Acute Alcohol Intoxication: Prevalence, Recognition and Medicolegal

Pages with reference to book, From 220 To 221

Farhat Hussain Mirza,Kausar Arif (Department of Forensic Medicine, Sindh Medical College, Karachi.)

Abstract

Objective: To highlight the clinical criteria of persons who are accused of being under the intoxicating effect of alcohol brought to medicolegal officer by the police.
Methods: Included cases of alcohol intoxication reported to the medicolegal sections of three major government hospitals of Karachi i.e., Jinnah Post Graduate Medical Centre, Civil Hospital and Abbasi Shaheed Hospital, Karachi, during the period January to December 1996.
Results: During one year of study, 338 persons were brought from police stations all over Karachi to the medicolegal sections of the above three hospitals. Out of these, 260 persons were disposed off by the medicolegal officers by use of their clinical judgement, 78 persons were suspected to be under the effect of alcohol intoxIcation and were referred to the chemical examiner where urine and blood analysis for alcohol was positive in 40 and negative in 38 cases. Only one fatal case of alcohol intoxication was reported to the chemical examiner and the viscera sent for examination were positive for alcohol.
Conclusion: The incidence of the positive cases of alcohol intoxication on laboratory analysis was 11.8% while negative results were obtained in 11.2% cases, out of 23% cases referred to the chemical examiner, indicating that the bulk of cases i.e. 76.9% were disposed off on clinical criteria only which is a crude method of assessment of cases of acute alcohol intoxication (JPMA 49:220, 1999).

Introduction

The prohibition (Enforcement of Hadd) Order (4 of 1979) extending to whole of Pakistan, imposes the total prohibition on the consumption, manufacture and selling of intoxicating liquor by the Muslims[1]. The excitement and diversion which drinking provides in the long run produces unfortunate and sometimes disastrous results. Ingestion of alcohol is a criminal act in Pakistan.
The Diagnostic-Statistical Manual IV (DSM-IV) defines substance-related disorders in broad and functional terms, which embraces alcohol and other drugs[2]. Ethanol (Ethyl Alcohol) is available as a beverage and is an important constituent of detergents, mouth washes and industrial solvent. Ethanol is absorbed rapidly through gastric and small intestinal mucosa. After ingestion peak ethanol blood concentrations usually occur within 30-90 minutes. Approximately 95% of the ingested ethanol is oxidized to acetaldehyde and acetate, remainder is excreted unchanged in the urine and to a lesser extent in the breath (the breath: blood ratio is approximately 2300:1) and through the skin. One gram of ethanol has approximately 7.1 kcal of energy and a drink contains between 70 and 100 kcal from ethanol and other carbohydrates[3]. Acute ethanol intoxication is an uncommon cause of adult death. Severe alcohol intoxication will follow the ingestion of 300-500 ml of a strong spirit (e.g. whisky, gin) by an adult over a short period of time may be fatal if the recovery period is supervised inadequately. In Pakistan alcohol is not as freely available as other addicting agents, therefore the prevalence of alcohol intake is not very high. People prefer to use heroin and charas which are more easily available. Only about 10 percent of those taking addicting agents use alcohol. We carried out this study to bring,forth the crude method for exclusion of alcohol intoxication on the basis of clinical examination performed by the medicolegal officers. We also studied the prevalence of proved cases of alcohol intoxication on

laboratory analysis in the office of chemical examiner and also aimed to highlight the medicolegal aspect of alcohol intoxication.

Subjects, Methods and Results

The study included 338 subjets brought from various police stations to the medicolegal sections of Jinnah Postgraduate Medical Centre, Civil Hospital and Abbasi Shaheed Hospital, Karachi from January to December 1996. The cases from different police stations showed that maximum (134) were from District South followed by District East, District Central, Malir and District West. All were examined by the medicolegal officers. Date and time of the examination was recorded with time lapse between alcohol intake and examination, all injuries and diseases were excluded, a short history was taken. General behaviour was observed with special emphasis on the state of clothing, character of speech - slurred, thick or over precise, evidence of self control. Orientation was also checked. Smell of acetone was noted. Gait was' observed for staggering, lurking or reeling. Muscle co-ordination was examined and reflexes elicited. Brief systemic examination was also performed.
Blood and urine samples were taken from persons exhibiting evidence of alcohol intoxication and were sent to the chemical examiner. The two tests done at the chemical examiner's office were:
Suiphomyolybidic acid Test: 2 to 3 ml urine are gently poured over 2 ml of sulphomolybidic acid taken in a test tube, a deep blue ring appears at the junction of the two liquids. If the test tube is shaken the whole mixture becomes deep blue. Dichromate Test: On heating some urine with 5 ml of a strong aqueous solution of potassium dichromate and 1 ml of strong sulphuric acid, the colour changes to green and the vapour of aldehyde is detected in its odour.
Three hundred and thirty eight cases were brough from different police stations, of which 134 (39.6%) were from District South, 112 (33%) from District East, 58 (17%) from District Central, 27 (8.9%) from District Malir and 7 (2%) from District West. All were males. Majority (48%) were between 26-35 years of age, 25% were 18-25 years old, 14% were of 36-45 years and 9% were between 46-55 years of age. Only 4% were above 55 years of age. All 338 cases were brought to one of the 3 major hospitals but as facilities for blood and urine analysis for detection of alcohol are not available at these hospitals therefore it is the duty of the medicolegal officer to exclude alcohol intoxication on clinical observations and only to send specimen of those cases to the chemical examiner where there is strong clinical evidence of alcohol intoxication. After taking the history and doing a thorough examination 260 (76.92%) cases were disposed off by the medicolegal officers on their clinical discretion. Urine and blood sampl s from 78 (23.08%) cases were sent to the chemical examiner for analysis. On chemical examination test were
positive for alcohol intoxication in 40 (11.80%) cases and negative in 38 cases. The time lag between the intake and examination was variable but in most cases it was 4 to 6 hours when the effects of alcohol had either worn off or were minimal. Names, initials and medicolegal numbers of the persons included in this study are not used.

Comments

Difficulty is faced in making a clinical diagnosis of alcoholic intoxication, in border, line cases where the presentation is not obvious[4]. The circumstantial evidence about the conduct of the person concerned is of paramount importance. The medicolegal officer should make his clinical diagnosis uninfluenced by any. knowledge of the results of the chemical tests. The smell of alcohol in the breath is an subjective index of the amount of liquor taken or its presence in the body.
An incomplete clinical examination may lead to serious error. If the time lag between ingestion of alcohol and time of examination is increased there are chances of excretion of alcohol thus giving

negative clinical findings. The duration elapsing between the alleged offense and the examination should be clearly stated in the report[5]. Under alcohol intoxicaiton a person can commit any form of crime and is legally responsible for his act.

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