ABSTRACT

Long-term at-risk drinking increases the risk of future alcohol-related problems, such as a decreased vasodilatory response which may influence blood pressure recovery following exercise. Young adults who are physically active are likely to engage in at-risk drinking. However, how alcohol drinking influences blood pressure recovery following exercise remains unclear in young adults. PURPOSE: To investigate the effect of at-risk drinking on blood pressure recovery and flow-mediated dilation (FMD) following maximal exercise test in young adults. METHODS: A total of 10 at-risk drinkers (4 female; mean ± SD for age: 26.7 ± 3.7 years and BMI: 24.5 ± 2.4 kg/m²) and 10 low-risk drinkers (4 female; age: 26.6 ± 4.3 years and BMI: 23.8 ± 2.9 kg/m²), free of smoking and any clinical diseases, were included in this study. At-risk drinkers were those who had a score of 7/8-15 (women/men) using the US Alcohol Use Disorders Identification Test. These scores indicate a drinking pattern that exceeds NIAAA-defined low-risk drinking (i.e., more than 3/4 drinks on any single day or more than 7/14 drinks per week for women/men), but below the amount of harmful alcohol drinking that causes damages to physical and mental health. Except two at-risk drinkers, the history of at-risk drinking was less than two years. All participants underwent a maximal graded exercise test on a cycle ergometer. Supine blood pressure and brachial artery FMD were measured before and 30 minutes after exercise. RESULTS: At 30 min following maximal graded exercise test, no differences between at-risk drinkers vs. low-risk drinkers were found in blood pressure recovery (systolic: 114±8 to 120±12 mmHg for at-risk drinkers vs. 115±7 to 117±9 mmHg for low-risk drinkers, P=0.4 for interaction, P=0.1 for time, and P=0.8 for group; diastolic: 67±4 to 71±9 mmHg for at-risk drinkers vs. 69±7 to 71±8 mmHg for low-risk drinkers, P=0.1 for interaction, P=0.01 for time, and P=0.8 for group). Regardless of drinking group, FMD did not change at 30 min following maximal graded exercise test (6.5±6.0% to 8.8 ± 8.5% for at-risk drinkers vs. 8.8±7.1 to 8.5±7.6% for low-risk drinkers, P=0.4 for interaction, P=0.5 for time, and P=0.6 for group). No difference between at-risk drinkers and low-risk drinkers was found in aerobic fitness measured by maximal oxygen consumption (38.7 ± 7.1 vs. 38.7 ±9.8 mL/kg/min, P=0.9). CONCLUSION: Our preliminary results indicate that compared to young adult low-risk drinkers, young adult at-risk drinkers had similar blood pressure recovery and FMD at 30 min following maximal graded exercise tests. Future studies are needed to examine whether blood pressure recovery following exercise is altered with longer drinking history and/or harmful alcohol drinking pattern in young adults.