Does Cuff Location for FMD Matter in Smokers?

To the Editor:

The community of physiological investigators who evaluate vascular function in intact humans have used the reactive hyperemia stimulus to measure conduit artery endothelium-dependent vasodilation for more than a decade. One component of this measure varies among the different groups: the location of the cuff that provides the ischemia that generates reactive hyperemia. Although theoretical variations have been postulated,1 the methods paper created by this community2 did not take a position and no new data has swayed current investigators definitively. It is in this light that we read with interest the third report by Guthikonda and colleagues on a ~20 subject population investigating the effect of smoking and xanthine oxidase inhibition on vascular function.3–5

In the most recent publication, the authors report that upper arm occlusion “cannot detect endothelial dysfunction induced by smoking or its improvement by inhibition of xanthine oxidase.” This conclusion is belied by several obvious mitigating factors. First, based on the authors reporting of effect size, standard error, and sample size, the study has an 8% power. This is woefully inadequate to accept any null result. Based on the reported standard deviation and effect size in this study, the authors should have studied more than 200 subjects in each arm to have a power of 80% to confidently report a null result. Second, the authors fail to mention two previously published larger studies in smokers that showed impaired flow-mediated vasodilation using the upper cuff method,6,7 again revealing that the current study population was too small for any firm conclusion about vascular function in smokers or the importance of a specific cuff location. Third, it is unclear why the protocol and number of patients studied in each report on this population varies. I would ask that the authors clarify their investigational and statistical plan and the relevance of their findings in light of these issues.

Disclosures

None.

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