

## 복막투석 환자에서 treadmill 운동부하 심초음파 검사의 예후인자로서의 임상적 의의

울지외과대학교 내과학교실

강기운 · 이경진 · 이 상 · 방기태 · 이영숙

### Predictive Value of Treadmill Exercise Diastolic Stress Echocardiography in CAPD Patients

Ki-Woon Kang, Kyung Jin Lee, Sahng Lee, Ki Tae Bang, Young Sook Lee

Department of Internal Medicine Eulji University Medical School, Eulji University Hospital

**Purpose :** Cardiovascular events are the leading cause of death in ESRD pts. Conventional exercise stress echocardiography (ECHO) usually permits left ventricular (LV) systolic function evaluation. Recently, diastolic stress ECHO which evaluates the change of diastolic function during exercise has been suggested as a new non-invasive method for the evaluation of LV filling pressure after exercise. However, there has been no data for the prognostic value of diastolic stress ECHO in ESRD pts. The purpose of our study was to evaluate the prognostic value of treadmill exercise diastolic stress ECHO in pts newly starting CAPD.

**Methods :** A total of 30 CAPD pts were enrolled and 24 patients (18 men, mean age: 47 yrs) performed successfully a symptom-limited treadmill exercise stress ECHO (22 with Bruce protocol and 2 with modified Bruce protocol). Clinical and stress ECHO data including the change of the ratio of early diastolic transmitral flow velocity (E) to early diastolic mitral annulus tissue velocity (E') were evaluated. Group A was defined as the pts who had both the aggravation of diastolic dysfunction (resting E/E' >10 and increased E/E' after exercise) and poor exercise capacity (METs<8). The remaining pts were defined as group B. Follow-up (240 days) for cardiac death or events including acute coronary syndrome and heart failure was obtained. Cardiac event-free survival was estimated by the Kaplan-Meier method.

**Results :** The reasons for stress test were chest pain in 12 pts, dyspnea in 4 pts and both symptoms in 2 pts. All pts were hypertensive, 15 had diabetes and 2 pts previous coronary artery disease. LV EF and left atrial volume index were 60% and 29 mL/cm<sup>2</sup> respectively. E/E' ratio at rest and after exercise were 11.1 and 9.8. METs was 8.1 and Duke treadmill score was 7.3. There were one ACS, 3 heart failure which needed hospitalization, 4 sudden cardiac death during follow-up. Though there were 4 positive stress ECHO findings, the evaluation of RWMAs did not predict the cardiac events. On the other hand, the combining of both the change of diastolic function and exercise capacity predicted the cardiac events in that group A showed significantly high cardiac events compared with group B in Kaplan-Meier analysis (Log Rank, p=0.011).

**Conclusions :** In CAPD patients, treadmill exercise diastolic stress echocardiography was feasible and the measurement of E/E' ratio before and after exercise provided incremental value for the prediction of prognosis.

**Key Words :** 복막투석, 운동부하심초음파, 심혈관계질환  
CAPD, exercise echocardiography, CVD