

Influence of age on left ventricular performance during exercise in normal Japanese subject: Assessment by radionuclide ventriculography

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To assess the effects of age on left ventricular performance, multistage supine ergometer exercise radionuclide ventriculography (RNV) was performed in 92 normal subjects. The subjects ranged in age from 24 to 86 years and were free of cardiopulmonary disease and diabetes. Age-related changes in exercise duration, left ventricular end-diastolic volume (LVEDV), left ventricular end-systolic volume (LVESV), cardiac output (CO) left ventricular ejection fraction (LVEF), left ventricular dv/dt , systolic and diastolic time indexes of dv/dt , and peak systolic pressure/left ventricular end-systolic volume (PSP/LVESV) were analyzed at rest and during the peak exercise stage.

Age-related decrease in LVEDV and peak diastolic dv/dt were significant at rest. The time indexes of ECG R to peak systolic dv/dt and time of end-systole to peak diastolic dv/dt also were prolonged with age. Both maximum heart rate and exercise duration were shown to decline with age. No age-related difference was observed in LVESV, LVEF or PSP/LVESV either at rest or during exercise. However, the change of LVEF and LVESV during exercise was less in subjects aged 60 or more. These results indicate decreased left ventricular function during exercise in elderly subjects.

Key words: Age, radionuclide ventriculography, exercise test, left ventricular function