

혈액투석환자에서 심전도상의 좌심실 비대와 예후

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구향모, 도화미, 박정탁, 한승혁, 유태현, 최규현, 강신욱

Electrocardiographic Left Ventricular Hypertrophy and Outcome in Hemodialysis Patients

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Background and Aims: Electrocardiography (ECG) is the most widely used initial screening test for the assessment of left ventricular hypertrophy (LVH), an independent predictor of cardiovascular mortality in patients with end-stage renal disease (ESRD). However, traditional ECG criteria based only on voltage to detect LVH have limited clinical utility for the detection of LVH because of their poor sensitivity.

Methods: This prospective observational study was undertaken to compare the prognostic significance of commonly used ECG criteria for LVH, namely Sokolow-Lyon voltage (SV) or voltage-duration product (SP) and Cornell voltage (CV) or voltage-duration product (CP) criteria, and to investigate the association between echocardiographic LV mass index (LVMI) and ECG-LVH criteria in ESRD patients, who consecutively started maintenance hemodialysis (HD) between January 2006 and December 2008.

Results: A total of 317 patients, who underwent both ECG and echocardiography, were included. Compared to SV and CV criteria, SP and CP criteria, respectively, correlated more closely with LVMI. In addition, CP criteria provided the highest positive predictive value for echocardiographic LVH. The 5-year cardiovascular survival rates were significantly lower in patients with ECG-LVH by each criterion. In multivariate analyses, echocardiographic LVH [adjusted hazard ratio (HR): 11.71; 95% confidence interval (CI): 1.57-87.18; $p=0.016$] and ECG-LVH by SP (HR: 3.43; 95% CI: 1.32-8.92; $p=0.011$) and CP (HR: 3.07; 95% CI: 1.16-8.11; $p=0.024$) criteria, but not SV and CV criteria, were significantly associated with cardiovascular mortality.

Conclusions: The product of QRS voltage and duration is helpful in identifying the presence of LVH and predicting cardiovascular mortality in incident HD patients.

Key Words: 말기신부전, 좌심실비대, 심전도
ESRD, Left ventricular hypertrophy, Electrocardiography