



EFFECT OF WEEKEND ALCOHOL CONSUMPTION ON BLOOD PRESSURE CONTROL IN NON-ALCOHOLIC PATIENTS ENGAGING IN SOCIAL DRINKING

Medicine

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ABSTRACT

Background: Social drinking is common in all strata of society. It is often encouraged and considered normal and a part of the winding down ritual on weekends. Alcohol is a contributor to Hypertension in a number of patients, the significance of which is often underestimated. Although the effect of heavy alcohol consumption on Blood Pressure levels has been well-studied, the effect of social drinking on BP levels has not been studied enough, especially in the Indian context. **Methods:** A prospective observational study was conducted and a total of 10 Hypertensive patients engaging in social drinking were recruited into the study. The study group was subjected to a standard questionnaire and the alcohol consumption pattern studied. Their BP recordings after a weekend of social drinking were recorded and compared to their BP recordings after a weekend in which they did not consume alcohol. **Results:** The study showed that there was a significant rise in BP after a weekend of social drinking in comparison to BP readings taken after a weekend in which no alcohol was consumed. This study found that there was a significant rise in BP levels even after consumption of low levels of alcohol as seen in social drinking.

KEYWORDS

social drinking, weekend drinking, alcohol and BP

INTRODUCTION

Hypertension is a common diagnosis in outpatient practice. Alcohol is a contributor to Hypertension in a number of patients, the significance of which is often underestimated. The effect of alcohol consumption causing increase in Blood Pressure is well-known.^{1,2} The various proposed mechanisms are alcohol causing baro-receptor stimulation, sympathetic stimulation, dysregulation of Renin-angiotensin-aldosterone system, increased cortisol levels, endothelial and oxidative stress.^{3,5}

Social drinking is common in all strata of society. It is often encouraged and considered normal and a part of the winding down ritual on weekends. Alcohol consumption on weekends is common even in persons who are considered non-alcoholics. Although carbonated drinks, oily snacks, 'party-type' food consumed in excess on weekends cannot be considered healthy, the ill-effects of alcohol consumption are much more. Although the effect of heavy alcohol consumption on Blood Pressure levels has been well-studied, the effect of social drinking on BP levels has not been studied enough, especially in the Indian context.^{3,4}

The present study was undertaken to observe the effect of weekend alcohol consumption on Blood Pressure control in an Indian set of patients who are by definition not alcoholics and are engaging in social drinking

MATERIAL AND METHODS

The study was a prospective observational study. This study was conducted on patients of Primary Hypertension who were engaging in social drinking on weekend and their Blood Pressure was monitored on days thereafter. They acted as their own control in that the BP recordings after a weekend in which they did not consume alcohol was taken as control values.

Inclusion criteria

Patients of Primary Hypertension on 1-2 drugs who engaged in social drinking on weekends were included in the study.

Exclusion criteria

Patients of secondary hypertension and uncontrolled hypertension were excluded from the study. Patients who were consuming more than 2 drugs were also excluded from the study. Also excluded were patients who consumed more than 3 drinks on weekends, patients who consumed alcohol on days other than weekends, who had features of alcohol dependence, craving or withdrawal.

Study Methods

Every patient who met the inclusion criteria and included in the study was interviewed and counselled. Informed consent was taken for the study. Before participation in the study, all subjects were counselled about the harmful effects of alcohol. They were strongly advised to desist from taking alcohol. Only if they were insistent, further steps were taken. They were also counselled on responsible behaviour after consuming alcohol.

In the first phase, detailed history about anti-hypertensive drug intake and alcohol intake was taken. A standard questionnaire was given to

the patients to fill up. The questionnaire asked questions about the duration of hypertension, number of drugs that were being taken, days on which alcohol was consumed, number of drinks consumed and whether they had any features of craving, dependence or withdrawal.

In the second phase, patients were asked to report before the weekend of intended social drinking. If the patient intended to engage in social drinking on Saturday, he or she was asked to report on Friday for recording of baseline BP. On Friday, BP was recorded on three occasions (at 0800 hr, 1400 hr and 2000 hr). After they had taken drinks on a Saturday, there were asked to report for measurement of BP on the next seven days, viz. from Sunday to next Saturday. The BP was measured on three occasions everyday (at 0800 hr, 1400 hr and 2000 hr). The measurement of BP was done using a standard protocol for measurement of BP. The results were tabulated. The BP on Friday was taken as the baseline and BP recordings from Sunday to Saturday were converted to percentages of the baseline and compared.

In the third phase, patients were asked to report on a weekend in which they did not intend to take alcohol. In this phase, BP was measured from Friday to the next Friday. These readings served as control readings. The results were tabulated. The BP on Friday was taken as the baseline and BP recordings from Sunday to Saturday were converted to percentages of the baseline and compared.

Statistical methods and Data Analysis

Database was created in MS Excel (Version 2007) and analyzed using IBM SPSS (Statistical Package for Social Sciences) statistics software version 22. Data was presented in numbers, percentages and mean $\pm$ SD. Other statistical methods used in the data analysis were Standard Error of difference between Two Means as per the nature of data. For statistical significance p value was considered at 5% level ($p < 0.05$).

RESULTS

A total of 10 patients were enrolled in the study. The mean age of the patients in the study was 35.8 ± 8.4 yr. All the patients in the study were males. (Figure 1)

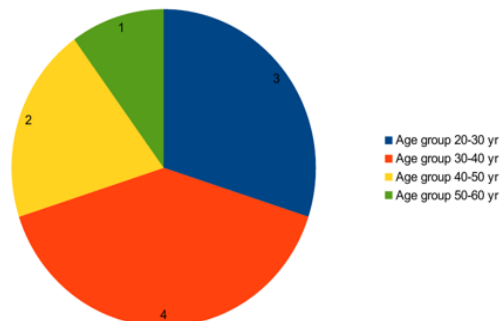


Figure 1 : Break-up of patients enrolled in the study

The mean systolic BP over the week after weekend social drinking was

compared to the mean systolic BP over the week after a weekend without social drinking. There was a significant rise in BP in the former. (Figure 2). There was a significant rise on Sunday, Monday and Tuesday. (p value less than 0.05). (Figure 3).

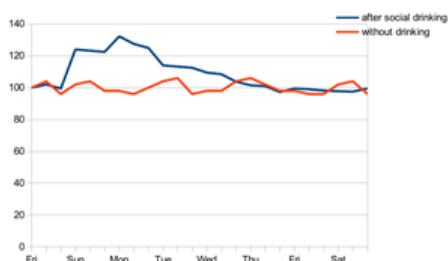


Figure 2 : Trend of mean systolic BP levels (expressed as percentage of baseline BP) over the week. Blue line represents the levels after social drinking and the red line shows the mean systolic levels without social drinking

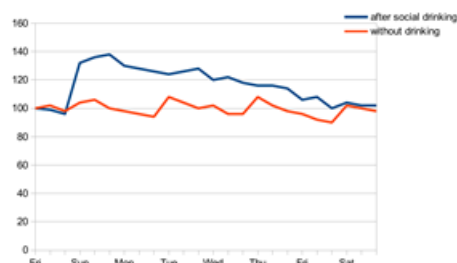


Figure 3 : Trend of mean systolic BP levels (expressed as percentage of baseline BP) over the week. Blue columns represent the levels after social drinking and the red columns show the mean systolic levels without social drinking. (Statistically significant elevation in the readings on sunday, monday and tuesday) (p value less than 0.05)

The mean diastolic BP over the week after weekend social drinking was compared to the mean diastolic BP over the week after a weekend without social drinking. There was a significant rise in BP in the former. (Figure 4). There was a significant rise on Sunday, Monday, Tuesday and Wednesday. (p value less than 0.05). (Figure 5)

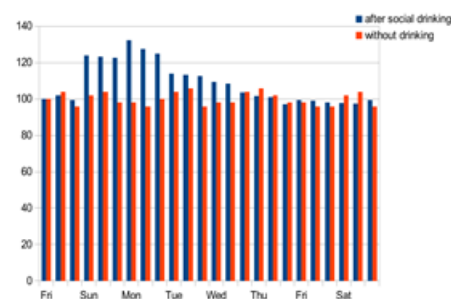


Figure 4 : Trend of mean diastolic BP levels (expressed as percentage of baseline BP) over the week. Blue line represents the levels after social drinking and the red line shows the mean systolic levels without social drinking

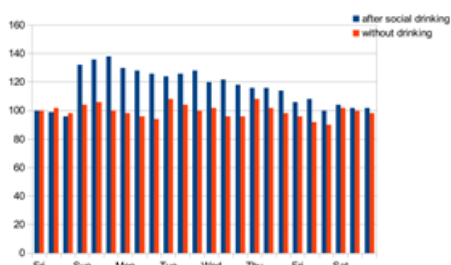


Figure 5 : Trend of mean diastolic BP levels (expressed as percentage of baseline BP) over the week. Blue columns represent

the levels after social drinking and the red columns show the mean systolic levels without social drinking. (Statistically significant elevation in the readings on sunday, monday, tuesday and wednesday) (p value less than 0.05)

DISCUSSION

It has always been known that alcohol consumption cause rise in BP. Most of the studies correlating alcohol consumption and BP have involved subjects engaging in heavy drinking. The effect of social drinking has been relatively less studied, especially in India. In fact, social drinking has been encouraged as a health drink.

This study indicate that these myths may be wrong. Consumption of alcohol even in low levels as in social drinking do cause a significant rise in BP levels over the week. This has significance in that BP recordings measured on Monday or Tuesday may be high because of alcohol consumed over the weekend. Taking history of alcohol consumption now becomes very important.

In addition, variation in BP recordings whether alcohol has been consumed over the previous weekend may pose a challenge to the dose titration of anti-hypertensive drugs. BP recordings on Wednesday or Thursday may be a reliable indicator of BP levels.

The strengths of the study included elucidation of a common phenomenon seen in patients of Hypertension, a significant number of whom may be consuming small amounts of alcohol on social occasions. The limitations of the study were a relatively smaller number of subjects. Further research with a larger population would be required in future to confirm the findings.

CONCLUSION

This study evaluated the effect of weekend social drinking on Blood Pressure levels in Hypertensive patients. This study found that there was a significant rise in BP levels even after consumption of low levels of alcohol as seen in social drinking.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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