



Prevention

ALCOHOL CONSUMPTION AND RISK OF HYPERTENSION

Moderated Poster Contributions
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Background: Epidemiological studies have established the association between excessive alcohol consumption and hypertension (HTN). However, there are conflicting reports of the association of mild to moderate alcohol consumption with HTN.

Methods: We studied 17059 participants (mean age = 46 yrs, 53% women) from the Third National Health and Nutrition Examination Survey (NHANES III). Alcohol consumption was ascertained via questionnaire. Blood pressure (BP) was measured during the in-home interview and a mobile examination center. We used multivariable logistic regression models adjusted for age, sex, race, income, and cardiovascular risk factors to examine cross-sectional associations of alcohol consumption and BP categories using the 2017 ACC/AHA High BP guidelines.

Results: Compared with never drinkers, moderate drinkers (7-13 drinks/week) had increased odds of prevalent Stage 1 and 2 HTN [Odds Ratio (OR) 95% CI: 1.53 (1.23-1.90) and 2.02 (1.52-2.69), respectively]. Among heavy drinkers (≥14 drinks/week) the odds of stage 1 or 2 HTN were also significantly elevated [OR (95% CI): 1.69 (1.36-2.11) and 2.41 (1.83-3.16)] (Table).

Conclusion: This analysis from a large, nationally (US) representative population-based survey showed a significant association between moderate alcohol consumption and prevalence of hypertension. These data may help guide further research, public health education and policy initiatives focused on the health consequences of moderate alcohol consumption.

Association of Alcohol Consumption with ACC/AHA Pre-Hypertension						
Alcohol Consumption	Model 1 OR (95% CI)	p-value	Model 2 OR (95% CI)	p-value	Model 3 OR (95% CI)	p-value
Never (N=387)	Reference		Reference		Reference	
Former (N=747)	1.23 (1.07-1.42)	0.003	0.89 (0.76-1.04)	0.14	0.88 (0.75-1.04)	0.15
1-6 drinks/wk. (N=672)	1.05 (0.91-1.21)	0.45	0.91 (0.78-1.07)	0.29	0.93 (0.78-1.10)	0.42
7-13 drinks/wk. (N=180)	1.51 (1.23-1.85)	<.0001	1.15 (0.91-1.44)	0.22	1.19 (0.93-1.52)	0.16
≥14 drinks/wk. (N=223)	2.06 (1.69-2.51)	<.0001	1.47 (1.18-1.84)	0.0005	1.44 (1.13-1.84)	0.002
Association of Alcohol Consumption with ACC/AHA Stage 1 Hypertension						
Alcohol Consumption	Model 1 OR (95% CI)	p-value	Model 2 OR (95% CI)	p-value	Model 3 OR (95% CI)	p-value
Never (N=616)	Reference		Reference		Reference	
Former (N=1250)	1.32 (1.18-1.48)	<.0001	0.95 (0.83-1.08)	0.47	0.91 (0.78-1.06)	0.24
1-6 drinks/wk. (N=1062)	1.04 (0.93-1.17)	0.44	0.91 (0.79-1.05)	0.21	0.96 (0.82-1.12)	0.62
7-13 drinks/wk. (N=331)	1.74 (1.47-2.07)	<.0001	1.35 (1.11-1.64)	0.002	1.53 (1.23-1.90)	0.0001
≥14 drinks/wk. (N=363)	2.11 (1.78-2.50)	<.0001	1.53 (1.26-1.86)	<.0001	1.69 (1.36-2.11)	<.0001
Association of Alcohol Consumption with ACC/AHA Stage 2 Hypertension						
Alcohol Consumption	Model 1 OR (95% CI)	p-value	Model 2 OR (95% CI)	p-value	Model 3 OR (95% CI)	p-value
Never (N=836)	Reference		Reference		Reference	
Former (N=1656)	1.26 (1.13-1.40)	<.0001	1.04 (0.89-1.22)	0.56	1.03 (0.86-1.23)	0.70
1-6 drinks/wk. (N=785)	0.57 (0.50-0.64)	<.0001	0.87 (0.73-1.04)	0.14	0.96 (0.79-1.17)	0.72
7-13 drinks/wk. (N=242)	0.94 (0.78-1.12)	0.50	1.69 (1.31-2.17)	<.0001	2.02 (1.52-2.69)	<.0001
≥14 drinks/wk. (N=353)	1.51 (1.28-1.78)	<.0001	2.24 (1.76-2.94)	<.0001	2.41 (1.83-3.16)	<.0001
Odds ratio and 95% confidence interval calculated from multivariable logistic regression analysis						
Model 1, unadjusted						
Model 2 adjusted for age, sex, race and total annual income						
Model 3 adjusted for model 2 plus ever-smokers, physical activity, BMI, diabetes, HDL, and CRP						
Normotensive defined as SBP <120 mmHg and DBP <80 mmHg						
Pre-HTN defined as SBP = 120 to 129 mmHg and DBP <80 mmHg						
Stage I HTN defined as SBP ≥130 to 139 mmHg or DBP 80 to 90 mmHg						
Stage II HTN defined as SBP ≥140 mmHg or DBP ≥90						
Diabetes defined as hemoglobin A1c ≥6.5% or use of diabetic medications						
Each BP measurement, average three in-home and three mobile examination center readings.						