Blood Pressure Responses to Emergency Calls in Volunteer Firefighters and Emergency Medical Technicians

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High levels of stress can lead to a higher resting blood pressure (BP) eventually leading to hypertension and increased risks for cardiovascular disease. There is an association between work stress, an increased heart rate, and systolic BP. Emergency medical technicians (EMT), first responders, and firefighters (FF) have some of the most stressful jobs due to the demands of the occupation. Studies have demonstrated that EMTs, paramedics, and FF experience increased BP as well as higher heart rate during a work day. Importantly, sudden cardiac events are the number one cause of in-line duty death of volunteer FF, so understanding how these risk factors are affected is important. **PURPOSE**: The purpose of this study was to measure the BP response to emergency calls and examine relationships between the response and cardiovascular health. **METHODS**: Using an ambulatory BP cuff, BP was monitored for 12-hours during a typical work or volunteer shift to observe BP response with emergency dispatch calls. A 10-hour fasted study was also completed measuring plasma glucose levels, cholesterol levels, and core BP through the radial artery. **RESULTS**: Thus far we have collected 23 pieces of 12-hour BP data and 6 patients received an emergency call during their session. The average 12-hour BP of these emergency service providers was 118.2±8.0 mmHg systolic and 74.0±8.7 mmHg diastolic BP. With pager activation systolic BP surged an average of 20.7±14.9 mmHg and diastolic BP surged 10.0 ±6.7 mmHg. Examining this surge compared to the 12-hour average BP, we found systolic BP increased 22.9±11.7 mmHg and diastolic BP increased 13.6±6.2 mmHg; with an average time to return to baseline BP of 1.1 hours for systolic BP and 1.6 for diastolic BP. **CONCLUSION**: Data collection is ongoing, but we found that both systolic and diastolic BP surge with pager activation. Also, it appears that this BP surge has a potential relationship with years of experiences and with type of emergency call. This observation is suggesting specific emergency calls create more of a stress reaction in some responders over others.