

Original article:

A study of the magnitude of metabolic syndrome and its association with socio demographic factors and severity of alcohol dependence in alcohol dependent men attending tertiary care hospital in Puducherry

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Abstract:

Background: Assess the degree of metabolic syndrome and its association with socio demographic factors and severity of alcohol dependence in alcohol dependent men.

Materials and methods: We analysed the severity of alcohol dependency and metabolic syndrome among male adult male patients between 1st November, 2019 and 31st September, 2021. Assessment for metabolic syndrome was done as per international diabetic federation criteria (serum triglyceride, serum cholesterol, fasting blood sugar, blood pressure, waist circumference). Severity of alcohol dependence was assessed by SADQ -scale and patient's socio-demographic profile was filled in data collection proforma (using Prasad scale).

Results: 43% of alcohol dependant population had features of metabolic syndrome. The mean SADQ score was similar in patients with and without metabolic syndrome.

Conclusion: A higher prevalence of metabolic syndrome was observed among patients with alcohol dependency and severity of dependency.

Key words: Metabolic syndrome, alcohol dependency, SADQ scale

INTRODUCTION

Alcohol Dependency (AD), also known as alcohol dependence disease or alcoholism, is a set of mental, emotional, and physiological effects that occur from drinking alcohol on a daily basis. Long-term alcohol use increases the risk of liver disease, heart disease, peptic ulcers and certain types of cancer, complicated pregnancies, birth defects and brain damage. Metabolic syndrome, the combination of major cardiovascular risk factors such as obesity, hypertension, dyslipidemia and hyperglycaemia, is receiving increased attention from physicians and public health decision- makers, due to its association with adverse cardiovascular outcomes. This clustering has been recognised as a strong indicator of increased risk of cardiovascular morbidity and mortality. Subjects with alcohol dependency, according to the International Classification of Diseases Rev 10 (ICD-10): (According to the World Health Organisation, 1990) have psychiatric and emotional illnesses, an elevated incidence of cardiovascular disease, weakened bone health, cancer, and physical issues.

The harmful effects of heavy alcohol consumption are considered due to an increase in plasma triacylglycerol and increased blood pressure. Each of these factors is a component of metabolic syndrome. Therefore, it is of interest to evaluate the overall associations of alcohol consumption with the development of

metabolic syndrome (MS). Such information is important because alcohol consumption and metabolic syndrome are both common, and both physicians and patients would benefit from strategies related to its prevention

The prevalence of MS in substance dependent population has been reported in the range of 5-31% in some studies. Higher body mass index is also reported to contribute to MS^[1]. Research from India on MS and substance abuse is limited to few studies from North India. It's still an area of research with inadequate data. This study would be first of its kind in Puducherry. There is no available literature on metabolic syndrome in alcoholic men from Puducherry. Since alcoholism dependence is associated with deranged lipid profile we expect a positive correlation (increased prevalence) of MS among such category of sample population^[2]. The results can be applied to create awareness among people and project the data on a larger sample of population for randomised trials.

MATERIAL & METHODS

This Study was carried out in Psychiatry OPD, IPD of Aarupadai Veedu Medical College Hospital and Research Centre from November 2019 - September 2021. It was a cross Sectional Study. Inclusion criteria were male patients aged from 18 years to 60 years who fulfilled the ICD-10 criteria for alcohol dependence syndrome. Patients having co-morbid diagnosis of substance dependence except nicotine, critically ill and other co-morbid psychiatry disorders were excluded from the study. The sample population were patients visiting OPD and IPD in Psychiatry Department in AVMC by convenience sampling. The sample size was 237.

Patients fulfilling inclusion criteria were enrolled in my study after obtaining consent. Associated co-morbid psychiatry illness was ruled out by standard psychiatry history taking. Patients were treated appropriately for alcohol dependence syndrome. They were assessed for metabolic syndrome as per international diabetic federation criteria (serum triglyceride, serum cholesterol, fasting blood sugar, blood pressure, waist circumference). Severity of alcohol dependence was assessed by SADQ -scale and patient's socio-demographic profile was filled in data collection proforma (using Prasad scale)

Those fulfilling MS criteria were referred to medicine department for further evaluation and management. Collected data was analysed using appropriate statistical tests.

Blood samples for random blood sugar, serum cholesterol and triglyceride were taken for patients fulfilling ICD-10 criteria. Blood pressure and waist circumference was measured in all included patients. The outcome variables were: fasting blood sugar, serum triglyceride and cholesterol levels as well as socio demographic factors.

STATISTICAL ANALYSIS

The data was analysed using the student t-test for continuous variable and categorical data using the chi-square test. A p-value of <0.05 was considered statistically significant and all the data was analysed using the SPSS v21 operating on windows 10.

RESULTS

Total of 100 patients fulfilling inclusion criteria are included in the present study after obtaining the informed consent. Among them, the mean age of the participants of the study was found to be 41.04±16.12yrs of age. In the present study, the mean weight was found to be 67.75±8.29kg and BMI of 28.49±2.30kg/m². Among the study participants, 18% were unmarried, 78% were married and 4% were divorced. On assessment of educational status of the participants, majority of participants were educated upto higher secondary school in 36%, followed with 28% were drop-outs, 25% were lower schooling and 11% were graduates.

In the present study among the alcohol dependence patients, the metabolic syndrome was present in 43% of the patients and 57% were without metabolic syndrome. On comparison of the marital status with the SADQ scores among the study participants, there was no significant association between them. However the mean SADQ score was higher among the divorced and unmarried patients compared to married individual. On comparison of the educational status with the SADQ scores among the study participants, the mean score was higher among the graduate followed with the drop-out, lower school and higher secondary schooling. These findings were not statistically significant. Comparison of mean SADQ score among the metabolic syndrome presence, we found no significant difference in the mean levels. The mean SADQ score was similar in patients with and without metabolic syndrome. On correlation of the metabolic parameters and the SADQ score, we did not find any significant strength of association between the body waist circumference, blood pressure, triglycerides, HDL and glucose with the SADQ scores. In present study, on comparison of the marital status with metabolic syndrome presence, we found no significant difference in distribution of the patients and association. However, metabolic syndrome was higher among the divorced patients (7%) compared in the metabolic syndrome absent group (1.8%) [Table 1] . In the present study, on comparison of the educational status with metabolic syndrome presence, we found no significant difference in distribution of the patients and association. However, the metabolic syndrome was more common among the dropouts (30.2%) and graduated patients (14%) compared to the patients without metabolic syndrome [Table 2].

TABLE 1: Comparison of marital status with metabolic syndrome presence using chi-square test

		Metabolic syndrome absent		Metabolic syndrome present		Chi-square (p-value)
		Count	Column N %	Count	Column N %	
MARITAL STATUS	SINGLE	10	17.5%	8	18.6%	1.811 (0.404)
	MARRIED	46	80.7%	32	74.4%	
	DIVORCED	1	1.8%	3	7.0%	

TABLE 2: Comparison of Educational status with metabolic syndrome presence using chi-square test

		Metabolic syndrome absent		Metabolic syndrome present		Chi-square (p-value)
		Count	Column N %	Count	Column N %	
EDUCATION	DROUPOUT	15	26.3%	13	30.2%	1.997 (0.573)
	SCHOOL	17	29.8%	8	18.6%	
	HIGHER SECONDARY	20	35.1%	16	37.2%	
	GRADUATE	5	8.8%	6	14.0%	

DISCUSSION

Total of 100 patients fulfilling inclusion criteria are included in the present study after obtaining the informed consent. Among them, the mean age of the participants of the study was found to be 41.04 ± 16.12 yrs of age. In similar to present study, Aneja et al., documented the mean age of the participants as 41.6yrs of age with mean height of 167cms and BMI of 23.0kg/m^2 ^[3].

In present study, on assessment of marital status we found majority were married (78%), 18% were single and 4% were divorced. Similarly on evaluating the education status, 36% were higher secondary, 28% were dropouts, 25% were schooling and 11% were graduates. On assessment of marital status with the SADQ score, we have found higher mean score among the divorced individuals compared to the singles and married. However this finding was not statistically significant. On assessment of the education with the SADQ score, we found that the scores were lower among the higher secondary education compared to dropouts, schooling and graduate individuals the mean score was higher.

On assessment of the metabolic syndrome among the patients with alcohol dependence, we found 43% of the patients with metabolic syndrome in them, however in study by Aneja et al., documented the incidence of metabolic syndrome among the males with alcohol dependence was found to be 26.5%^[3]. Teixeira and colleagues recruited 170 inpatients from a psychiatric unit in Brazil. They found that 39 male patients were meeting the criteria for alcohol dependency^[4]. Patients with alcohol dependency showed a significantly lower MS rate than all other patients (bipolar disorder, major depression, schizophrenia, schizoaffective disorder, and other psychiatric diagnoses). All other patient categories in this research had MS rates ranging from 23 to 41 percent, with a female predominance. However, in this investigation, the patients with alcoholism were all men, which may have affected the results toward lower MS rates. Mattoo et al.^[5] evaluated 69 male patients from a drug rehabilitation clinic who were addicted to alcohol. MS was observed in 24 percent of the participants in this investigation, which was somewhat higher than the 22 percent prevalence found in the Jarvis et al. study of 46 males and females predominantly comorbid with nicotine dependence in a residential drug treatment facility^[6]. The explanatory power of these investigations, however, is restricted because no control group was included^[1].

In study by Aneja et al., Compared to those without MS, the subjects with MS had higher age ($P=0.022$), weight, waist circumference, BMI, FBG, DBP, SBP >130 mm Hg, WC, TG >150 mg/dL ($P<0.001$), and HDL-C ($P=0.019$)^[3]. Similarly in present study we found all the parameters were significantly higher among the patients with metabolic syndrome compared to patients without metabolic syndrome. On comparison of the mean score of SADQ among the patients with metabolic syndrome, we found no significant mean difference in SADQ between the groups with and without metabolic syndrome. On assessment of correlation between the metabolic parameters with the SADQ score, we did not find any significant strength of association among them. In study by Aneja et al., documented sociodemographic correlation analysis and clinical variables with the outcome variables for MS showed a significant correlation with weight and body mass index for all except low high density lipoprotein cholesterol components of MS in the patient group^[3].

CONCLUSION

Study demonstrated a higher prevalence of metabolic syndrome among the patients with alcohol dependency and severity of dependency. The study showed the relation of the metabolic syndrome with demographic details and metabolic syndrome with SADQ scores among the patients.

LIMITATIONS:

The sample size was small. All of the patients were hospital visitors. The study sample consisted solely of men, and the MS-related variables influencing gender were not evaluated. The data on alcohol intake was self-reported, indicating the possibility of under-reporting and perhaps explaining large differences. Also, dietary and physical activity, were not considered in the study.

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