

Conference Abstract

YI 1.6 Flow Mediated Slowing of Pulse Wave Velocity as a Measure of Endothelial Function

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Keywords

FMD
 FMS
 PWV

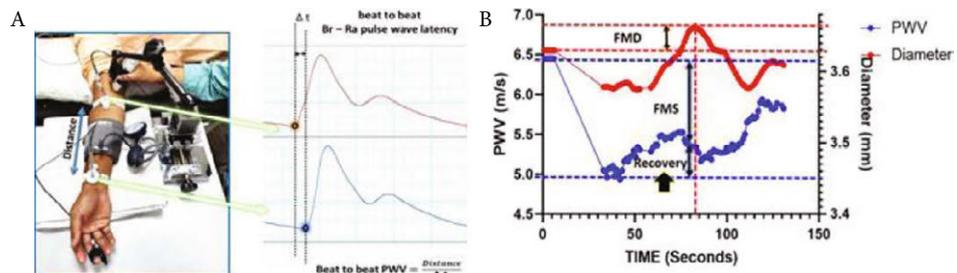
ABSTRACT

Purpose: Ultrasonographic measurement of flow mediated dilatation (FMD) of brachial artery is the gold standard non-invasive technique to measure endothelial function. However, measurement of FMD is technically cumbersome, operator dependent and requires trained manpower, all of which limits its clinical utility. Flow mediated slowing (FMS) of regional arterial pulse wave velocity (PWV) has been proposed as a feasible, operator-independent alternative to ultrasonographically measured FMD [1,2]. We investigated the temporal correlation between brachial artery FMD and simultaneously recorded FMS of brachial-radial PWV in healthy volunteers.

Methods: Twenty-three healthy volunteers, involving 15 males and 8 females with age 26.39 ± 4.41 participated in the study. Endothelial function was assessed by measuring FMS of brachial-radial PWV using two-point applanation tonometry and simultaneously performed ultrasonographic imaging of brachial artery to record FMD. After 1-minute of baseline recording, distal supra-systolic arterial occlusion was produced by inflating a sphygmomanometer cuff to 250 mmHg for 5 minutes. During the phase of reactive hyperemia that follows the release of distal arterial occlusion, both the parameters were simultaneously recorded for a period of 6-minutes.

Results: Flow mediated slowing of pulse wave velocity didn't correlate with simultaneously recorded FMD. Recovery of PWV coinciding with peak FMD showed strong positive correlation with FMD ($r = 0.60, p = 0.002$). Time averaged recovery of PWV during the period 60–90s post release of occlusion correlated with FMD ($r = 0.46, p = 0.0253$).

Conclusion: Recovery of brachial-radial PWV during post-occlusive reactive hyperemia could be used as a feasible, imaging independent alternative to ultrasonographically measured FMD.



Figure

REFERENCES

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