

Blood Pressure Variability in Young Male Adult Habitual Vapers

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ABSTRACT

The use of e-cigarettes (i.e., vaping) has risen dramatically in the last few years. Vaping is more appealing and accessible to young people than traditional smoking. The ease of use can increase the frequency of vaping, which may increase the amount of nicotine consumed. Nicotine is a potent vasoconstrictor that may also affect blood pressure (BP). Indeed, previous studies have shown that traditional cigarette smoking increases BP variability. This is noteworthy because elevated BP variability has been shown to predict future development of cardiovascular disease. However, whether habitual vaping influences BP variability remains unknown. **PURPOSE:** To test the hypothesis that habitual vaping increases resting BP variability in young male adults. **METHODS:** Beat-to-beat blood pressure (finger photoplethysmography; Finometer) was continuously monitored during a 10-minute period of quiet supine rest in 8 male subjects who regularly vape and 8 sex-, age-, and weight-matched healthy controls who reported no history of having ever smoked/vaped. Mean, standard deviation (SD), coefficient of variation, and average real variability (ARV) were calculated for systolic blood pressure (SBP), diastolic blood pressure (DBP), and mean arterial pressure (MAP). **RESULTS:** Individuals with a history of vaping exhibited comparable resting SBP, DBP and MAP to non-vapers (SBP: 125 ± 4 mmHg vs. 124 ± 3 mmHg, $P = 0.67$; DBP 74 ± 3 mmHg vs. 69 ± 2 mmHg, $P=0.159$; MAP: 91 ± 3 mmHg vs. 87 ± 2 mmHg, $P=0.25$). Further, vapers displayed similar SBP SD ($5.59 \pm .49$ mmHg vs. 5.3 ± 0.5 mmHg, $P = 0.73$), coefficient of variation ($4.7 \pm 0.423\%$ vs. $4.4 \pm 0.38\%$, $p = 0.65$) and average real variability (2.1 ± 0.1 vs. 1.9 ± 0.1 , $P=.589$) to non-vapers. There were also no differences in any of the beat-to-beat BPV measures for DBP or MAP between groups (all $P > 0.05$). **CONCLUSION:** In summary, contrary to our hypothesis, habitual vapers did not exhibit higher BP variability compared to non-vapers. These preliminary findings suggest that resting BP variability is not impacted by habitual vaping in young male.