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P135 Assessment of Novel Blood Pressure Corrected Cardio-ankle Vascular Index in Response to Acute Blood Pressure Changes

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ABSTRACT

Background: Cardio-ankle vascular index (CAVI) has long been considered a measure of arterial stiffness independent of short-term changes in blood pressure (BP) [1]. Recently and theoretically, CAVI was found to be partially affected by actual BP, thus, a novel BP-corrected index, $CAVI_0$, was proposed to diminish these effects [2,3]. Direct, repeated measures experimental data comparing CAVI's and $CAVI_0$'s acute blood pressure dependence is lacking. Hence, the aim of this study was to assess the effects of short-term changes of BP on $CAVI_0$ in comparison with standard CAVI.

Methods: 60 healthy adults were examined using vascular screening system VaSera 1500 N (Fukuda Denshi Co., Tokyo, Japan) during four examination periods lasting 5 minutes – baseline, cold pressor test (CPT), recovery period, and isometric handgrip exercise (IHE). CAVI and cardiovascular parameters for calculation of $CAVI_0$ were measured after baseline, at the peak of pressor response to CPT, after recovery period, and at the peak of pressor response to IHE. CAVI, $CAVI_0$, and mean BP were assessed for all periods.

Results: CAVI significantly increased during CPT compared to baseline rest ($p = 0.008$), returned to baseline values during recovery period ($p = 0.011$ compared to CPT), and significantly increased during IHE compared to recovery period ($p = 0.002$). No significant changes of $CAVI_0$ were found. CAVI significantly correlated with changes in mean BP ($p = 0.012$; multilevel regression); $CAVI_0$ did not ($p = 0.570$).

Conclusion: In this repeated measures, experimental, acute study, CAVI showed short-term blood pressure dependence, whereas $CAVI_0$ did not.

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