

A-10: Effect of alcohol consumption on hypertension

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Circumstantial evidence supporting a causative effect of alcohol on hypertension comes from reports of a relatively high prevalence of abnormal

liver function tests in hypertensive patients attending blood pressure clinics in Scotland and Sweden. Epidemiologic studies have reported a positive correlation between blood pressure and heavy alcohol consumption. However, at lower levels of consumption (less than 5-6 drinks per day) the relationship between hypertension and alcohol consumption is unclear.

The effect of alcohol consumption on hypertension in our population is unknown. This paper examines the effect of alcohol consumption on blood pressure on a representative population sample of middle age Sri Lanka males.

Nine hundred and seventy five male subjects (35-59 years) were randomly selected utilizing electoral lists from 12 randomly selected Grama Sevaka divisions in Kandy and Matale districts. 87.4% of the selected sample was studied. Information on alcohol consumption was gathered by personal interview by a medical officer. Alcohol consumption was graded as 1=non alcoholic, 2=occasional drinker, 3=weekly less than 2 drinks, 4=weekly 2-4 drinks, 5=more than 4 drinks per week, 6=2-4 drinks a day, 7= more than 4 drinks a day (1/2 bottle of beer or toddy, 1/8 bottle of arrack or 1/4 bottle of illicit liquor was considered as a drink).

Height was measured without shoes and weight was measured in casual clothes. Blood pressure was measured in the right arm with a mercury sphygmomanometer with the subject in the sitting position after at least 5 min rest. The diastolic blood pressure was recorded at Korotkoff phase V. The mean value of the reading was used for the present analysis.

Sample odd ratios were calculated in 2x2 tables. A cutoff point of body mass index (BMI) > 24 was used for dichotomization when controlling for body mass index.

The prevalence of hypertension (diastolic blood pressure, (DBP) > 95mmHg) in relation to alcohol consumption is shown in *Table 1*. The prevalence of hypertension was significantly higher ($p < 0.05$) in subjects who consumed alcohol when compared with those who do not consume alcohol.

Table 1. The prevalence of hypertension (DBP > 95mmHg) in relation to alcohol consumption

Alcohol con. grade	1	2 & 3	4 & 5	6 & 17
No. of subjects	375	298	83	105
Prevalence of hypertension	8.3%	10.3%	10.8%	14.2%

As shown in *Table 2*, there was a significantly higher risk of hypertension ($p < 0.05$) in subjects who consumed alcohol compared to those who did not if their BMI was < 24 . This increased risk was not seen in subjects with BMI > 24 .

Table 2. Odds ratio for hypertension in subjects consuming alcohol and not consuming alcohol in relation to BMI

BMI	Odds ratio (95% CL)
> 24	1.06 (0.55-2.07)
< 24	2.83 (1.31-6.12)

These findings provide evidence of a pressor effect of alcohol in Sri Lanka middle aged males. After controlling for BMI which is a potential confounder the pressor effect of alcohol was demonstrable for those with a BMI < 24 . Alcohol consumption is generally under-reported in questionnaire surveys. However it is unlikely that this association is an artefact of selection bias as the response rate of this study was relatively high (87.4%) and the sampling frame encompassed large defined urban and rural populations.

The findings have public health implications and alcohol consumption should be an important factor to consider in the non pharmacologic management of hypertensive patients.