

中文題目:慢性腎臟病病人其 Angiotensin-2 和無臨床症狀的心血管疾病之相關性

英文題目: Angiotensin-2 and subclinical cardiovascular disease in patients with chronic kidney disease

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Background: Cardiovascular disease (CVD) is the major complication in patients with chronic kidney disease (CKD). Apart from the traditional risk factors, endothelial dysfunction has been shown to associate with CVD. Angiotensins, as one of the endothelial growth factors, modulate vascular development and remodeling during angiogenesis and inflammation process. High circulating Ang-2 level has been known as a predictor of cardiovascular morbidity and mortality in patients with CKD. The aim of this study was to assess the link between circulating Ang-2 and subclinical measures of cardiovascular structure and function in CKD stages 3-5 patients.

Methods: The study enrolled 270 pre-dialysis stage 3-5 CKD patients. Plasma Ang-2 was measured using commercial enzyme-linked immunosorbent assays (ELISA). Left ventricular mass index (LVMI), fraction shortening (FS), left atrial diameter (LAD), and E/A ratio measured by echocardiography were used as indicators of cardiac structure abnormality, left ventricular systolic function and diastolic function respectively. Brachial-ankle pulse wave velocity (baPWV), as a parameter of arterial stiffness, was measured by the ankle-brachial index.

Results: All patients were stratified by quartile of Ang-2, cut at 1498.2, 1955.2, and 2594.4pg/ml. The adjusted unstandardized β of LVMI was 0.07 (95% CI: 0.02-0.12) for patients of Ang-2 quartile 4 compared with those of Ang-2 quartile 1. The adjusted odds ratio of LV hypertrophy (LVH) was 2.68 (95% CI: 1.15-6.20) for patients of Ang-2 quartile 4 compared with those of Ang-2 quartile 1. The significant correlation between stepwise increases in Ang-2 levels and LVMI and LVH was found in patients with CKD stages 3-5 (P-trend = 0.03 and 0.03). A positive and significant correlation was found between baPWV and Ang-2 level ($r=0.20$, $P=0.02$). There was no significant association between Ang-2 level and FS, LAD, and E/A ratio.

Conclusions: High circulating Ang-2 level is positively and significantly associated with abnormal cardiovascular structure in stages 3-5 CKD patients, which is compatible with the view that Ang-2 participates in cardiovascular burdens.