



Correlation of Serum Lipid Profile and Carcinoma Breast in Female –A Prospective Study

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Abstract

Introduction: Cancer of breast is the leading cause of malignancy related death in women worldwide. Studies have shown plasma cholesterol and low density lipoprotein cholesterol are significantly elevated in carcinoma breast cases.

Keeping the above facts in mind, this work is an attempt to determine the alteration in serum cholesterol and lipoproteins due to breast cancer in women and their probable role in carcinogenesis.

Materials and Methods: An Observational Prospective study done in VIMSAR, Burla in Deptt. Of General Surgery from November 2017 to October 2019. Total number of patients taken were 50.

Discussion: High levels of total serum lipid and low density lipoprotein was found in both pre and postmenopausal women suffering from breast cancer.

Conclusion: In women with high levels of total cholesterol (T-C) and low density lipoprotein cholesterol (LDL-C); the breast screening tests may detect carcinoma breast in its infancy.

Keywords: Plasma cholesterol, Low density lipoprotein cholesterol, Carcinoma Breast.

Introduction

Carcinoma of breast is a disease as old as human race. The earliest authenticated medical record of breast tumor dates back to 3000-2500 B.C. recovered from Edwin Smith Surgical papyrus. The great ancient Indian Surgeon Sushruta has also described this disease in his Sushruta Samhita (600BC). Cancer of breast still remains the leading cause of malignancy related death in women worldwide. So it is the commonest female cancer next to carcinoma of cervix in India. Due to ignorance, illiteracy poverty, shyness and low socio-economic status of the people in India carcinoma of breast causes a great health problem.

In spite of that fact that the organ is easily accessible still the disease is detected many often in advance stage. Studies have shown that high density lipoprotein cholesterol is higher in subjects with mammography dysplasia and family history of breast cancer. Also it has been found that plasma total cholesterol and low density lipoprotein cholesterol are significantly elevated in carcinoma breast patients. Keeping the above facts in mind this work is an attempt to determine the alteration in serum cholesterol and lipoproteins due to breast cancer in women and their probable role in carcinogenesis.

Objectives

To evaluate correlation between serum lipid profile and breast cancer.

Materials and Methods

Place of study: Deptt. of Gen. Surgery, VIMSAR, Burla

Period of study: Nov 2017 to October 2019.

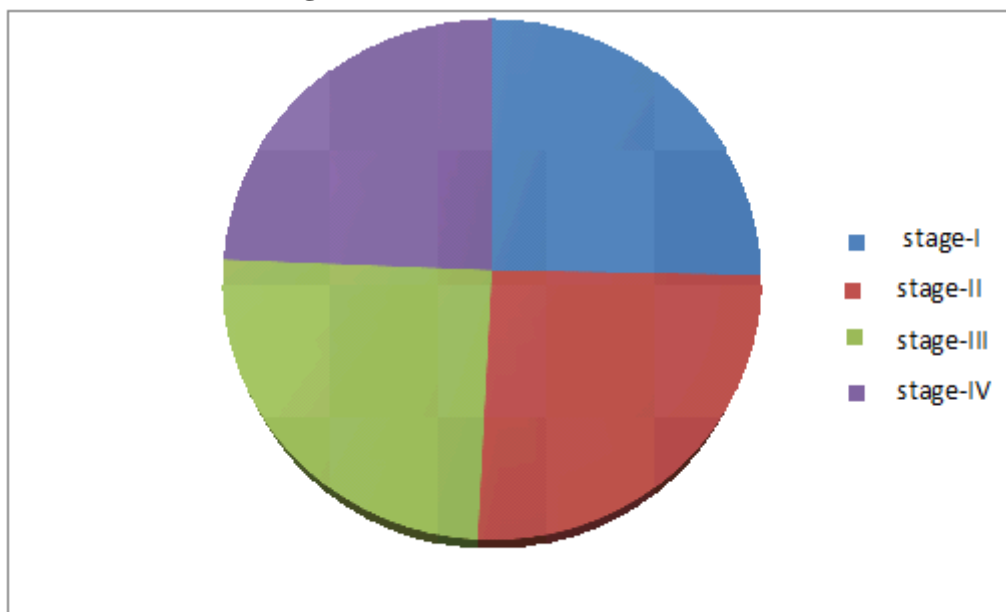
Selection of Cases

Cases were selected randomly among the admitted patients in wards and from those visiting the outpatient departments. The cases were diagnosed to be suffering from carcinoma breast both by clinical examination as well as through investigations. The 50 cases of carcinoma breast in different stages and of different age groups were selected randomly. 30 cases of female adults suffering from other pathology were taken as controls from the indoor of Department of General Surgery and other OPDs.

The controls were not suffering from carcinoma breast cancer or systematic disease such as hypertension, diabetes mellitus.

Inclusion Criteria

- 1) Female patients
- 2) Patients from different age group and

Results**Number of Patients in Different Stages of Carcinoma Breast**

menstrual status diagnosed to be having carcinoma breast by clinical and different investigations

- 3) Patients in pre-operative stage
- 4) Patients not receiving any preoperative chemotherapy or radiotherapy.

Exclusion Criteria

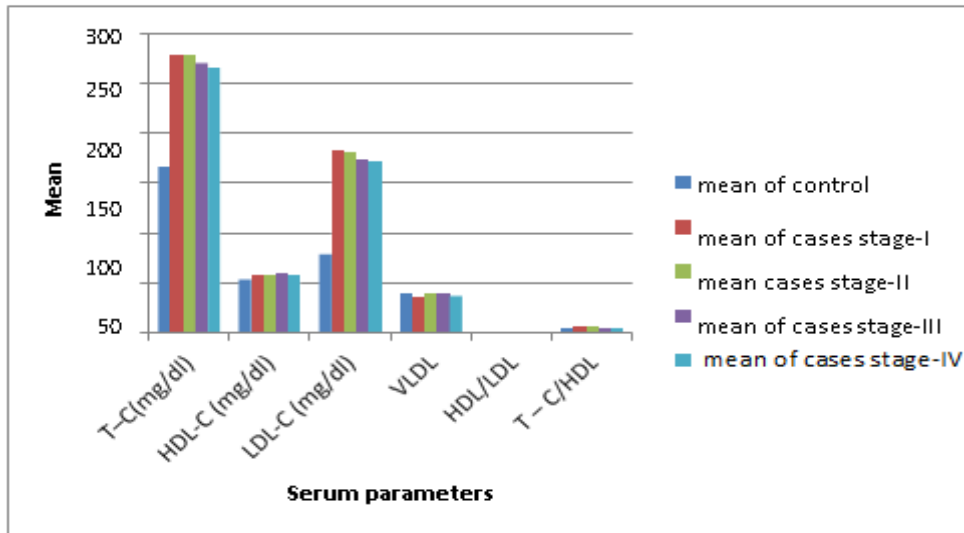
- 1) Male patients
- 2) Patients suffering from other benign and inflammatory breast disease.
- 3) Patients suffering from other independent risk factors such as diabetes mellitus and hypertension

Method of selection of a case (Carcinoma Breast)

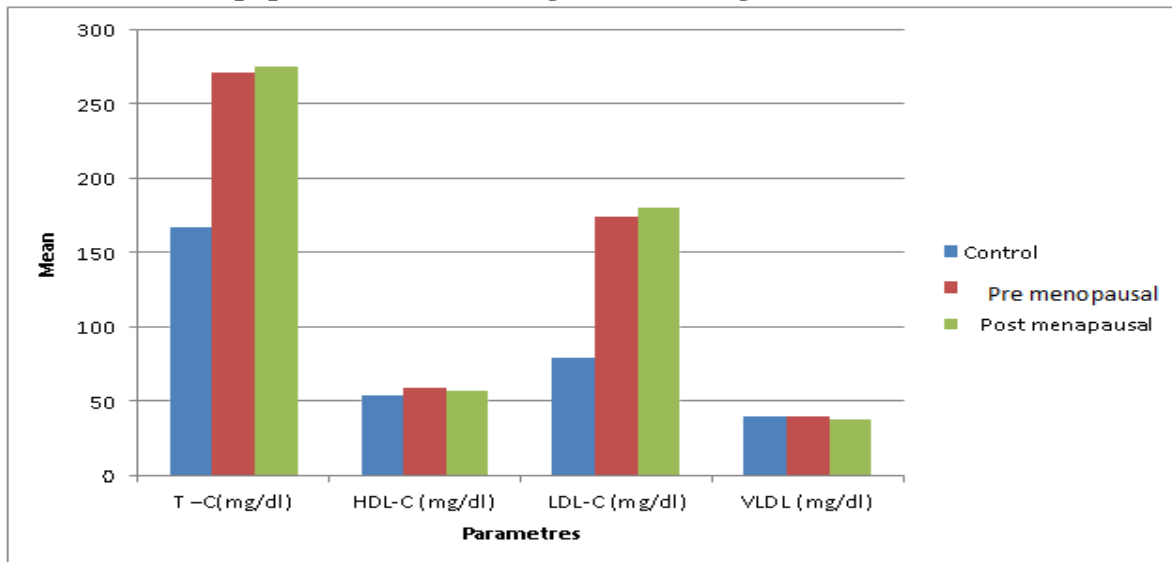
Diagnosis of carcinoma breast is done by series of clinical as well as by a number of investigative modalities. They are.

- Clinical breast examination
- Fine Needle aspiration cytology
- Incisional biopsy, Excisional biopsy
- *mammography*

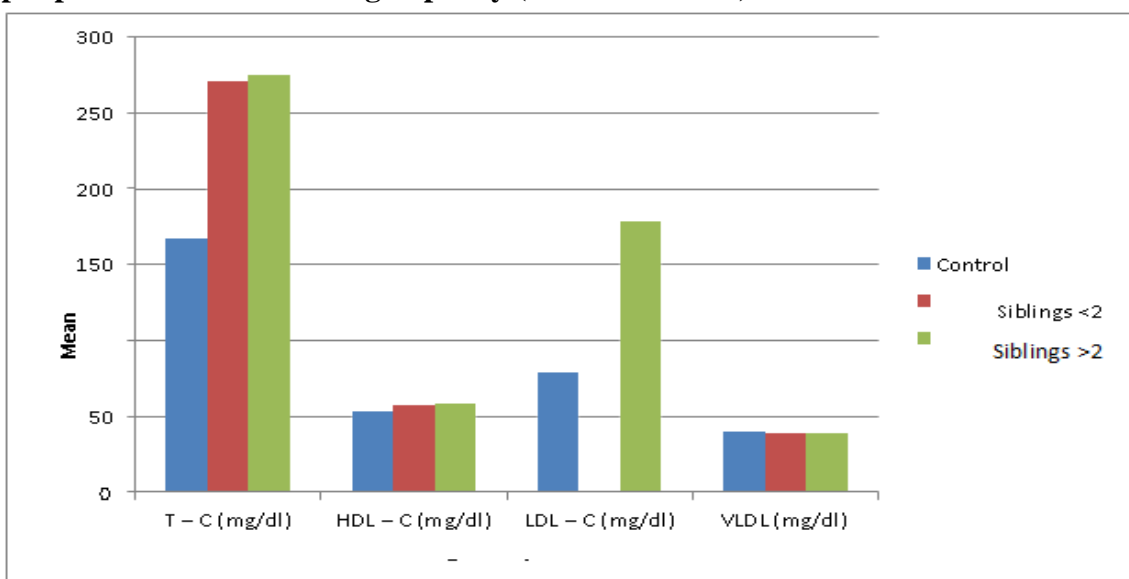
Serum cholesterol and lipoprotein values during different stages of Breast Cancer



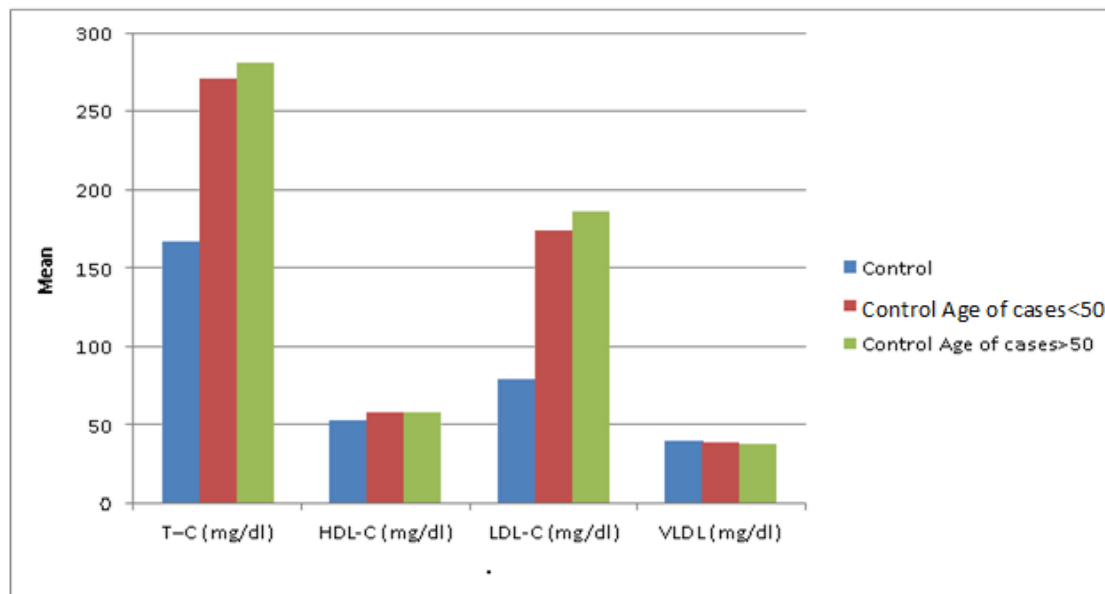
Serum Cholesterol and lipoprotein values during different stages of Breast Cancer



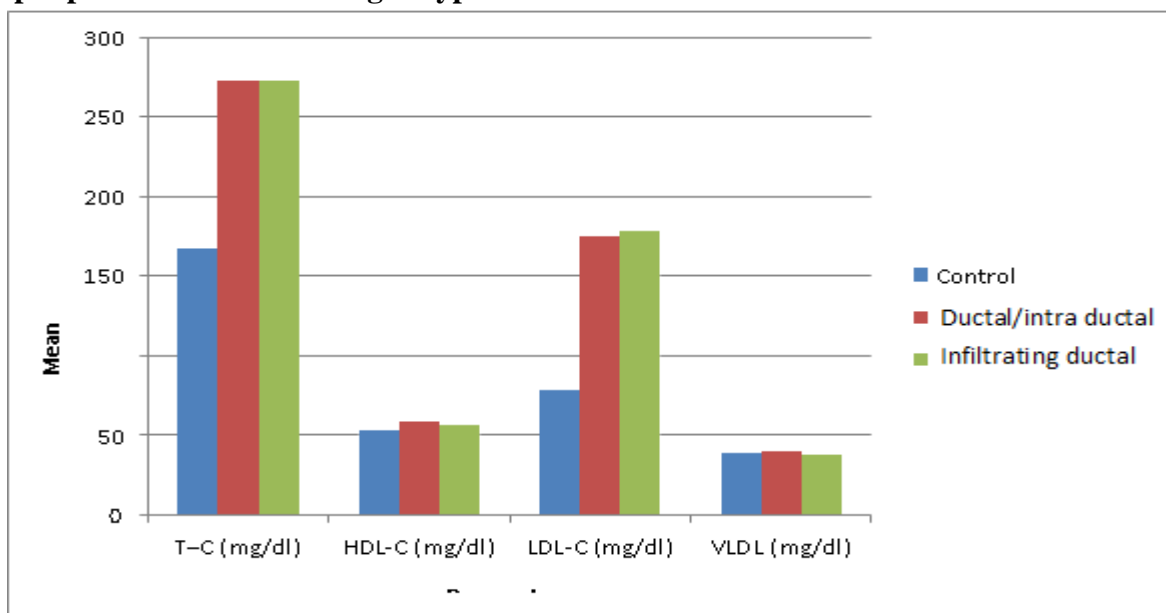
Serum Lipid profile values according to parity (No. of Children)



Serum lipids profile values according to age in carcinoma breast



Serum lipid profile levels according to type of carcinoma breast



Discussion

Comparison of the above mentioned serum parameters between patients suffering from carcinoma breast and controls showed a statistically significant increase of serum total cholesterol (T-C) and low density lipoprotein cholesterol (LDL-C) in all stages of carcinoma breast. Similar results were observed when carcinoma breast patients were compared with regard to age, parity, type and menstrual status.

In all these comparison, the values of high density lipoprotein cholesterol (HDL-C) and very low

density lipoprotein (VLDL) in carcinoma breast patients, were not much different from control and were non-significant.

These observations can be explained by a postulation that changes in the concentration of serum lipids in breast cancer patients could result from increased production of tumor necrosis factor alpha (TNF alpha) by activated macrophages in response to the tumor and also due to the inhibition of the adipose lipoprotein lipase activity by action insulin.

Conclusion

Therefore the study of serum lipid profile in carcinoma breast patients, points to the fact that high levels of total cholesterol (LDL-C) may play a significant role in carcinogenesis of breast cancer in women in this part of India. In other words, in women with high levels of total cholesterol (T-C) and low density lipoprotein cholesterol (LDL-C); the breast screening tests may detect carcinoma breast in its infancy.

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