



Original Article

Spectrum of Alcohol-Related Morbidities in Patients Presenting to Medical Emergency

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ABSTRACT

Background: Alcohol dependency and alcohol abuse is a major health care objective being faced by doctors during emergency services. Prompt specialized examination, pathological examination and social therapy should be initiated for early treatment of patients with alcohol problems. This study was conducted to find out the spectrum and burden of alcohol-specific and alcohol-related diseases in patients in the department of medicine.

Materials and Methods: This prospective one-year study was conducted on 800 patients greater than 18 years of age presenting to the emergency department with alcohol attribute disorders. Detailed history was taken and examination was conducted. History of alcohol intake was assessed according to "Six question set" recommended by National Institute of Alcohol Abuse and Alcoholism. Investigations included complete haemogram, biochemical variables, liver function tests, chest radiograph, electrocardiogram and ultrasonography abdomen. Data collected was presented in the form of frequencies and percentages. Chi-square test was applied wherever comparison was to be made.

Results: Alcohol attribute disorders were recorded to be 3.40% of the total number of admissions. Majority of the cases were those of chronic alcohol attribute disorders (92.50%). Male gender dominated the study group (99.50%) with most being in the age group of >50 years (56.50%). Most cases were from the rural areas (58%). More cases of chronic alcohol consumers were observed (60%) taking more than 81 grams alcohol per day. Also 80% subjects were consuming alcohol for more than 16 years and majority (71.89%) of them were diagnosed with alcoholic liver disease, followed by alcohol induced pancreatitis (14.05%).

Conclusion: Alcoholic liver disease occurs in patients who consume excessive amounts of alcohol. Early diagnosis, appropriate management in the form of pharmacotherapy and counselling can help in minimizing the progression to fatal complications.

Keywords: Alcohol abuse, Alcoholism, Alcohol attribute disorders, Chronic alcohol diseases.

INTRODUCTION

Alcohol abuse can be found among all age groups, predominantly in men. The average volume of consumption acts as a risk factor through biological and biochemical effects, including dependence which produces produce long term health consequences^[1].

Men and women who drink alcoholic beverages regularly have, in comparison with abstainers, higher death rates from injuries, violence, suicide, poisoning, cirrhosis, certain cancers, and possibly hemorrhagic stroke, but lower death rates from coronary heart disease and thrombotic stroke. The net balance of risks and benefits is likely to differ in different age groups and populations^[2].

Alcohol has consistently been related to the risk of cancer of the mouth (lip, tongue), pharynx, larynx, hypopharynx, oesophagus and liver. Hypertension and other cardiovascular disorders such as cardiac arrhythmias or heart failure are adversely affected by alcohol^[3].

The chronic condition most strongly related to alcohol is liver disease. Men, older persons, and male White Hispanics are at higher risk for alcoholic liver disease and unspecified liver disease^[4].

Alcohol has a relation with risk of type 2 diabetes mellitus similar to that found for cardiovascular disease^[5]. Analogous to cardiovascular disease, plausible biologic mechanisms may explain the apparently beneficial effects of alcohol on type 2 diabetes^[6].

The detection and early treatment of patients with alcohol problems should be a major health care objective today. However, although severe alcohol dependency is easy to diagnose, signs of alcohol abuse can be elusive. Admission to emergency services for drunkenness should be considered an indicator of likely pathological alcohol use. Any case of drunkenness in emergency services should be considered a clinical finding suggestive of alcohol abuse or alcohol dependency, requiring appropriate specialized examination and care, including medical psychological and social therapy^[7].

This study was conducted to find out the spectrum and burden of alcohol-related morbidities in patients presenting to the medical emergency of a tertiary care institute of north India.

MATERIALS AND METHODS

This prospective one-year study was carried out on patients more than 18 years of age, of either sex with alcohol-specific and alcohol-related disorders presenting to the Emergency Department of Medicine of a tertiary care institute of north India.

The protocol was reviewed and approved by Ethical Committee of the Institute. The patients were included only on giving written consent after full explanation of the nature and purpose of the study. Inclusion criteria included alcohol attribute acute cases like alcohol poisoning, aspiration and hypothermia; and alcohol attribute chronic cases like pancreatitis, liver disease, gastritis, dependence syndrome, psychosis, neuropathy, cardiomyopathy and arrhythmias. Patients were excluded if signs and symptoms were not related to alcohol use.

All the patients underwent detailed history and examination. History of alcohol intake was assessed as per "Six Question Set", recommended by NIAAA^[8].

Patients were subjected to investigations like complete haemogram (haemoglobin, total leucocytes count, differential leucocyte count, peripheral blood film), urine routine examination, erythrocyte sedimentation rate (fasting), biochemical investigations (serum urea, serum creatinine, serum electrolytes, blood sugar – fasting, lipid profiles), liver function tests/viral markers (serum bilirubin, serum proteins, serum aspartate aminotransferase/serum alanine amino-transferase, alkaline phosphatase, serum gamma-glutamyl transferase, prothrombin time), chest radiograph posteroanterior view, electrocardiogram (12 lead) and ultrasonography abdomen. Special investigations like echo, upper gastrointestinal endoscopy, contrast-enhanced computed tomography abdomen, magnetic

resonance imaging brain and computed tomography head, if required.

All the data thus obtained were entered in Microsoft Excel Sheet and presented in the form of frequencies and percentages. Chi-square test was applied wherever comparison was to be made. A p-value of <0.05 was considered as statistically significant.

RESULTS

The present study was conducted on patients admitted to the Department of Internal Medicine, Government Medical College, a tertiary care institute of north India with alcohol-specific and alcohol-related diseases over a period of one year. During the study period, a total of 23,518 inpatient admissions were made in the Department of Medicine. Of these, 800 cases (796 males, 4 females), age >18 years of age with alcohol attribute disorders were recorded, comprising 3.40% of the total number of admissions.

Maximum cases were chronic (740; 92.50%). More cases of acute and chronic alcohol disorders were observed in 50-59 years age group (246; 30.75%), followed by 40-49 years (168; 21%), 30-39 years (136; 17%), 60-69 years (124; 15.50%), >70 years (82; 10.25%) and 18-29 years age group (44; 5.50%). Male gender dominated the study group (796; 99.50%). There were 4 (0.50%) females with acute alcohol attribute disorders. There were more alcohol attribute cases from rural areas (464; 58%) as compared to from urban areas (336; 42%), the difference between the two being statistically significant ($p < 0.0001$).

Tables 1 and 2 depict distribution of cases according to quantity and duration of alcohol consumption respectively. Table 3 shows distribution of chronic cases according to cause of admission, while Table 4 shows liver function tests abnormalities in alcoholic liver disease cases.

Table 1. Distribution of cases according to quantity of alcohol consumption per day

Quantity per day (in grams)	Number of cases (%)
<60	96 (12.00)
61 – 70	128 (16.00)
71 – 80	96 (12.00)
81 – 90	320 (40.00)
>90	160 (20.00)
Total	800 (100.00)

Table 2. Distribution of cases according to duration of alcohol consumption

Duration of alcohol consumption (in years)	Number of cases (%)
<10	64 (8.00)
10 – 12	48 (6.00)
13 – 15	48 (6.00)
16 – 18	200 (25.00)
19 – 21	272 (34.00)
22 – 24	100 (12.50)
>25	68 (8.50)
Total	800 (100.00)

Table 3. Distribution of chronic cases according to cause of admission (n=740)

Cause of admission	Number of cases (%)
Alcoholic liver disease	532 (71.89)
Alcohol induced pancreatitis	104 (14.05)
Alcoholic gastritis	60 (8.12)
Alcohol withdrawal delirium/psychosis	22 (2.97)
Alcoholic arrhythmias	22 (2.97)
Total	740 (100.00)

Table 4. Liver function tests abnormalities in alcoholic liver disease cases (n=532)

Liver function tests abnormalities	Number of cases (%)
Increased SGOT	218 (40.98)
Hypoalbuminaemia	208 (39.08)
Increased bilirubin	208 (39.08)
Hypergammaglobulinemia	146 (27.44)
Increased PT	146 (27.44)
Increased alkaline phosphatase	62 (11.65)
Increased SGPT	42 (7.89)

DISCUSSION

To our knowledge, no studies have been carried out in this part of the country in patients admitted to emergency services for alcohol related diseases to determine how many of them are moderate drinkers with simple acute alcohol intoxication and how many are alcohol abusers or alcohol dependent, whose drunkenness is a sign of subacute or chronic alcohol intoxication.

The pattern of drinking in India has changed from occasional and ritualistic use to social use. These developments have raised concerns about the health and the social consequences of excessive drinking ^[9]. Today, the common purpose of consuming alcohol is to get drunk ^[10].

The Emergency Management Research Institute in Gujarat and Andhra Pradesh recorded 40,541 behavioral emergencies of which alcohol intoxication (3%) was the third commonest emergency ^[11], which is in accordance with the present study. According to Rajendram *et al.* ^[12], alcohol is responsible for 4% of the global burden of disease.

Findings from the National Family Health Survey reveal that nearly 10% of the users were less than 25 years, 15% in 25-29 years, 23% in 30-39 years, 26% in 40-49 years and 40% above 50 years ^[13], which is similar to the observations made in the present study.

Alcohol abuse can be found among all age groups, predominantly in men ^[14]. Das *et al.* ^[15] reported that alcohol consumption is predominantly abstinent (95%) among women. Both these studies are in consonance with the present study.

The place of residence and nature of population movement, in turn linked to availability issues, has a significant association with alcohol use. The National Household Survey revealed that rural individuals were 1.5 times more likely to use alcohol compared with urban users. This would probably be attributed to education, income, occupation and other social factors ^[16]. NFHS ^[17] revealed that for either sex, proportions consuming alcohol were greater amongst those from rural than urban areas, which is in agreement with the present study.

The volume of consumption as well as the pattern of drinking, especially irregular heavy drinking has been shown to determine the burden of disease ^[18].

In the present study, 320 (40%) subjects were consuming 81-90 grams of alcohol per day, while 160 (20%) subjects were consuming >90 grams per day. Moreover, 440 (55%) subjects were

consuming alcohol for more than 19 years and 200 (25%) subjects were consuming alcohol for 16 to 18 years.

The amount of drinking also increases with age and duration: social drinkers generally graduate to hazardous and pathological drinkers over a period of time ^[19]. This was found to be true in the present study also.

In the present study, 532 (71.89%) had alcoholic liver disease as a cause of admission. Alcohol induced pancreatitis 104 (14.05%) was the next common cause of admission, followed by alcoholic gastritis 60 (8.12%), alcohol withdrawal delirium/psychosis 22 (2.97%) and alcoholic arrhythmias 22 (2.97%). Among alcoholic liver disease cases, increased SGOT cases were observed in 218 (40.98%), hypoalbuminaemia in 208 (39.08%), increased bilirubin also in 208 (39.08%), hypergammaglobulinemia and increased PT in 146 (27.44%) cases each, increased alkaline phosphatase in 62 (11.65%) and increased SGPT in 42 (7.89%) cases.

There is general agreement that excessive alcohol consumption is associated with an increased risk of cirrhosis. However, there is no consensus on the exact dose or a specific dose-response relationship for cirrhosis ^[20].

Deirde ^[21] reported in their study that alcoholic liver disease accounted for three-quarters of all alcohol-related chronic diseases. Alcoholic gastritis and alcohol-induced chronic pancreatitis each accounted for 9% of chronic diseases, which is similar to the present study.

Alcohol is a well known risk factor for chronic pancreatitis. A prospective nationwide study of risk factors and clinical profiles of chronic pancreatitis examined data on 1086 patients across 32 major centers in the country. Alcoholic chronic pancreatitis accounted for about a third of the cases, second only to idiopathic pancreatitis ^[22].

Atrial fibrillation (AF) is the most common arrhythmia observed in clinical practice, and a significant risk factor for stroke ^[23]. Numerous studies have reported associations between alcohol and cardiac arrhythmias ^[24].

CONCLUSION

The detection and early treatment of patients with alcohol problems should be a major health care objective today. However, although severe alcohol dependency is easy to diagnose, signs of alcohol abuse can be elusive. Admission to emergency services for alcohol abuse should be considered an indicator of likely pathological alcohol use. Worldwide alcohol is one of the main causes of end-stage liver disease. Alcoholic liver disease occurs in patients who consume excessive amounts of alcohol. Alcoholic cirrhosis occurs in the setting of alcoholism. In the present study, 71.89% patients had alcoholic liver disease as a cause of admission, which is a matter of concern. Early diagnosis, appropriate management in the form of pharmacotherapy and counselling can help in minimizing the progression to fatal complications. With proper understanding of the pathophysiology, diagnosis, evaluation and treatment of alcohol attribute disorders can be managed well while minimizing complications for a hospitalized patient with alcohol-specific and alcohol-related diseases.

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