Original Research Paper

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PREVALENCE OF HYPERPROLACTINEMIA AND HYPOTHYROIDISM IN BENIGN BREAST DISEASE

General Surgery

KEYWORDS: hyperprolactinemia, hypothyroidism, benign breast disease

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ABSTRACT

The aim of this study was to investigate the Prevalence of Hyperprolactinemia and Hypothyroidism in patients diagnosed as Benign breast disease. A Prospective study was done for 100 patients who were diagnosed as Benign breast disease and serum Prolactin and TSH(Thyroid stimulating hormone) & T4(Thyroxine) levels estimation was done for a period of one year. It could be end organ hypersensitivity to normal circulating levels of Prolactin that is responsible for benign breast disease and pharmacological manipulation of Prolactin in patients having raised serum levels can provide relief from symptoms. Both normal and pathological breast tissue exhibit high concentrations of sodium iodide sypmorter(NIS), peroxidase and deiodinase indicating active involvement of breast tissue in iodine metabolism. Our study strengthens the association of thyroid dysfunction with benign breast disease. Hence Benign breast disease patients should be screened for hypothyroidism and simple correction of Hypothroidism may result in significant clinical improvement.

INTRODUCTION :

Benign breast disorders constitute a significant breast health problem in women across all age groups but particularly in the reproductive age group. The prevalence has ranged from 16 to 50% in various reports [1–3]. Various endocrine and nonendocrine theories on the etiology of BBD have been proposed, and from time to time reports hinting at an association of BBD with thyroid dysfunction are published in the literature [4–6]. These reports have suggested increased prevalence of thyroid disorders in women with BBD; and various thyroid disorders, such as autoimmunity, goiter, hypothyroidism, and hyperthyroidism, have been linked with BBD and its outcome [5, 6].

Prolactin plays an important role in the proliferation and differentiation of normal breast epithelium[13] . Several studies have shown that serum prolactin level may be increased in patients with breast pain and other benign breast diseases including fibrocystic disease and fibroadenosis[14-16]. It is suggested that patients with benign breast lumps and pain should be screened for clinical or laboratory evidence of hyperprolactinemia[17,18].

MATERIALS AND METHODS :

In our study 100 patients diagnosed as having benign breast disease were included from a period of one year in Government Rajaji Hospital, Madurai. Only the patients proved Fibroadenoma(unilateral & Bilateral),Fibroadenosis(unilateral & Bilateral), Fibrocystic breast disease(unilateral & Bilateral) were included in the study irrespective of the symptoms they present with and serum prolactin and TSH & T4 levels estimation was done.

Patients were diagnosed as having benign breast disease after Triple Assessment of the patient (thorough clinical examination, ultrasound/mammography & FNAC).

51 patients out of the 100 patients selected for the study were of the age group 21-30yrs which is the commonest age group and age more than 40yrs being the least common age group which was seen in 6 patients selected for the study.

clinical features of patients with benign breast disease; lump being the commonest feature among all the patients, mastalgia in 44 patients & nipple discharge in 17 patients out of 100 selected for study.

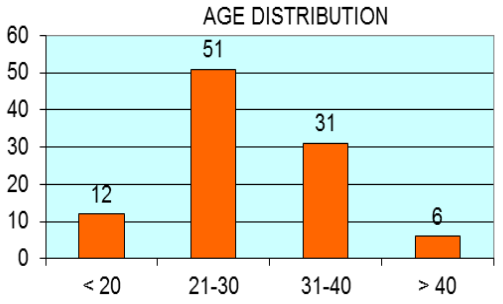

Fig-1:Bar chart showing the age distribution in benign breast disease patients selected for the study

RESULTS:

Serum prolactin level estimation was done for all the patients included in the study and results revealed that 22% of the patients had Hyperprolactinemia, out of which 14 cases were fibroadenoma, 2 cases were unlilateral fibroadenosis, 1 case was bilateral fibroadenosis and 3 cases were unilateral fibrocystic breast disease.

Fig-2:Table showing the prevalence of hyperprolactinemia in benign breast disease

PROLACTIN	No. of Cases	Fibroadenosis	B/L Fibroadenosis	Fibro-Cystic Breast disease	B/L Fibrocystic Breast disease	Fibroadenoma	**Nil**
< 23	78	16	5	10	1	31	**15**
>23	22	2	1	3	0	14	**2**
Total	100						

TSH & T4 level estimation was done and 25 % patients had overt hypothyroidism without any symptoms suggestive of Hypothyroidism irrespective of the clinical feature of benign breast disease out of which 13 cases were Fibroadenoma, 6 cases were Fibroadenosis and 6 cases were Fibrocystic breast disease in the above study and 5 % patients had subclinical Hypothyroidism with symptoms suggestive of hypothyroidism.

TSH	No. of Cases	Fibro adenosis	B/L Fibroadenosis	Fibro Cystic Disease	B/L Fibro Cystic disease	Fibro adenoma	Nil
< 4.2	75	14	3	10	0	33	15
> 4.2	25	4	3	3	1	12	2
Total	100						

Fig-3:Table shows the number of patients having a TSH value lower than the reference range ; normal reference range of TSH is 0.51-4.30 uIU/ml 25 patients out of the 100 selected for the study had TSH value more than 4.30 uIU/ml

T4	No. of Cases	Fibro Adenosis	B/L Fibro adenosis	Fibro Cystic Disease	B/L Fibro Cystic Disease	Fibroadenoma	Nil
T4 < 4.5	25	6	3	4	1	13	2
> 4.5	70	14	3	11	0	33	16
4.5	5	1	1	-	1	2	-
Total	100						

Fig-4:Table show the number of cases out of the 100 cases selected for the study had a T4 value which was either equal to or more than 4.6 ug/dl

Normal reference range of T4 is 4.6-12 ug/dl
25 patients out of the 100 studied had a T4 value of less than 4.6ug/dl and

5 patients had a value which was equal to 4.6ug/dl; this has significance when compared with TSH values to rule out overt hypothyroidism and subclinical hypothyroidism All the patients were evaluated by a thorough history and clinical examination of breasts and thyroid. Patients were asked to grade their mastalgia in three categories like absent,mild and severe (which disturbs daily activity). Patients were also asked about the subtle symptoms of hypothyroidism like weight gain,

listlessness, menorrhagia, mood changes, muscle cramps, feeling unwell and fatigability.

Both hypothyroidism and hyperprolactinemia was seen in 15 cases out of which 4 cases were fibrocystic breast disease, 4 cases were fibroadenosis and 7 cases were fibroadenomas.

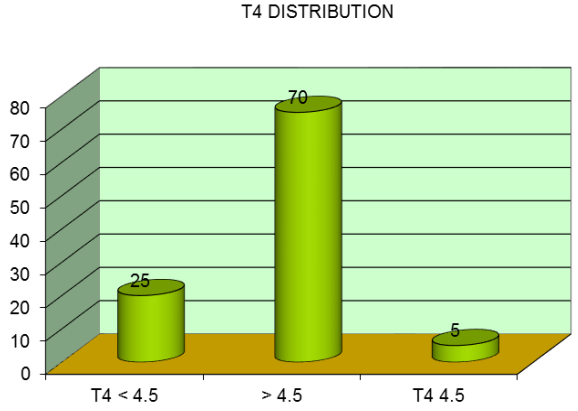

Fig-5:Bar chart show the number of cases out of the 100 cases selected for the study had a T4 value which was either equal to or more than 4.5 ug/dl

Hence looking at the prevalence of hyperprolactinemia and hypothyroidism in the patients selected for the study there could be an association between thyroid dysfunction and benign breast disease and also association of raised serum prolactin levels with benign breast disease Prevalence of hyperprolactinemia in our study was 22 % Prevalence of hypothyroidism in our study was 25%

DISCUSSION:

Both normal and pathological breast tissue exhibit high concentrations of sodium iodide sypmorter(NIS), peroxidase and deiodinase indicating active involvement of breast tissue in iodine metabolism. There are no guideline regarding monitoring of Thyroid function during workup of Benign breast disease cases. Our study is to look for the prevalence of hypothyroidism in benign breast disease. The published literature has suggested a relation between thyroid hormone and/or iodine and the normal mammary gland. Both normal and pathologic breast tissues exhibit high concentrations of NIS, peroxidase, and deiodinase, indicating active involvement of breast tissues in iodine metabolism [7].

However, there is scant literature on the relation of thyroid disorders and breast disorders [5, 6]. Most of the published work has focused on the relation of breast cancer with the thyroid despite the fact that the prevalence of BBD is far more common than breast cancer [5, 6, 9–10]. Though overtly not as clinically significant as breast cancer, BBD is a significant cause of concern in almost half of the female population [3].

So far, no well organized studies looking into the association of BBD with thyroid dysfunction have appeared in the literature. Therefore, there are no guidelines regarding monitoring of thyroid function during the workup of BBD cases. However, if we consider the excellent response of BBD to thyroxine replacement, BBD might be presumed a manifestation, rather than an association, of hypothyroidism. BBDs, although obviously benign, are the cause of concern and discomfort. Although routine screening for subclinical hypothyroidism is a debatable issue, most authorities recommend screening for high-risk groups, which include elderly women and pregnant patients, who would benefit from treatment [8, 11, 12]. We suggest that the benefit of screening should be extended to BBD patients because not only is the yield likely to be high the therapeutic intervention is gratifying.

CONCLUSION:

From our study we concluded that

- It could be end organ hypersensitivity to normal circulating levels of prolactin or other hormones or environmental factors that is responsible for benign breast disease and pharmacological manipulation of prolactin in patients having raised serum levels can provide relief from symptoms.

- Both normal and pathological breast tissue exhibit high concentrations of sodium iodide sypmorter(NIS), peroxidase and deiodinase indicating active involvement of breast tissue in iodine metabolism. Our study strengthens the association of thyroid dysfunction with benign breast disease. Hence benign breast disease patients should be screened for hypothyroidism and simple correction of hypothyroidism may result in significant clinical improvement of benign breast disease patient.

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