

만성신질환 환자에서 동맥경직도와 homocystein, cystatin C, 사구체 여과율과의 관계

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Serum Homocystein, Serum Cystatin C, and Glomerular Filtration Rate are Independently associated with Arterial Stiffness in Chronic Kidney Disease Patients

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Introduction: Brachial-ankle pulse wave velocity (BaPWV) is a measure of arterial stiffness and known to be an independent predictor of cardiovascular disease (CVD) in several disease populations including chronic kidney disease (CKD). But little is known about which individual factors are associated with arterial stiffness in CKD patients.

Methods: We retrospectively reviewed the 293 patients. The patients were divided into 2 group which are CKD group (n=99, estimated glomerular filtration rate (eGFR): 15-59 mL/min) and non-CKD group (n=194, eGFR \geq 60 mL/min). Baseline characteristics (age, sex, diabetes, hypertension, smoking, eGFR, ankle-brachial index (ABI), intimal thickness (IMT) of carotid artery, systolic/diastolic blood pressure, body mass index (BMI) and various biochemical blood examinations including cystatin C, homocystein) were evaluated in each patient. The arterial stiffness was measured by BaPWV and which factor correlated with arterial stiffness was evaluated in each group.

Results: In multiple linear regression analysis, age ($\beta=0.360$, $p<0.001$), systolic blood pressure (SBP) ($\beta=0.369$, $p<0.001$), and presence of DM ($\beta=0.328$, $p<0.001$) were independently associated with BaPWV in non-CKD group after adjustment for other confounding factors. However, in CKD group, not only age ($\beta=0.235$, $p=0.001$), SBP ($\beta=0.243$, $p=0.004$), and the presence of DM ($\beta=0.064$, $p=0.02$), but also eGFR ($\beta=-0.235$, $p=0.01$), serum homocystein ($\beta=0.106$, $p=0.02$), and serum cystatin C ($\beta=0.155$, $p=0.008$) contributed to BaPWV independently after adjustment for other confounding factors.

Conclusions: This study showed the eGFR, serum cystatin C and, serum homocystein were independently associated with arterial stiffness only in CKD group, not in non-CKD group. Because arterial stiffness is a strong predictor of CVD, the result of this study demonstrates that decreased GFR and increased level of serum cystatin C/homocystein could increase the risk of CVD by deteriorating the arterial stiffness in CKD patients.

Key Words: 만성신질환, 호모시스테인, 동맥경직도
CKD, Arterial stiffness, Homocystein