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Determination of Lipid Profile among Sudanese Patients with Prostate Cancer in Khartoum State

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Abstract: This cross sectional study was conducted in Khartoum state during period of May to July among Sudanese patients with prostate cancer. This study aimed to assess serum lipid profile Cholesterol, triglycerides, High density lipoprotein, Low density lipoprotein among patients with prostate cancer. The study was involved hundred participant fifty percent were prostatic cancer patient and the rest were health individual as control group. Serum lipid profile was analyzed in each participant by spectrophotometric method using enzymatic reaction. The result of this study showed that the level of serum Cholesterol, triglyceride and Low density lipoprotein were higher in patients when we compared with healthy individual. Also in this study High density lipoprotein was lower in patients when we compared with health individual.This study concludes that there is significant elevation of serum lipid level profile among prostate cancer patient and there was significant difference between serum lipid profile level of patient and control. This study concludes that there is association between elevation of lipid profile and prostate cancer.

Keywords: Lipid Profile, Prostate Cancer.

INTRODUCTION

Prostate cancer, also known as carcinoma of the prostate, is the development of cancer in the prostate, a gland in the male reproductive system [1]. Most prostate cancers are slow growing; however, some grow relatively quickly [2]. The cancer cells may spread from the prostate to other parts of the body, particularly the bones and lymph nodes [4].

It may initially cause no symptoms [3]. In later stages it can lead to difficulty urinating, blood in the urine, or pain in the pelvis, back or when urinating [5]. A disease known as benign prostatic hyperplasia may produce similar symptoms. Other late symptoms may include feeling tired due to low levels of red blood cells [5].

Rationale

Prostate cancer is common cancer in Sudanese men and governmental data show increasing in the number of new case every year and these patient which suffering from this disease face many problem in screening, diagnosis and treatment and risk from other disease like cardiovascular disease. And there was no published work concern this data in Sudan for these reasons I done this humble work

OBJECTIVES

General objective

To determine serum lipid profile among Sudanese patients with prostate cancer

Specific objective

- To measure level of serum total cholesterol, triglyceride in patient with prostate cancer and compare with healthy individuals.
- To measure serum level of high density lipoprotein and low density lipoprotein in patient with prostate cancer and compare with healthy individuals.

MATERIAL & METHODS

Study design

This is a descriptive cross-sectional study

Study area

Khartoum state

Study population

One hundred individuals were enrolled in this study, and classified into two groups, 50 prostate cancer patients as case group and 50 healthy individuals as control group.

Inclusion criteria

Patients with prostate cancer

Exclusion criteria

Patient with condition that affect plasma lipid level *liver disease *renal disease *malnutrition patient* Diabetes mellitus.

Study duration

This study was carried out on three months (started in May and terminated in July).

Collection of Samples

Samples were collected using dry, plastic syringes, tourniquet was used to make the veins more prominent, 4ml blood samples was collected in plane containers from each volunteer was collected under septic condition.

Estimation of Serum Lipids Profile:

Spectrophotometric method using enzymatic reaction was used for measurement of plasma lipid. Cholesterol measurement was passed by enzymatic method that utilizes cholesterol oxidase, esterase and peroxidase.

Triglyceride measurement was assayed by enzymatic method that utilizes glycerokinase, bacterial lipase and Glycerophosphate oxidase.

Quality control

The precision and accuracy of the methods used in this study were cheeked each time by using control material.

STATISTICAL ANALYSIS

The analysis done by using SPSS (version 20), p values less than 0.05 were considered as significance.

RESULTS

This study was conducted during the period of May to July 2016 on Sudanese individual and was include 50 patients with prostate cancer and 50 healthy individual as control. In this study were found that the level of total cholesterol in patient. Mean (SD) of (224±17.1) was higher than control mean of (192±4.5) table1 and figure 1 and there was significant difference between two group p-value of (0.00) table 1. Triglyceride in patient in this study of mean (157±10.6) was higher than in control group mean of (142±8.1) table (1) and there was significant difference between two group p-value of (0.00) table 1. High density lipoprotein in this study mean of (36±7.7) was lower than in control group mean of (51±3.5) table (1) and there was significant difference between two group p-value of (0.00) table 1. Low density lipoprotein in this study mean of (145±12.6) was higher than in control group mean of (125±3.3) table (1)and there was significant difference between two group p-value of (0.00)table 1.

Table -1: Comparison between mean±(SD) of serum lipid profile of patient and control

Variable	Mean ± SD prostatic cancer Patients	Mean ±SD of control	P.Value
Cholesterol mg/dl	(224±17.1)	(192±4.5)	0.000
Triglyceride mg/dl	(157±10.6)	(142±8.1)	0.000
HDL mg/dl	(36±7.7)	(51±3.5)	0.000
LDL mg/dl	(145±12.6)	(125±3.3)	0.000

DISCUSSIONS

Prostate cancer one of most type of cancer distributed among men these day. Prevention, screening, diagnosis and treatment one of most controversial issue that associated with this disease and cost associated with it remain very high. Lipids contribute to several aspects of tumor biology due to the diversity of their biological roles. First, they function as building blocks for biological membranes to support the high proliferative rate of cancer cells. Several endogenously synthesized fatty acids (FAs) are esterified to phospholipids, which provide pivotal structural lipids, facilitate the formation of detergent-resistant membrane micro domains for signal transduction, intracellular trafficking, polarization, and migration required for cancer cells (55). Alteration of metabolism in patient prostate cancer and excessive androgen production seem to be responsible for elevation of serum lipid inpatient with prostate cancer. In this study were found that the level of total cholesterol, triglyceride, and Low density lipoprotein in patient was higher than control table1 and there was significant difference between two group p-value of (0.000) table 1.

Studies have established that cholesterol, triglycerides, and lipoproteins may play a key role in prostate cancer many studies show that there is alteration of plasma lipid level among patient with prostate cancer. Jhmydlo , nlteing in 2001 agree with me in the result that cholesterol in patient was 214mg/dl ±10 triglyceride was 199mg/dl ±23 in patient with prostate cancer which published in nature publishing group 2001.

In 2012 Hayashi *et al.* reported that more aggressive prostate cancer cases defined as having a GS of 8 or greater were significantly associated with triglycerides levels above 150 mg/dL. However Adebayo and collaborators does not agree with me in

2012, reported that lower serum levels of triglycerides and total cholesterol were associated with benign prostate hyperplasia and prostate cancer.

CONCLUSION

This study concludes that there is association between elevation of serum lipid level and prostate cancer and there was significant difference between serum lipid level of patient and control level. All component of lipid in patient is higher than in control except that high density lipoprotein which is lower in patient than in control.

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