Stress Reactivity and Its Association With Increased Cardiovascular Risk: A Role for the Sympathetic Nervous System?

To the Editor:

Chida and Steptoe,1 in their thorough meta-analysis examining the association between cardiovascular responses to acute mental stress and future cardiovascular disease development noted significant associations between exaggerated reactivity and impaired recovery after stress and subsequent worsening of cardiovascular risk status. Although the precise mechanisms linking stress reactivity and the worsening of cardiovascular risk status are yet to be determined, the authors observed that the association between exaggerated stress reactivity and future cardiovascular risk was confined to studies using cognitive challenges. Consistent with this observation we have noted blunted sympathoneural responses to the cold pressor test in individuals with essential hypertension and in those genetically predisposed to hypertension,2 whereas laboratory mental stress is associated with a specific activation of the cardiac sympathetic nervous outflow.3 Using single-unit recording techniques, we have demonstrated recently that chronic mental stress in subjects with the metabolic syndrome was associated with a higher incidence of multiple firing within a sympathetic burst.4 Multiple within-burst firing may be associated with an exaggerated end-organ response. Given also that the sympathetic nervous system is pivotal in the initiation and maintenance of hypertension and is strongly associated with established cardiac risk factors, such as left ventricular hypertrophy,5 targeting, or dampening of the sympathetic nervous system pharmacologically, aerobic exercise training or cognitive behavioral therapy may be an attractive therapeutic approach to reduce stress responsivity.

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Disclosures

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