
Flow-mediated dilation

Authors Tschakovsky and Pyke (2) summarize flow-mediated dilation (FMD) in their rebuttal to Dr. Green as being nitric oxide (NO) dependent when the technique is 1) brachial or radial artery specific, 2) restricted to 5 min of distal cuff occlusion, and 3) in healthy subjects. Condition number three, however, is deserving of further clarification. To date, sex differences in the contribution of NO to 5 min of distal occlusion have not been well classified. The majority of studies referenced by Tschakovsky and Pyke and/or Green involving intra-arterial infusions of NO-synthase inhibitors have been conducted in men; those studies involving women have generally involved an overall sample size or female population too small to detect sex differences between subjects. Given that Levenson et al. (3) found that women exhibit a greater brachial artery dilation per unit increase in shear rate after 5 min of distal (forearm) occlusion and that estrogen may modulate both relaxing (PGI2, NO, endothelium-derived hyperpolarizing factor) and constricting (thromboxane, endothelin) substances released from the vascular endothelium (4), it is possible that the mechanisms underlying FMD in women differ from those established in men. Furthermore, although an age-associated decline in brachial artery FMD resulting from 5 min of distal occlusion has been well-documented in healthy humans (1), it is unknown whether this decline represents diminished NO-dependent dilation, as the mechanisms underlying FMD have not been thoroughly characterized in older adults and may involve additional endothelial pathways. Thus we would remind readers that both sex and age may influence the NO dependence of brachial or radial artery FMD.

REFERENCES


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