



WHOLE BODY PERIODIC ACCELERATION IMPROVES CORONARY MICROCIRCULATION IN HEALTHY SUBJECTS AND PATIENTS WITH CORONARY ARTERY DISEASE

ACC Poster Contributions

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Background: The whole body periodic acceleration (WBPA) system has recently been developed as a “passive exercise” device by providing increased pulsatile shear stress for improvement of endothelial function. This study aimed to investigate the acute effect of WBPA on coronary flow reserve (CFR) through transthoracic Doppler echocardiography (TTDE) in healthy subjects and patients with coronary artery disease (CAD).

Methods: This study consisted of 15 healthy subjects and 20 patients with CAD who underwent CFR examination before and immediately after WBPA. The flow velocity in the distal portion of the left anterior descending coronary artery (LAD) was measured with TTDE at baseline and during adenosine infusion. CFR was calculated as the ratio of hyperemic to basal mean diastolic flow velocity.

Results: WBPA treatment was completed in all 35 subjects without complications. There were no significant differences in heart rate and systolic blood pressure before and after WBPA. WBPA increased CFR from 3.3 ± 1.0 to 3.7 ± 1.1 in the 35 subjects ($p < 0.001$). Coronary angiography showed significant LAD narrowing in eight of the 20 CAD patients but WBPA increased CFR from 2.4 ± 0.4 to 2.7 ± 0.5 in them as well ($p < 0.01$).

Conclusions: This study demonstrates that WBPA improves CFR in healthy subjects and patients with CAD.