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Original Research Article

Study of Effect of Alcoholism on HematologicalParameters.

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Abstract

Alcoholism is one of the most serious global public health problem. Regarding disease Burden Alcohol is the world's third largest risk factor. Alcohol consumption is one of the leading causes of death. Anemia is a predominant feature among chronic alcoholics. This study is early detection and treatment of hematological changes in alcoholics so can prevent complications and reduce the mortality. 25 alcoholic and 25 nonalcoholic subjects were included in study. Hemoglobin , RBC counts and Packed cell volume was estimated. Non alcoholic subjects had higher values of Hemoglobin , RBC counts and Packed cell volume than alcoholics and this difference was statistically highly significant ,alcoholics were found to be anemic. This shows that alcoholic subjects were suffering from anemia. This study will help to create awareness of the diagnosis of anemia by estimating low hemoglobin levels in alcoholic subjects.

Keywords: Alcoholics. RBC, Hemoglobin, Packed cell volume.

Introduction

Alcoholism is one of the most serious global public health problem. Regarding disease Burden Alcohol is the world's third largest risk factor. Alcohol consumption is one of the leading causes of death.[1] It contributes to 3.5% of the global burden of disease and is causally related to more than 60 different medical conditions.[2] A large epidemiological study observed a significant rise in health-related problems among alcohol users in India.[3] Regular excessive alcohol consumption may affect a wide variety of hematological parameters. According to the National Council on Alcoholism and Drug Dependence, alcoholism is a primary chronic disease with genetic, psychosocial, and environmental factors influencing its developmental manifestations. Health Organization in 2011, it has been shown that alcohol is responsible for causing about 2.5 million deaths per annum, that accounts to 4 percent of all deaths worldwide. Worldwide, 6% of all male deaths are related to alcohol, just over 1% of deaths in women. Almost 1 in 10 deaths among young people aged 15–29 years from alcohol.[4] Hence, alcohol consumption is known for morbidity and mortality, being a serious health hazard of the world. Multiple organs can be involved such as hepatobiliary system, cardiovascular system, central nervous system, and hematopoietic system. Impact of alcohol on hematopoietic system divided into direct and indirect effects. Direct effect seen in bone marrow and involves red cell, white cell, and PLT lines. Indirect effect due to metabolic or physiologic alterations resulting in liver disease and nutritional abnormality such as folate deficiency.[5] Anemia is a predominant feature among chronic alcoholics. A look at the hemoglobin levels can alert a physician if the patient is a chronic alcoholic, even when there is no anemia.[6] Need of the study is early detection and treatment of hematological changes in alcoholics so can prevent complications and reduce the mortality.

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Material and Methods

A detail history was taken in alcoholics about quantity, type of alcohol and number of years of alcohol consumed . Name, age, gender, occupation and socioeconomic status was noted. General and systemic examination was done.

A. Samples Size:

- 25 adult patients who are alcoholics and
- 25 adults patients who are non alcoholics

B. Inclusion Criteria:

- All adult patients who are alcoholics that is who consume alcohol 80 to 90 mg alcohol which is about 11 drinks per day.
- 25 adult patients who are non alcoholics taken as control

C. Exclusion Criteria

- All patients who are less than 18 years
- Patients with other hepatic disorders

D. Study Design:

It is a prospective cross sectional study. Haemoglobin Estimation , RBC counts and packed cell volume was done in all alcoholics and nonalcoholics subjects . These parameters were compared between alcoholic and nonalcoholics . Mean , standard deviation and p value was calculated . P value<0.001 was highly significant .

Results

Table 1: Duration of alcohol consumption

Duration of alcohol consumption in Years	Number of alcoholic subjects n=25
1-10	10
11-15	07
>15	08

Table 1 shows distribution of alcoholic subjects depending on duration of alcohol consumption in years. Out of 25 subjects 10 had history of alcohol consumption of 1 to 10 years. 7 subjects had history of alcohol consumption of 11 to 15 years. And 8 subjects had duration of alcohol consumption of more than 15 years.

Table 2 : Comparision of Hematological parameters in alcoholics andnonalcoholics

Parameters	Alcoholicsn=25 Mean± SD	Non -alcoholics n=25 Mean± SD	P value
Hemoglobin (gm%)	8.6±1.2	12.2±1.9	<0.001
RBC Count (millions/mm^3)	3.18±0.62	4.02±0.32	<0.001
PCV (%)	27.4±1.8	39.2±3.2	<0.001

Table 2 shows comparision of Hematological parameters in alcoholics andnonalcoholics. Nonalcoholic subjects had higher values of Hemoglobin , RBC counts and Packed cell volume than alcoholics and this difference was statistically highly significant
(p value <0.001) , Alcoholics were found to be anemic.

Discussion

Alcohol abuse is a growing epidemic in India, especially among men and now a day it is becoming a major problem among young adults. The clinical manifestations of alcohol-induced hematologic disorders are profoundly influenced by the patient's social and economic status, and the presence or absence of other factors, such nutritional deficiency or alcoholic cirrhosis. Most of these changes result, either directly or indirectly, in anemia. Alcohol as well as alcohol induced cirrhosis leads to

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decreased Red blood cell production. Hypersplenism can cause premature RBC destruction. Folic acid deficiency impairs RBC production and results from decreased ingestion, decreased absorption, and abnormal metabolisn of folic acid[7]. Hypersplenism, blood loss, liver disease, folic acid deficiency, and reduced RBC production are causes of low haemoglobin levels in alcoholics[8].The results of the present investigation indicate that hematological parameters are altered in individuals with alcohol intake. It is observed that anemia are more common in alcoholics. In the present study, alcoholic subjects had low hemoglobin level, Low RBC counts, and low packed cell volume which were normal among the non-alcoholic group.

Conclusion

Anemia is very common in alcoholic individuals .Detection of hematological changes in alcoholics and giving psychiatric counseling and treatment for alcohol dependence will decrease the future complications like cirrhosis liver, cardiac and renal disease, cerebellar degeneration, neuropathy, pancreatitis, etc. and reduce the morbidity and mortality in alcoholics.

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