Commentary on Viewpoint: The human cutaneous circulation as a model of generalized microvascular function

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EVALUATING CUTANEOUS MICROCIRCULATION IN HUMANS: IS EXTRAPOLATION TO CARDIAC MICROCIRCULATION VALID?

TO THE EDITOR: Holowatz et al. (3) supported that the study of cutaneous microcirculation vasoreactivity (and especially the functional status of microvascular endothelium), provides important information regarding systemic microcirculation, including coronary microcirculation. But is this really valid? As cutaneous circulation is highly reactive to metabolic, thermal, and nervous stimuli, how easily can we study its vasoreactivity to an NO specific stimuli? And how similar is the pathophysiology of cutaneous and cardiac microcirculations?

The widely used methods evaluating endothelial function in conduit arteries (e.g., flow mediated dilation in the brachial artery; Ref. 4) or forearm resistance vessels (by gauge-strain plethysmography; Ref. 4) are strongly correlated with endothelial function in coronary arteries (1) and most importantly, they predict clinical outcome in several populations (2). On the other hand, the vasoactive response of cutaneous microcirculation is not correlated with these markers of endothelial function in conduit arteries (5).

As Holowatz et al. (3) stated, cutaneous vasoreactivity is impaired early in the progression of hypertensive vascular disease, despite the fact that it does not contribute significantly to the total increase of systemic vascular resistance, leading to hypertension. However, it remains to be proven whether the evaluation of vasoreactivity in cutaneous microcirculation may provide information regarding systemic peripheral microcirculation. Further clinical studies are required to determine this important issue and, most importantly, to validate the predictive value of the method for the clinical outcome in humans.

REFERENCES