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### Central Vascular Reactivity to Mental Stress in Emergency Responders

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Central vascular function (stiffness, pressure wave energy transmission, hemodynamics) can impact high-flow end-organs such as the myocardium. Police officers, firefighters, emergency medical services personnel, and military personnel (“emergency responders” [ER]) experience more on-duty deaths from cardiac events than other occupational groups. As ER face unique occupational stressors, central vascular stress reactivity (CVSR) may contribute to cardiac risk. **PURPOSE:** Determine if ER have greater CVSR compared with non-ER (NER). **METHODS:** 9 ER and 9 age-, sex-, race-, and body fat-matched NER ( $n = 2$  women; Table 1) had central vascular function assessed at rest and during 3 min of mental stress (Stroop). Potential covariates included: fasting cholesterol, lipids, and glucose from a fingerstick sample; physical activity via the International Physical Activity Questionnaire (IPAQ); and depressive symptomology from the Center for Epidemiologic Studies Depression Scale (CESD). Aortic stiffness was assessed using carotid-femoral pulse wave velocity. Doppler ultrasound was used to measure carotid artery  $\beta$  stiffness, while Wave Intensity Analysis provided measures of pressure wave energy transmission. Carotid pressures were measured using applanation tonometry. CVSR was calculated as mental stress – resting. **RESULTS:** Groups had similar metabolic profiles and IPAQ scores ( $p \geq 0.11$ ). CESD score was greater in ER than NER ( $p = 0.04$ ) and was used as a covariate for analyses. CVSR was similar between groups for all variables ( $p > 0.05$ ; Table 1). **CONCLUSION:** Despite more depressive symptomology, ER do not have greater central vascular function changes to stress compared with NER, suggesting high resiliency during mental stress in ER.

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