STUDY OF THE LIPID PROFILE IN PATIENTS HAVING BENIGN BREAST DISEASE
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ABSTRACT: Benign breast diseases constitute a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations. The aim of my study is to determine the correlation between hyperlipidemia or dyslipidemia and benign breast diseases. Although a lot of work has been done regarding the serum lipid profile alteration in malignant breast diseases, a very little work has been done on serum lipid profile alteration in benign breast diseases especially in developing country like India where the dietary habits of people have changed towards the western style in the last few decades. The study was conducted on 50 patients who came to the OPD of MKCG Medical College & Hospital, Brahmapur, Odisha for treatment during the period from August 2012 to July 2014. Four types of benign breast disease patients namely fibroadenoma, fibroadenosis, breast abscess and mastalgia were included in the study. The patients underwent thorough clinical breast examination, Fine Needle Aspiration Cytology, & biopsy. Fasting venous blood sample of fifty normal subjects (controls) and 50 patients of benign breast disease were investigated for serum total cholesterol, high density lipoprotein cholesterol, low density lipoprotein cholesterol, very low density lipoprotein cholesterol and triglyceride. Comparison was made between serum lipid profile of various types of benign breast disease and controls. It was observed that there was significant rise in serum total cholesterol, high density lipoprotein cholesterol, low density lipoprotein cholesterol, very low density lipoprotein cholesterol and triglyceride. However no significant difference was found in low density lipoprotein cholesterol in different groups of benign breast disease and controls.

KEYWORDS: Fibroadenoma, fibroadenosis, cholesterol.

INTRODUCTION: Benign breast diseases constitute a heterogeneous group of lesions including developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations. The vast majority of the lesions that occur in the breast are benign. Much concern is given to the malignant lesions of the breast because breast cancer is the most common malignancy in women in western countries, however benign lesions of the breast are far more frequent than malignant ones. [1-9]

Benign breast disease (BBD) may present with a wide range of symptoms or may be detected as incidental microscopic findings. The incidence of benign breast lesions begins to rise during the second decade of life and peaks in the fourth and fifth decades, as opposed to malignant diseases, for which the incidence continue to increase after menopause, although at a less rapid pace. [2-14]
Countries with higher intake of fat, especially fat from animal products, such as meat and dairy products, have higher incidence of benign breast diseases. Many studies have found that fat intake was associated with increased risk of proliferative benign breast diseases and particularly of atypical hyperplasia.[15-16]

Specific hypothesis were that higher total fat and saturated fat intake would be associated with increased risks of proliferative BBD but that higher intake of vegetable or mono saturated fat, vitamin, carotenoids and Vitamin and E would be associated with reduced risk. Since, the dietary habits of people in our country, especially in this locality have quite changed a lot towards the western style in the last few decades the aim of my study is to establish the relationship between hyperlipidemia or dyslipidemia and benign breast diseases.

MATERIALS AND METHODS: The present piece of work “STUDY OF THE LIPID PROFILE IN PATIENTS HAVING BENIGN BREAST DISEASE” was carried out in the Department of General Surgery from August 2012 to July 2014.

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 benign breast diseases both by clinical examination as well as through investigations. The 50 cases of benign breast diseases having either of the four types namely fibroadenoma, fibroadenosis, mastalgia, breast abscess were selected randomly.

30 cases of healthy age matched female adults were taken as controls from the indoor of Department of General Surgery and other OPDs. Diagnosis of benign breast disease is done by series of clinical as well as by Fine Needle Aspiration Cytology & biopsy (Incisional, Excisional).

After collection of 5ml of fasting venous sample from a large peripheral vein under aseptic precautions the sample was subjected to centrifugation and serum was obtained. Serum lipid parameters such as Total serum cholesterol (T-C), High density lipoprotein cholesterol (HDL-C), Very low density lipoprotein (VLDL), Low density lipoprotein cholesterol (LDL-C), Serum triglyceride (TG) were estimated in the department of Biochemistry of MKCG Medical College & Hospital, by using TBA-120 FR Toshiba autoanalyser.
STATISTICS AND RESULTS:

| Serum Parameters | Range  | Mean | SD  |
|------------------|--------|------|-----|
| T-C(mg/dl)       | 120-200| 147.2| 20.14|
| HDL -C(mg/dl)    | 35-50  | 37.6 | 4.03 |
| LDL-C(mg/dl)     | <120   | 70.83| 15.15|
| VLDL(mg/dl)      | 15-40  | 37.67| 9.09 |
| TG(mg/dl)        | 80-180 | 141.9| 5.82 |

Table No. 1: LIPID PROFILES OF CONTROLS

It is evident from the above table that means value of serum lipid profiles fall within the normal range. Here values are compared after using two times of standard deviation (2SD). This includes 95% of controls.

![Fig. No. 5: Lipid Profile of Controls](image)

| Serum Parameters | Range  | Mean±2SD of Control | Mean±2SD of Case |
|------------------|--------|---------------------|-----------------|
| TC(mg/dl)        | 120-200| 147.2±40.28         | 197.5±26.24     |
| HDL-C(mg/dl)     | 35-50  | 37.06±8.06          | 72.14±12.54     |
| LDL-C(mg/dl)     | <120   | 70.83±30.30         | 72.18±7.84      |
| VLDL(mg/dl)      | 15-40  | 37.67±18.18         | 52.77±15.98     |
| TG(mg/dl)        | 80-180 | 141.9±11.64         | 209.4±34.52     |

TABLE 2: LIPID PROFILE OF FIBROADENOMA CASES VS CONTROLS

Above table shows the values of T-C, HDL-C, VLDL and TG were more than two standard deviations of control and found to be highly significant. The values of LDL-C when compared with controls were found to be non-significant.
**Table 3: Lipid Profile of Fibroadenosis Cases vs. Control**

| Serum Parameters | Range | Mean±2SD of Control | Mean±2SD of Case |
|------------------|-------|---------------------|------------------|
| T-C (mg/dl)      | 120-200 | 147.2±40.28          | 213.6±17.48      |
| HDL-C (mg/dl)    | 35-50  | 37.6±8.06            | 82.7±16.00       |
| LDL-C (mg/dl)    | <120   | 70.83±30.3           | 74.46±6.66       |
| VLDL (mg/dl)     | 15-40  | 37.67±18.18          | 57.36±8.90       |
| TG (mg/dl)       | 80-180 | 141.9±11.64          | 218.4±27.6       |

Above table shows the values of T-C, HDL-C, VLDL and TG were more than two standard deviations of control and found to be highly significant. The values of LDL-C when compared with controls were found to be non-significant.
**TABLE 4: LIPID PROFILE OF BREAST ABSCESS CASES VS CONTROL**

Above table shows the values of T-C, HDL-C, VLDL and TG were more than two standard deviations of control and found to be highly significant. The values of LDL-C when compared with controls were found to be non-significant.

**TABLE 5: LIPID PROFILE OF MASTALGIA CASES VS CONTROL**

Above table shows the values of T-C, HDL-C, VLDL and TG were more than two standard deviations of control and found to be highly significant. The values of LDL-C when compared with controls were found to be non-significant.
Serum Parameters | Range | Mean ± 2SD of Control | Mean±2 SD of Fibroadenoma | Mean±2SD of Fibroadenosis | Mean ± 2 SD of Breast Abscess | Mean ± 2 SD of Mastalgia |
--- | --- | --- | --- | --- | --- | --- |
T-C(mg/dl) | 120-200 | 147.2±40.28 | 197.5±26.24 | 213.6±17.48 | 206±20.7 | 198.7±23.92 |
HDL-C(mg/dl) | 35-50 | 37.6±8.06 | 72.14±12.54 | 82.7±16.00 | 78.25±13.16 | 75.5±13.66 |
LDL-C(mg/dl) | <120 | 70.83±30.3 | 72.18±7.84 | 74.46±6.66 | 75.75±10.12 | 74.5±6.40 |
VLDL(mg/dl) | 15-40 | 37.67±18.18 | 52.77±15.98 | 57.36±8.90 | 52±11.26 | 49.5±20.62 |
TG(mg/dl) | 80-180 | 141.9±11.64 | 209.4±34.52 | 218.4±27.6 | 211±41.30 | 210±51.80 |

TABLE 6: LIPID PROFILES OF VARIOUS TYPES OF BBD VS CONTROLS

Above table shows the mean serum T-C, HDL-C, LDL-C VLDL-C and TG were found to be significant. When compared with the same in controls however no significant difference were found in LDL-C in different groups of benign breast disease and controls.
DISCUSSION: The objective of this study was to determine the serum lipid profile in benign breast disease and also to find out, if there was any possible relation between the pathogenesis of benign breast disease and serum lipid profile.

The diagnosis of benign breast disease was made on the basis of history, physical examination, radiological investigation and different mode of tissue biopsy.

The patients suffering from benign breast disease in preoperative state had been taken into consideration. Patients presenting with history of carcinoma breast, hypertension, and tuberculosis were excluded from the study.

All the patients were subjected to the determination of the serum lipid profile like total cholesterol, HDL cholesterol, LDL cholesterol, VLDL cholesterol, and Triglyceride. The results so obtained were compared with the lipid profile of healthy persons taken as control.

The comparative study was carried out in four different types of benign breast disease. Full attention was given to quality control.

A.Gonenc et al., 2006 had reported that total serum Cholesterol and HDL Cholesterol increases in patients of benign breast disease.[17]

In the present study it was observed that the mean serum Total cholesterol in fibroadenoma cases were 197.5 mg/dl while it was 213.6 in fibroadenosis cases. Similarly it was found to be 206 mg/dl and 198.7 mg/dl for Breast abscess and mastalgia cases respectively which was significantly higher than controls.

In the present study it was also observed that mean serum HDL Cholesterol was found to be 72.4 mg/dl for fibroadenoma cases while it was 82.7mg/dl, 78.25 mg/dl for fibroadenosis and breast abscess respectively, which was much higher than control.

Khanna et al., 2002 had reported rise of serum HDL Cholesterol in patients with mastalgia.[18]

In the present study it was also found that cases of mastalgia had Mean serum HDL cholesterol to be 75.5 mg/dl which was significantly higher than control.

Khanna et al., 2002 also reported the increase in serum triglyceride level in all patients of benign breast disease as compared to control.[18]

In the present study it was observed that that mean serum triglyceride in fibroadenoma cases were 209.4 mg/dl, while it was 218.4 mg/dl in fibroadenosis cases. Similarly it was found to be 211mg/dl and 210 mg/dl in breast abscess and mastalgia cases respectively which was significantly higher as compared to controls.

A.Gonenc et al., 2006 also reported that there was no increase in serum LDL cholesterol in patients with benign breast disease.[17]

In the present study it was observed that the mean serum LDL cholesterol in fibroadenoma cases were 72.8 mg/dl while that in fibroadenosis it was 74.4mg/dl. In the control the mean serum LDL cholesterol was found to be 70.83 mg/dl. Thus there was no significant difference between cases and controls as far as mean serum LDL cholesterol are concerned.

CONCLUSION: The present prospective study on lipid profile in benign breast disease patients shows a higher serum level of T-C, HDL-C, VLDL-C and TG in benign breast disease patients however the level of LDL-C didn’t show any appreciable change.
Evaluation of lipid profile should be done routinely in patients with benign breast disease since literature suggests improvement of symptoms with a low fat diet and use of anti-hyperlipidemic drugs. So, finally it is concluded that benign breast disease is associated with altered serum lipid profile namely hyperlipidemia or dyslipidemia which requires correction by dietary management, use of anti-hyperlipidemic drugs to achieve long lasting cure and to prevent possible future recurrences.

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