A CROSS- SECTIONAL STUDY ON CLINICAL PROFILE OF ALCOHOL INDUCED NEUROLOGICAL MANIFESTATIONS

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ABSTRACT

BACKGROUND

Alcohol is the most frequently consumed toxic substance in the world. Alcohol contributes to over 200 diseases and related health conditions, most notably alcohol dependence. Globally, alcohol misuse is the fifth leading risk factor for premature death and disability among people between the ages of 15 and 49. WHO stated that in the age group 20–39 years, approximately 25 percent of the total deaths were attributable to alcoholism. Acute alcohol intoxication is associated with number of complications including accidents and domestic violence. During drinking periods and withdrawal, alcoholics commonly experience sleep disturbances like falling asleep and staying asleep (decreased total sleep time). Some neurological disorders related to long term alcoholism are predominantly due to inadequate nutrition (thiamine deficiency that causes Wernicke's encephalopathy), but others appear to involve the neurotoxicity of ethanol on brain (alcohol withdrawal syndrome and dementia) and peripheral nerves (alcoholic neuropathy and myopathy).¹ We wanted to study the effect of alcohol on central and peripheral nervous system in alcohol abuse patients admitted to Sri Venkateswara Ramnarayan Ruia, Government General Hospital, Tirupati.

METHODS

A cross sectional study of neurological manifestations of alcohol was conducted in male patients who were admitted in the medical ward of SVRRGH, Tirupati from January 2017 to June 2017. Patients were subjected to predesigned and pretested questionnaire consisting of age, duration and quantity of alcohol intake, type of alcohol, sleep pattern, memory disturbance and clinical examination.

RESULTS

Mean age of the study subjects was 48.5 years. Sleep disturbance (Insomnia) was most commonly observed acute neurological manifestation in 90 (60%) alcoholics out of 150 followed by withdrawal syndrome (46%). Most common chronic neurological manifestation was peripheral neuropathy (28%) followed by cerebellar degeneration (16.7%). There was a statistically significant difference between age and cerebellar degeneration. (p value<0.5).

CONCLUSIONS

A cross-sectional study of neurological manifestations of alcohol was conducted in male alcoholic patients admitted in medical ward of SVRRGH, Tirupati. Mean age of the study subjects was 48.5 years and half of them were dependent on brandy followed by country liquor. Most common acute neurological manifestation was sleep disturbance (insomnia) followed by withdrawal syndrome. Most common chronic neurological manifestation was peripheral neuropathy followed by cerebellar degeneration. There was a statistically significant difference between age and cerebellar degeneration. (p value<0.5).

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BACKGROUND

Alcohol is the most frequently consumed toxic substance in the world. Alcoholism and alcohol abuse remain a significant health problem and represents the third leading cause of preventable death.

Global Burden

In 2012, 3.3 million deaths or 5.9 percent of all global deaths (7.6% for men and 4.0% for women) were attributable to alcohol consumption. Alcohol contributes to over 200

diseases and injury-related health conditions, most notably alcohol dependence, liver cirrhosis, cancers, and injuries. In 2012, 5.1% of the burden of disease and injury worldwide (139 million disability-adjusted life-years) was attributable to alcohol consumption. Globally, alcohol misuse is the fifth leading risk factor for premature death and disability among people between the ages of 15 and 49. WHO stated that in the age group 20–39 years, approximately 25 percent of the total deaths were attributable to alcoholism.

Some neurological disorders related to long term alcoholism are predominantly due to inadequate nutrition (The thiamine deficiency that causes Wernicke's encephalopathy), but others appear to involve the neurotoxicity of ethanol on brain (Alcohol withdrawal syndrome and dementia) and peripheral nerves (Alcoholic neuropathy and myopathy).¹ Alcoholic "blackouts" can occur during heavy drinking and are characterized by hours of amnesia while awake. Immediate recall and long-term memory are normal but new events are forgotten, as in

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patients with transient global amnesia. When drinking is abruptly reduced or discontinued hyperexcitable withdrawal syndrome develops that is considered to be evidence of "physical dependence. Clinical features include tremulousness, disordered perceptions, convulsions, and delirium tremens² Acute alcohol intoxication is associated with number of complications including accidents, domestic violence. During drinking periods and withdrawal, alcoholics commonly experience sleep disturbances like falling asleep and staying sleep (Decreased total sleep time).

Alcoholic polyneuropathy is characterized by axonal degeneration and demyelination. Although earlier clinical evidence suggested that inadequate nutrition was responsible, a specific vitamin deficiency has never been documented. Recent evidence suggests a direct neurotoxic effect of ethanol on peripheral nerves.³

Alcohol dependence syndrome was more common in males as compared to females, this has a significant impact on the health and economic burden of the society. Alcohol dependence is a chronic disease associated with malnutrition, and a wide variety of CNS disorders. Wernicke and Korsakoff syndrome is the best neurological complication of alcoholism with thiamine deficiency.

Aim of The Study

To study the effects of alcohol on central and peripheral nervous system in alcohol abuse patients admitted to Sri Venkateswara Ramnarayan Ruia, Government General Hospital, Tirupati.

Objectives of The Study

1. To determine acute neurological manifestations of alcohol abuse.
2. To determine chronic neurological manifestations of alcohol abuse.
3. To determine socio demographic profile of study subjects.

Inclusion Criteria

Male patients aged between 20-80 years who got admitted in medical ward.

Exclusion Criteria

1. Seriously ill and non-cooperative.
2. Those having diabetes.

METHODS

A cross sectional study of neurological manifestations of alcohol was conducted in male patients who were admitted in medical ward of SVRRGH, Tirupati from January 2017 to June 2017. Patients were subjected to predesigned and pretested questionnaire consists of age, duration and quantity of alcohol intake, type of alcohol, sleep pattern, memory disturbance and clinical examination

Study Period

Jan-June 2017.

Study Setting

SVRRGH, Tirupati

Study Design

Cross sectional

Sample Size

Sample size was taken based on the conveniences of the study.

Statistical Analysis

Data was entered in MS Excel and analyzed by using SPSS 17 version. Statistical tests like proportions and chi-square test were used.

RESULTS

Mean age of the study subjects was 48.5 years. Sleep disturbance (Insomnia) was most common observed acute neurological manifestation in 90 (60%) alcoholics out of 150 followed by withdrawal syndrome (46%). Most common chronic neurological manifestation was peripheral neuropathy (28%) followed by cerebellar degeneration (16.7%). There was a statistically significant difference between age and cerebellar degeneration. (p value < 0.5).

Sleep disturbance (insomnia) was most common observed acute neurological manifestation in 90 (60%) alcoholics out of 150 followed by withdrawal syndrome (46%).

Most common chronic neurological manifestation was peripheral neuropathy (28%) followed by cerebellar degeneration (16.7%).

Mean age of the study subjects was 48.5 years. The major duration of abstinence of alcohol is 5 to 12 months reported in 43% of study respondents. The major type of alcohol consumption is Brandy (50.7%), followed by Country liquor in 26.7% etc.

Acute Neurological Manifestations	Present (%)	Absent (%)
Sleep disturbance (Insomnia)	90 (60)	60 (40)
Withdrawal syndrome	69 (46)	81 (54)
Hangover symptoms	66 (44)	84 (56)
Blackout	55 (36.7)	95 (63.3)
Sleep apnoea	48 (32)	102 (68)
Dreams	34 (22.7)	116 (77.3)
Seizures	31 (20.7)	119 (79.3)
Impaired judgement	19 (12.7)	131 (87.3)
Alcohol intoxication	8 (5.3)	142 (94.7)

**Table 1. Acute Neurological Manifestations of Alcoholics
n=150**

Chronic Manifestations	Present (%)	Absent (%)
Peripheral neuropathy	42 (28)	108 (72)
Cerebellar degeneration	25 (16.7)	125 (83.3)
Wernicke syndrome	10 (6.7)	140 (93.3)
Korsakoff psychosis	2 (1.3)	148 (98.7)

**Table 2. Chronic Neurological Manifestations of Alcoholics
n=150**

Social Factors	Percentage (%)
Age	11 (7.3)
20-30	26 (17.3)
30-40	37 (24.7)
40-50	43 (28.7)
50-60	23 (15.3)
60-70	10 (7)

70-80	
Abstinence of alcohol	
<5 months	16 (10.7)
5-12 months	65 (43.3)
12-18 months	20 (13.3)
18-24 months	6 (4)
24-30 months	24 (16)
30-36 months	5 (3.3)
>36 months	14 (9.3)
Type of alcohol	
Beer	4 (2.7)
Brandy	76 (50.7)
Country liquor	40 (26.7)
Rum	3 (2)
Whisky	27 (18.0)
Table 3. Social Factors of Alcoholics n=150	

DISCUSSION

In our study the mean age of the study subjects was 48.5 years. This finding was similar to Peng MC¹, Chou WJ, Chen et al⁴ (47 ± 1.3 years). In the present study we observed sleep disturbance (insomnia) was most common acute neurological manifestation in 90 (60%) alcoholics out of 150. It is comparable to Caetano and colleagues (1998)⁵ in their study they found that 67 percent of the men reported insomnia. Other studies like Aldrich 1998,⁶ Ehlers 2000⁷ found that Sleep problems are more common among alcoholics. Alcohol-induced blackouts observed in 55 (36.7%) alcoholics out of 150 which was comparable to Reagan R. Wetherill, Ph.D. 1 et al,⁸ in their study they reported blackouts in 50% of alcoholics. In our study we found sleep apnoea in 48 (32%) alcoholics. This finding was similar to Le Bon et al. 1997,⁹ Mamdani et al 1989,¹⁰ Tan et al 1985¹¹ (29.3%). Present study showed that 69 alcoholics (46%) developed alcohol withdrawal syndrome, which was more when compared to

Peng MC,¹ Chou WJ, Chen et al study⁴ (37%) because of local conditions and low socio-economic status. Alcohol induced seizures were observed in 31 (20.7%) alcoholics. This was similar to Peng MC, Chou WJ, Chen et al⁴ (18.1%) and Roger R Tuck et al¹² (14%)

In the present study we observed peripheral neuropathy in 42 (28%) alcoholics. Though this was the most common finding in our study, but it was less when compared to Peng MC¹, Chou WJ, Chen et al study⁴ (74.3%), Roger R Tuck et al¹² (34%) because we excluded peripheral neuropathy due to nutritional and endocrinal disorders. Cerebellar degeneration was second most common finding in 25 (16.7%) alcoholics comparable to Peng MC,¹ Chou WJ, Chen et al study⁴ (11.4%) and Roger R Tuck et al,¹² reported in their study cerebellar degeneration was found to be 38%. which was more when compared to our study, might be due to large sample size. Wernikes syndrome was observed in 10 (6.7%) was less than Peng MC,¹ Chou WJ, Chen et al study⁴ (15.2). Korsakoff's psychosis was the least common finding, observed in only 2 (1.3%).

CONCLUSIONS

A cross-sectional study of neurological manifestations of alcohol was conducted in male alcoholic patients admitted in medical ward of SVRRGH, Tirupati. Mean age of the study subjects was 48.5 years and half of them were dependent on brandy followed by country liquor. Most common acute neurological manifestation was sleep disturbance (insomnia) followed by withdrawal syndrome. Most common chronic neurological manifestation was peripheral neuropathy followed by cerebellar degeneration. There was a statistically significant difference between age and cerebellar degeneration. (p value<0.5).

Neurologic Manifestation	Age in Years							Statistical Significance
	20-30	30-40	40-50	50-60	60-70	70-80	Total	
Sleep disturbance Yes No	4 7	13 13	26 11	27 16	14 9	7 3	89 (59%) 61 (41%)	x2 =7.084 df=5 p=0.313, NS
Withdrawal syndrome Yes No	2 9	1 25	4 23	1 42	0 23	1 9	9 (6%) 141 (94%)	
Peripheral neuropathy Yes No	1 10	3 23	13 24	12 31	8 15	5 5	42 (28%) 108 (72%)	x2 =10.604 df=5 p=0.099, NS
Cerebellar degeneration Yes No	1 10	2 24	3 34	7 36	7 16	5 5	25 (17%) 125 (83%)	
Table 4. Association Among neurological Manifestations and Age								
There was a statistically significant association between age and cerebellar degeneration. (p value<0.5).								

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