

A study on comparison of random blood glucose levels in alcoholic and non-alcoholic males of Ernakulam district, Kerala.

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Abstract

The present study was undertaken to create awareness among the general population about the relation between random blood glucose levels and alcoholism. The present study has been performed at Little Flower Medical Research Centre, Angamaly, and Kerala, India. Two hundred and twenty males and females of Kerala with mean age 41 +/- 21 were enrolled. Alcoholics are included in the present study and their blood glucose levels are compared with the people who never use alcohol. Random blood glucose levels are estimated by using one touch glucometer. Mean random-blood glucose values in Non-alcoholics are higher (102 +/- 33 mg/dl) than in alcoholics is (99 ± 29mg/dl), however it is not statistically significant (p value 0.615). In the present study we have observed slightly higher random blood glucose levels in non-alcoholic males than alcoholic males. However this difference is not statistically significant. We suggest to continue the study with higher sample size to confirm the results and to identify the cause for this difference

Key Words: Alcoholics, Non- alcoholics, Random blood glucose.

INTRODUCTION

Kerala accounts for the country's highest consumption of alcohol[1] Several studies explained hypoglycemic effect of alcohol use in excessive doses.[2] Krebs and fellows admitted that acute alcohol intake in excessive doses results in hypoglycemia.[3, 4] It was reported that Alcoholics often eat poorly, limiting their supply of essential nutrients and affecting both energy supply and structure maintenance.[5] Furthermore, alcohol interferes with the nutritional process by affecting digestion, storage, utilization, and excretion of nutrients.[6] Alcohol inhibits the breakdown of nutrients into usable molecules by decreasing secretion of digestive enzymes from the pancreas.[7] Alcohol impairs nutrient absorption by damaging the cells lining the stomach and intestines and disabling transport of some nutrients into the blood.[8] As a result, alcohol causes the brain and other body tissue to be deprived of glucose needed for energy and function. Some alcoholics ingest as much as 50 percent of their total daily calories from alcohol, often neglecting important foods.[9, 10] Although alcohol is an energy source, how the body processes and uses the energy from alcohol is more complex than can be explained by a simple calorie conversion value.[11] It was reported that drinkers are no more obese than nondrinkers.[12, 13] Alcohol decreases pancreatic enzyme secretion and interferes with digestion.[14, 15]

To the best of our knowledge studies relating blood glucose level and alcoholism are inadequate in Kerala. Therefore, the present study was undertaken to create awareness among the general population.

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METHODS

The present study has been performed at Little Flower Medical Research Centre, Angamaly, and Kerala, India. Two hundred and twenty males and females of Kerala with mean age 41 +/- 21 were enrolled. Alcoholics (drinkers) are included in the present study and their blood glucose levels are compared with the people who never use alcohol (non-drinkers). Purpose and procedure of the study were explained to each subject. Written informed consent was taken from all the participants. Study protocol was approved by Institutional Ethics Committee of Little Flower Medical Research Centre, Angamaly. Random blood glucose levels are estimated by using one touch glucometer.[16]

PROCEDURE

Our aim was to compare random blood glucose levels in alcoholic and non-alcoholic males of Ernakulam district in Kerala. All the subjects visited the Department of physiology in Little Flower Medical Research Centre and detailed instructions were given on experimental protocol. After signing the voluntary informed consent, random blood glucose is measured by using one touch ultra mini glucometer.

Data analysis

The analysis of data is done by SPSS 20.0.

RESULTS

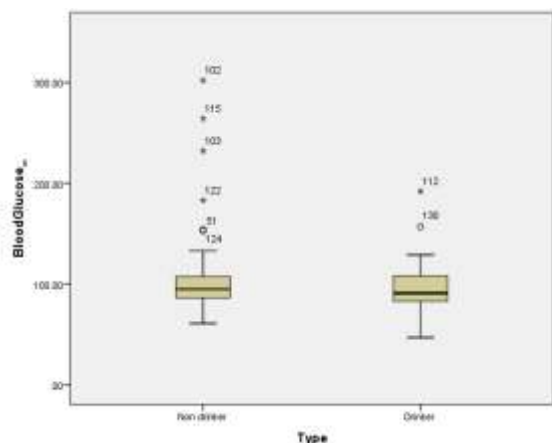
The analysis of data is presented in table no: 1 and figure no: 1. Mean random blood glucose values in Non-alcoholics is higher (102 +/- 33 mg/dl) than in alcoholics is (99 ± 29mg/dl), however it is not statistically significant (p value 0.615).

DISCUSSION

Hypoglycemia induced by alcohol was first described by brown and Harvey in 1941. Hypoglycemia is observed in the patients who are chronically addicted to alcohol and have been drinkers of denatured alcohol.[17] Karl A et al reported

Table no; 1 Mean random blood glucose levels in alcoholic and Non- alcoholic males.

	Non-Alcoholic males	Alcoholic males	p value
Blood glucose	102 ± 33	99 ± 29	0.615

**Figure no:1 Boxplot diagram for mean random blood sugar values in alcoholic and non-alcoholic males.**

hypoglycemia occurs in ethanol- intoxicated population.[18] However these results are inconsistent as hyperglycemia and keto-acidosis is observed in heavy drinkers. [19] In the present study we have observed slightly higher random blood glucose levels in non-alcoholics than alcoholics. But this difference is not statistically significant. It may be due to low sample size or any other cause. Hence we suggest to continue this study in a larger population to confirm the results and to identify the cause for this difference.

CONCLUSION

In the present study we have observed slightly higher random blood glucose levels in non-alcoholic males than alcoholic males. However this difference is not statistically significant. We suggest to continue the study with higher sample size to confirm the results and to identify the cause for this difference

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