

Conference Abstract

P.09 Differential Low Flow Mediated Constriction (LFMC) Responses in Radial and Brachial Arteries of Healthy Humans are Attributed to Occlusion Induced Flow Changes

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Keywords

Low-flow-mediated-constriction
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ABSTRACT

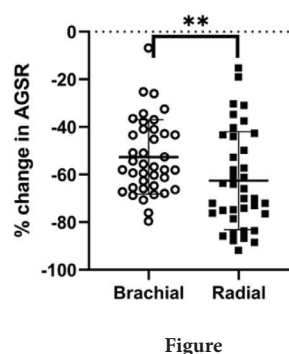
Background: Literature describes differences in Low flow mediated constriction (LFMC) of radial versus brachial artery [1,2]. We investigated whether differences in occlusion induced changes in luminal flow and shear rates could explain the observed radial vs brachial differences in LFMC responses.

Methods: Twenty Healthy volunteers (Age 23.50 ± 2.06 years) underwent examination of Brachial and radial arteries of both the arms. Arteries were visualized in Pulsed wave doppler in duplex mode (Vivid-e; GE Healthcare) using a 12 MHz probe at baseline and during low flow state produced using an occluding cuff placed around the forearm (for brachial artery) and over the wrist joint (for radial artery) inflated to supra-systolic pressures.

Results: LFMC in Radial artery was significantly higher than that of Brachial artery [Δ LFMC of -0.58 mm (-0.24 – -0.76) in radial artery vs 0.03 mm (0.21 – -0.13) in brachial artery; $p < 0.0001$]. Occlusion induced reduction in antero-grad shear rate was comparatively higher in radial artery than brachial artery [-67.9% (-43 – -77) in radial vs -56.7% (-40.9 – -65.4) in brachial; $p = 0.0098$] whereas, the rise in retrograde shear rate and changes in oscillatory shear index were comparable between both. Percentage changes in antero-grad shear rate and antero-grad flow velocities emerged as independent predictors in the regression model that explained 86% of the variance in LFMC responses of brachial artery.

Conclusion: Discrepancies in the LFMC responses of radial vs brachial artery could be attributed to the occlusion induced differences in the antero-grad shear rate and antero-grad flow velocities.

Comparison of occlusion induced % reduction in Antero-grad shear rate (AGSR) in Brachial vs Radial artery



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