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Mental Health and Central and Peripheral 24-Hour Blood Pressure in Emergency Responders

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INTRODUCTION: Police officers, firefighters, emergency medical technicians, and military service members, collectively referred to as “emergency responders” (ER), have high rates of hypertension. Furthermore, ER have a higher prevalence of anxiety, depression, and post-traumatic stress disorder (PTSD) compared with the general public. These mental health disorders impact blood pressure (BP) and might contribute to the pervasiveness of hypertension in ER. Assessment of 24-hour BP correlates more closely with cardiovascular outcomes than traditional office BP. Moreover, some BP monitors now allow for estimation of central aortic BP, which may offer additional insight into cardiovascular disease risk beyond traditional peripheral brachial BP. **PURPOSE:** Compare mental health and 24-hour central and peripheral BP in ER with an age- and sex-matched non-ER control group. **METHODS:** 20 ER ($n=2$ women; age, 34 ± 8 yrs, body mass index, 26.1 ± 3.8 $\text{kg}\cdot\text{m}^{-2}$) and 18 non-ER ($n=2$ women; age, 32 ± 6 yrs; body mass index, 24.7 ± 4.5 $\text{kg}\cdot\text{m}^{-2}$) wore a BP monitor for 24 hours with measures obtained every 20 min from 0700-2200h and every 30 min from 2200-0700h. Concomitantly, participants completed questionnaires to assess symptomology of anxiety, depression, and PTSD. Nine days of accelerometry provided measures of moderate-to-vigorous physical activity (MVPA), and sleep and wake times which were used to calculate nocturnal BP dipping and the morning BP surge. **RESULTS:** Anxiety symptomology was similar between ER and non-ER (6 ± 6 vs 3 ± 3 , $p=0.09$), but ER had greater depressive (14 ± 9 vs 8 ± 6 , $p=0.02$) and PTSD symptomology (2 ± 2 vs 0 ± 1 , $p=0.001$). MVPA did not differ between ER and non-ER (265 ± 143 vs 240 ± 143 $\text{min}\cdot\text{wk}^{-1}$, $p=0.62$). There was no difference in 24-hour central (112 ± 6 / 79 ± 7 vs 108 ± 8 / 76 ± 6 mmHg, $p\geq 0.16$) or peripheral BP (122 ± 6 / 78 ± 7 vs 119 ± 9 / 75 ± 6 mmHg, $p\geq 0.17$) in ER and non-ER, respectively. Central and peripheral BP dipping ($p\geq 0.29$) and the morning BP surge ($p\geq 0.25$) were also similar between groups. **CONCLUSIONS:** This group of young ER did not exhibit elevated central or peripheral BP profiles despite a greater prevalence of mental health disorder symptomology. These results may differ in an older group of ER and during occupational duties. Further investigation of 24-hour BP is warranted in this occupational group.