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PRELIMINARY STUDY ON THE CORRELATION BETWEEN FEMORAL ELASTICITY AND CARDIAC FUNCTION IN PATIENTS WITH LEAD

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Objective To evaluate the correlation between the arterial stiffness of the left femoral artery and left ventricular

function in patients with lower extremity atherosclerotic disease (LEAD).

Methods 33 patients with LEAD and 37 healthy subjects (control group) were enrolled in this study. The intima-media thickness (IMT), diameter and some parameters of arterial stiffness (dispensability coefficient (DC), compliance coefficient (CC), α, β, pulse wave velocity (PWVβ)) were measured from the longitudinal view of the left common femoral artery and using the technology of QIMT and QAS. The thickness of the interventricular septum (IVS), end-diastolic diameter and mass of the left ventricle, and parameters of the left ventricular function (EF, E/A, E'/A', E/E' and Tei index) were measured from the parasternal and apical longitudinal and four-camber views of left ventricle. These parameters were compared between these two groups. And correlations between the parameters of the arterial stiffness and those of the cardiac function were evaluated by Pearson correlative analysis.

Results (1) The IVS thickness, left ventricular mass and E/E' ratio were significantly higher in the LEAD group than those in the control group ($p<0.05$). There were no significant differences in EF, E/A, E'/A' and Tei index between these two groups. (2) The IMT, α, β, PWVβ of the left femoral artery was significantly higher in the LEAD group than those in the control group, while DC and CC were significantly lower in the LEAD group ($p<0.05$). (3) The E/E' ratio, one of the parameters representing the left ventricular diastolic function, was negatively correlated with CC and positively correlated with α, β and PWVβ ($p<0.05$–0.01). The e/a ratio was positively correlated with DC and CC, and negatively correlated with α, β and PWVβ. ($p<0.05$–0.01) Both EF and Tei index were not significantly correlated with the above parameters of arterial stiffness ($p>0.05$).

Conclusions Patients with LEAD have thickened femoral IMT, higher arterial stiffness of left femoral artery, as well as impaired left ventricular function. There is a close correlation between the atherosclerosis of the femoral artery and the early left ventricular dysfunction.