

Original article:

Study of Electrocardiographic Abnormalities in Chronic Alcoholic patients: Observational study

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Abstract:

Introduction: It is seen that almost 30% to 40% admissions in the hospitals are alcohol related. ⁽³⁾ Alcohol intoxication patients mostly present with pathological electrocardiographic changes. All these changes are more in chronic alcoholics, patients having ischaemic heart disease, in patients having alcohol cardiomyopathy.

Material and methods: The present study type was a prospective type of study. Registration of patients was done from September 2017 to August 2019. Registration was done when patient got admitted in Medicine department. On registration the patients having exclusion criteria were not taken for the study. Objective of the study was to assess impact of alcohol with varying duration and in different age groups on Cardiovascular system.

Results: In present study majority 84% had normal sinus rhythm, 6% had non specific ST changes, 4% had sinus tachycardia, 2% had ventricular ectopics, 2% had RBBB and 2% had T wave depression. Study by Attar H. D et al ⁽²⁾ showed that on ECG abnormality, majority 18% had sinus tachycardia, 9% had non specific ST changes, 1% had ventricular ectopics, 2% had RBBB.

Conclusion: This study confirms that many electrocardiographic changes occur prior to symptomatic cardiac disorders established to be caused by chronic alcohol intake such as alcoholic cardiomyopathy. which probably are early indicators of ongoing effects of alcohol and are reversible during the early stages detected by non invasive investigations like Electrocardiography that later proceeds to alcoholic dilated cardiomyopathy.

Introduction:

It is seen that almost 30% to 40% admissions in the hospitals are alcohol related. ⁽¹⁾ Alcohol intoxication patients mostly present with pathological electrocardiographic changes. All these changes are more in chronic alcoholics, patients having ischaemic heart disease, in patients having alcohol cardiomyopathy. ⁽²⁾ Chronic alcohol intake is known to cause cardiac dysfunction, most notably as congestive cardiomyopathy. ⁽³⁻⁷⁾ Approximately hospital admissions of alcoholic abusers is 20 to 30% of total admission. Cardio vascular effects of alcohol are directly proportional to alcohol consumption, age and genetic factors may also contribute. Risk of sudden cardiac death and arrhythmias increases in heavy alcoholics. Coronary heart disease patients consuming alcohol increases chances of mortality. ⁽⁷⁾

Prolonged alcohol consumption in people not having malnutrition resulted in intra-ventricular conduction abnormalities and hearts morphologic alterations which are directly related to the duration of consumption of

alcohol, consistent with an altogether toxic effect of ethanol. ⁽⁸⁾ ECG change in alcoholic intoxication is disturbed heart rate. In persons without clinical features of heart disease they are said as “holiday heart syndrome. ⁽¹⁰⁾

Atrial fibrillation is common rhythm disorder, which usually converts to normal sinus within 24hrs⁽⁹⁾ torsades de pointes polymorphous ventricular tachycardia is prognostic. The incidence of conduction disturbances increases with higher levels of blood alcohol concentration sometime even leading to sudden cardiac deaths. ⁽¹⁰⁾

Material and methods:

The present study type was a prospective type of study.

Study area: Dr D Y Patil Hospital and Research center, Pimpri, Pune. A Tertiary care hospital.

Study setting: Medicine Outpatient department of tertiary care hospital.

Registration of patients was done from September 2017 to August 2019. Registration was done when patient got admitted in Medicine department. On registration the patients having exclusion criteria were not taken for the study.

Objective of the study was to assess impact of alcohol with varying duration and in different age groups on Cardiovascular system.

At registration, the basic information was enrolled especially with respect to clinical findings, sociodemographic factors, and all other investigations. Thus all patients enrolled were followed up in Medicine department till they were discharged. The data collected was analysed .

Data was collected by using a pre designed questionnaire which consisted of standard questions related to clinical condition, socio demographic factors, addiction among family members, and so on, were interviewed. In addition, questions related to past and present medical history and health seeking behaviour were also studied.

In present study it was seen majority 56% are in the age group of 41 to 60 years, then 34% in 20 to 40 years and only 10% had age more than 60 years. Average age in years was 48.9 ±10.03.

Results:

Table 1: ECG changes among the study population

ECG changes	Frequency	Percentage
Normal sinus rhythm	84	84%
Sinus tachycardia	4	4%
Ventricular ectopics	2	2%
Non specific ST changes	6	6%
RBBB	2	2%
T wave depression	2	2%
Total	100	100%

Table 2: ECG changes in relation to duration of alcohol consumption among the study population

ECG changes/ duration of alcohol consumption	≤10years	>10 years	Total
Normal sinus rhythm	40	44	84
Sinus tachycardia	4	0	4
Ventricular ectopics	0	2	2
Non specific ST changes	0	6	6
RBBB	2	0	2
T wave depression	0	2	2
Total	46	54	100

Applying chi square test, p value was 0.007, p value is <0.05, shows statistical significance.

Discussion:

In present study majority 84% had normal sinus rhythm, 6% had non specific ST changes, 4% had sinus tachycardia, 2% had ventricular ectopics, 2% had RBBB and 2% had T wave depression.

Study by Attar H. D et al ⁽¹¹⁾ showed that on ECG abnormality, majority 18% had sinus tachycardia, 9% had non specific ST changes, 1% had ventricular ectopics, 2% had RBBB. Study by Mahela et al ⁽¹²⁾ showed that 25% had sinus tachycardia, 17.5% had non specific ST changes, 5% had RBBB.

Study by Ryan JM et al ⁽¹³⁾ showed that 20% had sinus tachycardia. Study by Karsniqi et al ⁽¹⁴⁾ showed that more than 5% cases had RBBB. In present study among 84 patients having normal sinus rhythm 44 had duration more than 10 years and 40 had less than 10 years, among 4 patients having sinus tachycardia all had duration less than 10 years, 2 having ventricular ectopics had duration more than 10 years, 6 having non specific ST changes had duration more than 10 years, 2 patients having RBBB had duration less than 10 years and 2 having T wave depression had duration more than 10 years. P value was 0.007, shows statistical significance. The additional addictions like smoking may also affect the disorders. ⁽¹⁴⁾

Study by Attar H. D et al ⁽¹¹⁾ showed that on ECG abnormality among 18 having sinus tachycardia 5 had duration less than 8 years and 13 had more than 8 years.

Conclusion:

This study confirms that many electrocardiographic changes occur prior to symptomatic cardiac disorders established to be caused by chronic alcohol intake such as alcoholic cardiomyopathy. which probably are early

indicators of ongoing effects of alcohol and are reversible during the early stages detected by non invasive investigations like Electrocardiography that later proceeds to alcoholic dilated cardiomyopathy.

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