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Review Article

An ephemeral review on alcohol intoxication

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ABSTRACT

Acute alcohol intoxication is one of the major conditions which can also lead to fatality. Alcohol dependence and abuse can be seen in all age groups >18years, especially from 18years to 29 years. Fatal motor vehicle crashes and deaths are mostly caused by heavy alcohol consumption in addition to adverse health effects. Hypoglycemia, lactic acidosis, hypokalemia, hypomagnesemia, hypoalbuminemia, hypocalcemia, and hypophosphatemia are the clinical manifestations of acute alcohol intoxication. These harmful effects were primarily dependent on the frequency of alcohol consumption and the blood concentration of alcohol. Management of alcohol intoxication is based on drug therapy but social and psychological treatment is primary. Prevention and control of alcohol-related effects must be the main aim of the health department from primary care level which may reduce alcohol dependency, its adverse health effects and improve social awareness and responsibility.

Keywords: Acute alcohol intoxication, Clinical Features, Withdrawal Syndrome, Detoxification, Chlordiazepoxide, Naltrexone, Road traffic accidents.

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INTRODUCTION

Alcohol is an organic compound that is globally used. It also represents the oldest and the most diffuse substance of abuse. In the United States, 20–40% of the subjects admitted to hospitals have alcohol-related problems [1]. Ethanol is a water-soluble compound that rapidly crosses cell membranes, resulting in ready equilibration between intra and extracellular concentrations [2]. Of the many alcohol-related disorders present in subjects referred to emergency care departments, acute alcohol intoxication is the most frequent [3]. Alcohol has been shown to be an attributable risk factor in multiple disease states, including breast cancer (13%), chronic pancreatitis (72%), and cirrhosis (74%). Eighty percent of oesophageal cancer is attributable to smoking and alcohol [4]. Several recent studies of social drinkers indicate that alcohol-related effects are not limited to alcoholics[5-7]. The consumption of alcohol has been associated with an increased risk of physical injury caused by automobile crashes and falls [8,9]. In general, the costs of alcohol-related problems have been estimated to be more than $136 billion [10].

Alcoholism is defined as a long term disease with genetic, cognitive, and environmental factors influencing its development and demonstration. The disease is often progressive and fatal. It is distinguished by impaired command over drinking, thinking about the alcohol, utilization of alcohol despite harmful consequences, and distortions in thinking, most particular denial. Each of these symptoms may be periodic or continuous [11].

CLINICAL FEATURES

In a small proportion of patients, the auditory hallucinations persist; ideas of reference and influence and other poorly systematized delusions are added to the clinical picture, which then becomes difficult to distinguish from schizophrenia [12]. Heavy alcohol use among the elderly has been associated with malnutrition, a variety of medical conditions (such as liver disease, stroke, cardiac problems, hypertension, insomnia, depression), as well as cognitive problems and dementia [13-15]. Acute alcohol intoxication is able to cause several metabolic alterations including hypoglycemia, lactic acidosis, hypokalemia, hypomagnesemia, hypoalbuminemia, hypocalcemia, and hypophosphatemia [2]. Acute alcohol intoxication-related cardiovascular effects include tachycardia, peripheral vasodilation, and volume depletion; these features can contribute to the induction of hypothermia and hypotension [2]. Symptoms usually include nausea, vomiting, abdominal pain, Less frequently fever, shivering, and jaundice can occur [16,17].

Symptoms	Blood Alcohol Concentration (BAC)
Impairment in some tasks requiring skill	BAC<50mg/dl
Increase in talkativeness	(10.9 mmol/1)
Relaxation	
Altered perception of the environment	BAC>100mg/dl
Ataxia	(21.7mmol/l)
Hyperreflexia	
Impaired judgment	
Lack of coordination	
Mood, personality, behavioral changes	
Prolonged reaction time	
Slurred speech	
Amnesia	BAC>200mg/dl
Diplopia	(43.4mmol/l)
Dysarthria	
Hypothermia	
Nausea	
Vomiting	
Respiratory depression	BAC>400mg/dl
Coma	(86.8 mmol/l)
Death	

Clinical features of acute alcohol intoxication with the response to blood alcohol concentration. Delirium tremens is the most dramatic and the most serious manifestation of the withdrawal syndrome. It is characterized by a state of profound confusion, delusions, vivid hallucinations, tremor, agitation, and sleeplessness, as well as by increased autonomous activity [18]. Students who abuse alcohol are at high risk for developing negative consequences, such as traffic accidents, academic

failure, risky sexual behavior, and alcohol dependence (Marlatt et al., 1998). Also, 15% of those with alcohol dependence develop peripheral neuropathy (alcoholic polyneuropathy) associated with numbness, parathesis and decreases in vibration and position sense, especially in the legs [19]. Heavy drinking affects the cardiovascular system. Three or more drinks per day increase both blood pressure and LDL cholesterol and also enhance the risk of cardiomyopathy [20,21]. Almost 75% of patients who have head and neck cancers have alcohol-use disorders, and alcohol-use disorders also double the risk of cancers of the esophagus, rectum, and breast [22,23]. Alcohol-induced immune dysfunction can exacerbate the course of hepatitis C and complicate the treatment of AIDS [24,25]. Furthermore, a pregnant woman who drinks heavily can cause adverse effects on her developing fetus, including low birth weight, spontaneous abortions, premature deliveries, fetal-alcohol syndrome, and fetal alcohol spectrum disorders [26,27].

DEATHS IN INDIA

In 2007, 452,922 were injured in road traffic accidents and 105,725 were dead due to road traffic accidents throughout India.

Study location and year	Population	Alcohol use	Reference
Delhi,2002	Injured crash victims. 57.7% drivers/pas., 14.1% bikers, 24.9% ped., 4.1% others	Alcohol or drug use:1.9%	Verma and Tewari (2004)
Maharashtra, 2003-04	Injured crash victims.28.9% drivers,49.7%pas, 7.4% bikers, 13.4% ped,0.6% bullocks.	Drivers-29.5%	Patil et al. (2008).
Karnataka, 2004 a	Male trauma patients. 42% motorcycle occupants,18% pas., 20% ped.	16%	Gururaj(2004b)
Madhya Pradesh,2004-5	Injured crash victims	11.58	Swarnkar 2010
Hyderabad, 2005-6	Injured motorized two-wheeler crash victims. 66.7% drivers, 33.7% pas.	35 out of 58 riders 13 out of 24 billion	Fitzharris et al. (2009)
Karnataka,2006-7	Injured crash victims. Drivers 30.5%, pas.42.6%,ped 26.8%	12.1%	Gudadinni(2007)
Karnataka 2006-7	Injured motorized two-wheeler victims .75.7% drivers,24.3% pas.	22.9%, all male drivers 24.1% pas.20.0%	Mallikarjuna and Krishnappa(2009)
Delhi,2007 a	Adolescent students	20% had been passengers of a drunk driver during last month	Sharma et al. (2007)
Delhi, 2007-8	Killed motorcycle crash victims.		Behera et al. (2009)
Orissa,2008	Injured crash victims.37.5% ,47.5% pas.,15% ped	15%	Sarangi et al. (2009)
Karnataka, 2008-9	Injured crash victims 82.9% vehicle users, 17.1% pas.	14.1%	Uthkarsh et al. (2012)

MANAGEMENT

The process of treatment is Identification, Intervention, Motivation Interview, Brief Intervention, Rehabilitation, Cognitive Behavioral Therapy, Drugs, Prevention of relapses in which clinicians first identify alcohol-use disorders and share their views with patients, and then follow through with brief involvement, treatment, and referred to a specialist if problems are severe. For most clinicians, the goal of treatment for severe alcohol dependence is abstinence and only a few favor teaching control of drinking [28].

Detoxification: The process of detoxification initiates with a dose of 25 mg Chlordiazepoxide for every 4–6 h for 1 day, remove the dose if the patient is sleeping or resting comfortably, along

with a supplementary 25–50 mg if a severe tremor or autonomic dysfunction is seen about 1 h after the scheduled dose [29]. The average patient with a stable social situation, no severe medical problems, and no previous history or indicators of impending delirium or seizures can usually be treated with similar outcomes but less cost as an outpatient [29,30]. Naltrexone can also be given as an intramuscular dose of 380 mg once a month, which, although more expensive, optimizes compliance and has shown some promising results [31]. Disulfiram and Calcium Carbamide inhibits ALDH2 so that acetaldehyde increases dramatically after drinking, to produce nausea, vomiting, diarrhea, rapid heart rate, and changes in blood pressure [32,33]. This drug is best given under observation, to ensure compliance [29,33, 34] a period of several years the use of insulin and glucose was recommended as a particularly effective method of treating acute alcoholic intoxication. There is reasonably acceptable experimental evidence that insulin accelerates the rate of disappearance of alcohol from the blood [35,36]. The substantial fall in the blood alcohol concentration of patients who are treated with insulin and glucose was narrated by Goldfarb et al.,[37]. Despite perceptions to the contrary, efforts to help patients decrease heavy drinking commonly result in changes in behaviors, and most patients with alcohol-use disorders do well after treatment [38, 39].

CONCLUSION

Alcohol intoxication is a harmful condition that typically follows the ingestion of a huge amount of alcohol which can exhibit itself clinically in various ways and leads to metabolic effects along with gastrointestinal, pulmonary and cardiac effects and the management is aimed by stabilizing the patient's clinical condition by the elimination of alcohol. It is up to both governments and concerned citizens to encourage public health policies that minimize the harm caused by alcohol.

Alcohol-related road accidents are not being addressed virtuously. Employment of serviceable measures to prevent alcoholic intoxication and its ill effects in all the departments of the healthcare system and educating the society of all the age, economic, cultural, occupational segments in the population about the safe use of alcohol and health effects could be practically functional. Further development of efficacious drugs and procedures for alcohol detoxification would also be fruitful.

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