Psychiatric Comorbidity and Physical Correlates in Alcohol-dependent Patients

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ABSTRACT

Aim: To examine the prevalence and pattern of comorbidity in alcohol dependence and its relationship with physical and laboratory findings. Materials and Methods: Eighty males with alcohol dependence were examined using the Hindi version of Diagnostic Interview for Genetic Studies, the International Classification of Disease-10th Edition Personality Disorder Examination, Alcohol Use Disorder Identification Test for alcohol use, global assessment of functioning, blood sampling electrocardiogram, and ultrasonogram. Results: Eighty-seven percent had a comorbid Axis I or an Axis II psychiatric disorder, over 78% had nicotine dependence, and 56% had comorbid Axis II disorder, antisocial personality being the most common. Gamma glutamyl transpeptidase levels were significantly associated with comorbidity. Conclusions: High comorbidity of Axis I psychiatric disorders was found among persons with alcohol dependence. Axis II disorders were also present.

Key words: Alcohol dependence, physical correlates, psychiatric comorbidity

INTRODUCTION

Over 3 billion people died of alcohol related causes as far back as 1993.¹ There are an estimated 62 million alcoholics in India.² For psychiatrists, the estimated 40–50% of alcohol-dependent persons who develop alcohol-induced clinical syndromes are of particular importance.³

Patients with comorbid psychiatric disorders constitute the majority of alcohol-dependent populations presenting to de-addiction clinics.⁴ Psychiatric comorbidity rates in alcohol-dependent persons range from 100% in psychiatric in-patient settings⁵ to

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47% in community samples. [9] Regardless of whether alcohol use and other psychiatric illness are primary or secondary or independent of each other, they become extensively intertwined over time. [6] The authors are not aware of Indian studies estimating the prevalence of psychiatric comorbidity in alcohol-dependent patients attending general hospital psychiatry units. [7–9]

The aim of the present study was to examine comorbidity in association with alcohol dependence, and to analyze the relationship of physical and laboratory findings with psychiatric comorbidity at a tertiary care general hospital psychiatry unit.

MATERIALS AND METHODS

The study was carried out at the Department of Psychiatry and De-addiction Services at the Postgraduate Institute of Medical Education and Research, Dr. Ram Manohar Lohia Hospital, Delhi, a tertiary care teaching, free government hospital in 2006–07. The first consenting subject (usually the first asked) fulfilling inclusion criteria was recruited and examined per day. To calculate sample size, the prevalence of psychiatric comorbidity in alcohol dependence was taken as 40% [10] and error in precision was taken to be 30%. Using the formula, 2 \sqrt{pq/n} = \text{prevalence} \times \text{error}/100, n was found to be 66.6. Thus, a minimum n = 67 was obtained. However eighty subjects were finally recruited.

Males presenting for the first time, diagnosed as alcohol dependence as per International Classification of Disease-10th Edition (ICD-10) Diagnostic Criteria for Research (World Health Organization, 1993) criteria, [11] between ages 18 and 60 years, willing to participate, and to provide informed consent were requested for participation. Those with serious physical/neurological conditions or any other brain dysfunction interfering with assessment, with mental retardation or co-existing substance abuse or dependence other than for nicotine were excluded. They were informed of the study by treating physicians, referred to the first author, and recruited after obtaining valid written informed consent.

All participants were assessed using a structured clinical interview to obtain full clinical details using the Hindi version of Diagnostic Interview for Genetic Studies (DIGS). [12,13] The ICD-10 International Personality Disorder Examination (ICD-10 IPDE) for personality disorders (PD), [11,14] Alcohol Use Disorder Identification Test (AUDIT) for alcohol use, [13] and global assessment of functioning (GAF) (present in DIGS) were applied. The DIGS and available medical records were discussed with at least one board certified; experienced psychiatrist in regular reliability meetings, and diagnosis was established. The first diagnostic category as per IPDE was taken for the sake of simplicity. All PDs were exclusive of each other, as per criteria of the IPDE.

Blood sample and electrocardiogram (ECG) were taken within 24 h of the first visit and ultrasonogram within 1 week. Data analysis was conducted using the SPSS version 16.0 (San Francisco, CA). Chi-square test was used for any association between psychiatric comorbidity, ECG, and ultrasonogram changes. Student’s t-test was used for comparing cases with or without comorbidity on continuous variables (age at presentation, age at onset, age at first intoxication, age at daily drinking, age at dependence as per DIGS, AUDIT score, GAF score, and laboratory investigations). P <0.05 was accepted as cut-off for significance.

RESULTS

A total of eighty participants (all males) were included with a mean age of 36.7 (standard deviation = 10.5), the large majority were educated (0–8 years: 20%, >9 years: 80%), married (77.5%), and resided in urban areas (65%), with nearly equal representation from nuclear (48.8%) or joint (47.5%) families. Nearly, one-fifth were unemployed and around 71.3% earned <Rs. 10,000/month.

The lifetime prevalence of complicated alcohol withdrawal state was 11.25% and alcohol-induced psychotic disorder was 11.25%. The mean AUDIT score was 28.41 (8.03) with a wide range of 8–40 [Table 1].

Overall, 69 participants (86.8%) had a comorbid psychiatric disorder, the most common being nicotine dependence (78.75%). A total of 45 patients (56.25%) had comorbid PD-antisocial (15.0%), paranoid (8.75%), and avoidant (7.5%). The least common were borderline (2.5%) and impulsive (2.5%). Lifetime prevalence among anxiety disorders was panic disorder (17.5%), generalized anxiety disorder (13.75%), phobic disorders (10%), and OCD (3.75%). Affective disorders were present in 28.75% of the participants and schizophrenia in 2.5%.

Mean GAF score during past month was 51.24 (15.25) with a range of 20–81 [Table 2]. There was no significant difference between those with or without comorbidity when age at presentation, age of attaining different alcohol milestones (age at first drink, first intoxication, daily drinking, and dependence), income, AUDIT and GAF scores, and lab markers (hemoglobin, mean corpuscular volume (MCV), fasting and postprandial blood sugar, bilirubin, alanine aminotransferase (ALT),
Table 1: Prevalence of psychiatric comorbidity

| Comorbid psychiatric disorders | Prevalence (%) |
|-------------------------------|----------------|
| Nicotine dependence           | 78.75          |
| Personality disorder          | 0.14 (0.989)   |
| Antisocial/paranoid/avoidant/obessive compulsive/ | 15.0/8.75/7.5/6.25/ |
| Schizoid/histrionic/dependent/impulsive/borderline | 5.0/5.0/3.75/2.5/2.5 |
| Anxiety disorders             |                |
| Panic/generalized anxiety disorder/phobia/ | 17.5/13.8/10.0/3.8 |
| Obsessive compulsive disorder |                |
| Affective disorders          |                |
| Depressive episode/dysthymia/bipolar affective disorder/mania with or without psychotic symptoms | 15/8.8/2.5/2.6 |
| Mental and behavioral disorders due to alcohol use |                |
| Alcohol-withdrawal state (either with convulsions or delirium) | 11.25 |
| Mental and behavioral disorders due to alcohol use |                |
| Schizophrenia-like/predominantly depressive symptoms/predominantly delusional/predominantly hallucinatory/predominantly polymorphic/predominantly manic symptoms | 3.75/2.5/1.25/1.25/ |
| Schizophrenia                 | 2.5            |

Table 2: Clinical variables and psychiatric comorbidity

| Clinical variables | Mean (SD) | t (P) |
|--------------------|-----------|-------|
| Audit score | 28.30 (9.02) | 28.43 (7.95) | 0.43 (0.967) |
| GAF score | 51.30 (14.62) | 51.23 (15.43) | 0.14 (0.998) |
| Liver function | | | |
| Total bilirubin | 0.77 (0.24) | 0.74 (0.33) | 0.351 (0.731) |
| AST | 129.60 (99.05) | 103.34 (92.14) | 0.788 (0.447) |
| ALT | 95.80 (64.67) | 83.35 (68.51) | 0.565 (0.583) |
| Alkaline | 145.00 (60.80) | 133.15 (55.89) | 0.582 (0.572) |
| Phosphatase | 73.60 (32.83) | 104.00 (52.09) | 2.511 (0.023) |
| GGT kidney function | | | |
| Blood urea | 33.50 (9.81) | 28.54 (9.75) | 1.495 (0.161) |
| Serine creatinine | 0.91 (0.26) | 0.89 (0.25) | 0.294 (0.774) |
| Serum uric acid | 6.31 (1.57) | 9.00 (1.99) | 1.107 (0.272) |
| Hemoglog MCV | 92.97 (7.05) | 92.91 (7.01) | 0.023 (0.982) |

GAF – Global assessment of functioning; AST – Aspartate amino transferase; ALT – Alanine amino transferase; GGT – Gamma glutamyl transpeptidase; MCV – Mean corpuscular volume; SD – Standard deviation

The prevalence of schizophrenia was 2.5%, comparable to literature.[21] Nurnberg et al.,[29] 2%, and Herz et al., 2.7%.[30] Others reported rates ranging from 0.8% to 8.0%.[4,10,21,22,25,28] The prevalence of alcohol-withdrawal seizures and delirium tremens was 7.5% and 3.75%, respectively, as compared to 3–5% and 5%, respectively, from the literature.[31,32]

The mean values of fasting blood sugar, postprandial blood sugar, ALT, AST, GGT, serum uric acid, and MCV were significantly higher, comparable to others.[26,34,37–40] A statistically significant association was found between the psychiatric comorbidity and mean GGT value (P = 0.023) only. Significant changes were seen in ultrasonogram and ECG in 53.75% and 20% participants, respectively, but both were not associated with marital status. We did not find significant association between income and psychiatric comorbidity. Others reported lower socioeconomic status in patients with psychiatric comorbidity. One reported higher annual income in those with comorbid depression.[16-18]

The present study found high rates of PDs in a relatively stable Indian sample seeking treatment. Only males were included as few females seek free government treatment for alcohol or drug use.

Years of schooling and psychiatric comorbidity were neither correlated as opposed to Ross et al.,[31] nor was aspartate aminotransferase (AST), alkaline phosphatase, blood urea, serum creatinine, serum uric acid, ultrasonogram, and ECG) were compared. Gamma glutamyl transpeptidase (GGT) was the only marker (P < 0.023) that was shown to be significantly associated with psychiatric comorbidity.

**DISCUSSION**

The present study found high rates of PDs in a relatively stable Indian sample seeking treatment. Only males were included as few females seek free government treatment for alcohol or drug use.

Years of schooling and psychiatric comorbidity were neither correlated as opposed to Ross et al.,[31] nor was psychiatric comorbidity and age at first drink, age at first intoxication, age at daily drinking, and age at dependence were not significantly correlated as opposed to many previous reports.[10,16-26] Nicotine dependence unexpectedly topped the list of comorbidity, considering the prevalence, cheap, and easy availability of tobacco products in India.[24]

There were high rates of PDs, similar to studies by De Jong et al.[26] (78% alcoholic inpatients with at least one Axis II disorder; 28% only one, and 50% more than one PD) and Morgenstern et al.[38] (58%).[12]

Lifetime prevalence for anxiety disorders was 45%, comparable to hospital-based studies by Schneider et al.[21] and Bowen et al.[23] with lifetime prevalence of anxiety disorders of 42% and 43.8%, respectively.[24,23] The most common disorder was panic disorder (17.5% vs. 2–16%) in others.[4,13,27,28,35,36] followed by generalized anxiety disorder (13.75%), phobic disorders (10%) similar to Powell et al.[17] and obsessive compulsive disorders (3.75% vs. 2–12%) by others.[4,10,21,22,25,28] The prevalence of lifetime diagnosis of affective disorders was 28.75%, the most common being depressive episode (15%) followed by dysthymia (8.75%), bipolar disorder (2.5%), mania (1.25%) and mania with psychotic symptoms (1.25%). Past hospital-based studies reported lifetime prevalence from 19% to 34%,[4,10,29] Kisore et al. from Lucknow, India, reported a prevalence of 30%. [28] The prevalence of schizophrenia was 2.5%, comparable with Hesselbrock et al.,[24] Nurnberg et al.,[29] 2%, and Herz et al., 2.7%.[30] Others reported rates ranging from 0.8% to 8.0%.[4,10,21,22,25,28] The prevalence of alcohol-withdrawal seizures and delirium tremens was 7.5% and 3.75%, respectively, as compared to 3–5% and 5%, respectively, from the literature.[31,32]
with psychiatric comorbidity. There was a significant association between GGT levels and AUDIT scores. However, no significant association between psychiatric comorbidity and AUDIT or GAF scores and between GGT and GAF scores was found. Reasons for this finding are uncertain although sample size may be an issue.

This study although a cross-sectional study focused on participants from an outpatient department of a tertiary care hospital catering to Delhi and surrounding areas. It was conducted with sufficient sample size; structured interview schedules supplemented with clinical history were used. The reliability of the assessments was ensured by regular reliability meetings with a senior psychiatrist.

As we included male treatment seekers who were likely to be more ill, an inherent selection bias was unavoidable. Many subjects were not motivated and were brought to hospital unwillingly by relatives. Combinations of biomarkers improve the detection of physical comorbidity in alcohol-dependent persons.

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Conflicts of interest
There are no conflicts of interest.

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