20.2 months, primary outcome occurred in 403 (20.3%) patients; 247 (17.8%), 119 (23.1%), 47 (30.5%), and 17 (27.9%) in normal LA and mild, moderate, and severe LAE groups, respectively. In multivariable Cox regression, the LAE significantly increased the risk of primary outcome (compared to normal LA, mild LAE group, hazard ratio (HR) (95% confidence interval) =1.082 (0.845 - 1.387), P = 0.531; moderate LAE group, HR =1.746 (1.229 - 2.478), P = 0.002; and severe LAE group, HR =1.950 (1.157 - 3.289), P = 0.012).

Conclusions: In summary, the LAE was independent risk factor for adverse renal outcome. This finding suggested that maintaining LA function as well as left ventricular function may be important in preventing deterioration of renal function.