

A STUDY OF HEART RATE VARIABILITY AND LIVER FUNCTION TEST IN ALCOHOL DEPENDENCE SUBJECTS

ABSTRACT

Background :

Alcoholism is one of the great epidemics of modern times, typically associated with medical, economic and social issues. It is a potent CNS depressant; leading to Autonomic imbalance with vagal neuropathy and cardiac dysfunction, resulting in reduced HEART RATE VARIABILITY. HRV refers to beat to beat alteration in heart rate; i.e; the oscillations in the interval between consecutive heart beats as well as the oscillations between consecutive instantaneous heart rate. Alcohol, a liver toxin is implicated in hepatic damage. A readily available blood test- LIVER FUNCTION TEST to reveal whether alcohol is the likely cause would be valuable

Aim :

To assess the Heart rate variability and Liver function test in Alcohol Dependence subjects.

Objectives :

- (i) To record the Heart rate variability in Alcohol dependence subjects.
- (ii) To Evaluate the Liver function parameters in Alcohol dependence subjects.

Materials and Methods :

The study was conducted in the Department of Physiology, Stanley Medical College, after getting approval from Institutional Ethical Committee, Stanley Medical College, Chennai. 55 alcohol dependent individuals based on the ICD-10 criteria, in the age group of 20 to 55 years were selected from the psychiatry OPD. 55 non-alcoholic healthy individuals were recruited for the study from the Master Health check up. History of fatty liver disease , any co-morbid illness, diabetes,

hypertension, cardiovascular disease, prolonged drug intake, smokers were excluded from the study.

Informed and written consent was obtained. After explaining, Heart rate variability was recorded using RMS polyrite version 2.2 D hardware, to acquire and analyze the data. The hardware was connected to a Window based PC.

Blood was collected from the subjects and serum separated. LFT was done in Transasia biosystem autoanalyser.

Results :

Our study results showed significant decrease in RMSSD, NN50, pNN50% parameters in the Time domain measures and significant decrease in HF and significant increase in LF/HF parameters in the Frequency domain measures indicating reduced parasympathetic activity. There was a significant increase in LF component indicating increase in sympathetic activity in alcohol dependent subjects when compared to non-alcoholics.

Increased liver function enzymes, serum albumin and bilirubin in alcoholic subjects indicates liver cell injury.

Conclusion :

We conclude reduced Heart Rate Variability with sympatho-vagal imbalance and reduced parasympathetic activity due to vagal neuropathy in alcohol dependent subjects . Therefore heart rate variability and liver function tests can be done as a routine in all alcohol dependent individuals, to predict the autonomic dysfunction and alcohol induced liver disease at the earliest, and intervening by abstinence, life style modification and drug therapy (if necessary), can revert the health of the person back to normal, thereby improving the quality of life.

Keywords : Alcohol Dependence, Heart rate variability, Liver function test, Sympatho-vagal imbalance, parasympathetic activity, vagal withdrawal