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Method: The study was conducted at a de-addiction centre attached to a tertiary-care hospital in South India. Presence of medical comorbidities was assessed through self-report supplemented by medical records. The rates of medical comorbidities were compared between those having only alcohol dependence, and those with both alcohol and nicotine dependence. **Results:** The present study included 102 patients with concurrent alcohol and nicotine dependence and 20 patients with only alcohol dependence. The overall occurrence of medical comorbidity in the entire sample was 66.4%, with gastritis being the commonest. The rates of medical disorders did not statistically differ between those with alcohol dependence and those with concurrent alcohol and nicotine dependence. **Conclusion:** A large proportion of patients with alcohol use disorders presenting to a tertiary care center have medical comorbidities. In the current study, it was not possible to determine if concurrent nicotine dependence increased the risk of medical comorbidities.

Alcohol, co-morbidity, developing countries, substance use disorders, nicotine

Alcohol use disorders are associated with several medical comorbidities (Stein, 1997). Alcohol adversely affects several organ systems, including gastrointestinal, hepatic, neurological, cardiovascular and reproductive systems (Albano, 2008; Gramenzi et al., 2006). Continued alcohol use represents a health hazard, requiring frequent visits to the hospital and a reduction in the overall quality of life (O'Connor & Schottenfeld, 1998). However, individuals with alcohol use disorders are often disinclined to seek treatment, leading to continuation of medical problems and exacerbation of the physical complications (Ryan, Plant & O'Malley, 1995; Adamson, Sellman & Frampton, 2009). Thus, treatment of alcohol use disorders provides an opportunity not only for addressing the substance use disorder, but also for providing care for the associated medical comorbidities.

Use of alcohol is often associated with the concomitant abuse of other substances (Hasin, Stinson, Ogburn, & Grant, 2007; Arnaout & Petrakis, 2008). Nicotine use is frequently associated with alcohol use, though use of other substances like marijuana, cocaine and opiates may also concurrently occur with alcohol use. The different substances have their own unique set of associated health concerns, which might require clinical attention (Patkar et al., 2002; Patkar et al., 2005). The common medical problems associated with nicotine use (the most frequent concomitant substance with alcohol use) pertain to the respiratory and cardiovascular systems (Parker et al., 2014).

Alcohol use disorders seem to be gradually increasing in prevalence in the Indian population over the last few decades (Benegal, 2005; Murthy, 2010). This calls for the health service

delivery systems to be geared up to the challenges of medical problems associated with alcohol use (Mattoo, Singh & Sarkar, 2015). The prevalence of nicotine use is quite high in the Indian population, though alcohol use disorder is one of the most frequent reasons of consultation in de-addiction settings (Basu, Sarkar & Mattoo, 2013; Basu et al., 2012). Consequently, it would be helpful to ascertain whether presence of additional nicotine use is associated with greater medical comorbidity. Thus, this study aimed to assess the medical comorbidities associated with alcohol use, and to assess whether concurrent nicotine use disorder conferred an increased risk of having a medical disorder.

The present study was conducted in an out-patient setting of a de-addiction centre attached to a tertiary-care teaching hospital in Southern India. The de-addiction centre caters to patients with a variety of substance use disorders, though alcohol and nicotine constitute the most common substances of abuse encountered at the centre. Both in-patient and out-patient treatment is being provided at the centre. Both pharmacological and psychotherapeutic approaches are utilized for manage

ICD-10 criteria (World Health Organization, 1992). Exploration of the presence of medical comorbidities is assessed using patient self-report, family member report or previous medical records.

The present record-based study included patients registered in the de-addiction centre over a period of 12 months from January to December 2012. Information was extracted from the records using a template by one of the investigators. Data pertaining to the substances of use, the duration of use, and the presence of medical comorbidities were recorded. Data was coded according to a pre-defined coding plan. A subset of the sample was re-checked to assess for fidelity of the coding (Sarkar & Seshadri, 2014).

Statistical analysis was performed using SPSS for Windows, Version 16 (Chicago, SPSS Inc.). For the present analysis, only those patients who had alcohol dependence were included in the study. The sample was divided into patients who had only alcohol dependence and those who had alcohol dependence and concurrent nicotine dependence. The rates of medical comorbidities in the two groups were compared using the chi-square test. The relationship of presence of medical comorbidities with selected clinical parameters was also assessed using appropriate parametric or non-parametric tests. Missing value imputation was not conducted. All the tests were two tailed and a p value of less than 0.05 was considered as significant.

patients report to a tertiary care hospital for treatment only after they experience medical problems.

The findings of this study suggest that medical evaluation should be undertaken for patients with alcohol dependence, even when the reason for consultation does not include a medical problem as a presenting complaint. Since de-addiction services are often segregated from other medical specialties in terms of training of personnel and treatment approaches, it is incumbent upon de-addiction specialists to manage the medical comorbidities ascertained and seek referral when applicable. This is more applicable while admitting the patients for detoxification treatment (Kattimani & Bharadwaj, 2013). The findings also call for spreading awareness to the lay public about the harms associated with alcohol use, as certain forms of alcohol are perceived as less harmful than nicotine products (Sarkar, Balachander & Basu, 2014). The awareness programmes must also focus on encouraging the public to seek early treatment for substance use disorders, rather than delay it until the occurrence of medical comorbidities.

The descriptive profile of the medical comorbidities with substance use disorders gives an insight into the type of disorders expected to happen in these patients. Gastritis being the most common self-reported medical problem in this population calls for a screening for the presence of this condition among patients coming to the de-addiction setting.

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