Effect of gander on the echocardiographic parameter changes with blood pressure rising

隨血壓增加性別影響心臟超音波的變化

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Background With blood pressure rising, the index of the earliest cardiac change is still controversial. The aim of this study was to assess which is the earliest echocardiographic parameter change with blood pressure rising.

Methods Two hundred twenty-five never-treated stage I essential hypertension (ET) patients (male 120, age 53.3±11.3 years and female 105, age 55.0±10.9 years), 235 normotensive (NT) (male 103, age 54.8±12.9 years and female 109, age 52.5±8.7 years) and 253 prehypertensive (PHT) (male 131, age 54.2±13.2 years and female 122, age 55.8±11.0 years) subjects were enrolled. M mode and Doppler echocardiography examination was performed. A wave peak velocity (A), E wave peak velocity (E) and the E/A ratio were measured. Left ventricular mass (LVM) was calculated by Devereux's method. Glucose and immunoreactive insulin concentrations were measured. A Homeostasis model assessment-estimated insulin resistance (HOMA-IR) was calculated as insulin resistance index. Multivariate analysis of covariance was used as statistic method.

Results After adjustment for age and body mass index, only A and E/A ratio were significantly different between NT and PHT in male group.(all $P<0.01$) However, the differences of LVM index (LVMI), insulin and HOMA-IR were found between PHT and HT (all $P<0.01$). By contrast, in female group, A, E/A ratio and LVMI were significantly different between NT and PHT (all $P<0.001$), and the differences of insulin and HOMA-IR were found between PHT and HT (all $P<0.05$). Neither male nor female had significantly difference in the E wave peak velocity between NT and PHT, whereas significant reduction was found between HT and NT ($P=0.002$ in male group, $P=0.043$ in female group). Further analysis on PHT subjects, comparing with NT, the differences of A, E/A ratio and LVMI found in those PHT with blood pressure above 130/85 mmHg in the male group (all $P<0.05$). However, the differences found in those PHT with blood pressure below 130/85 mmHg in the female group (all $P<0.01$).

Conclusion With blood pressure rising, A and E/A ratio were the earlier changes than LVMI in male group. However, the three changes occurred simultaneously in female group. Moreover, these changes were earlier in female group than male group.

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