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A Clinical Study of Thyroid Function Tests in Dysfuctional Uterine Bleeding

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Abstract

Dysfunctional uterine bleeding is abnormal uterine bleeding in the absence of any palpable pelvic pathology and the most common encountered condition in gynecology. Thyroid abnormalities have been suggested as an imporatant to affect the menstrual pattern and probable cause cause of that bleeding. The present study is a cross-sectional study of 150 women with abnormal uterine bleeding in the reproductive age group undertaken in Government Medical College and Hospital over a period of 1 year. It was done to ascertain the correlation between thyroid dysfunction and AUB. The history was elicited according to the proforma. Anthroprometric measurements were taken and a detailed examination was done. T3, T4 and TSH levels were evaluated in the fasting rate and the results interpreted. In this study among 81 patients with menorrhagia, 15 patients (18.52%) had clinical hypothyroidism and 7 patients (8.6%) had subclinical hypothyroidism. This correlates with study by Andrew weeks in 1987 of 650 women with menstrual disturbances at the Jessop hospital who have stated that hypothyroidism is a greatly under diagnosed cause of menorrhagia. Some patients have a normal serum TSH despite low T3 and T4. This is explained by a downward resetting of the threshold for TSH inhibition. TSH setpoint for a particular serum T3, T4 increases with age and is also altered by personal and familial character. TSH values tend to change more rapidly because the half life of TSH is much shorter. The incidence of thyroid dysfunction in the population with AUB is 26.5% according to our study and hence selective screening of this population would result in a higher yield. A major benefit of routine testing is the earlier detection of unsuspected overt thyrotoxicosis or subclinical hypothyroidism or hyperthyroidism. Most clinicians advocate treatment of women with elevated TSH levels in view of risk of hypothyroidism subsequently.

The Body Mass Index showed a significant correlation ($p<0.001$) with thyroid dysfunction. Hypothyroidism was associated with obesity. The Study showed a significant correlation between thyroid profile (T3, T4 and TSH) and AUB ($p=0.076$). The study showed significant association of menorrhagia with hypothyroidism and hypomenorrhea, oligomenorrhea were associated with hyperthyroidism

Keywords: Dysfunctional Uterine Bleeding; Thyroid Function Tests; Oligomenorrhea; Menorrhagia.

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Introduction

Thyroid dysfunction is a common cause of dysfunctional uterine bleeding. It accounts for 25-30% of cases [1] . Thyroid disorders are 10 times more common in women than men. Approximately 1% of the female population will develop overt hypothyroidism.

Dysfunctional uterine bleeding is one of

the single most common complaints with which women of reproductive age group report to the clinician [2]. Dysfunctional uterine bleeding is considered as a symptom and not a disease [3]. Abnormal menstrual cycles are occasionally the first sign of hypothyroidism and hyperthyroidism. The clinical objective is to detect and treat thyroid disease before the symptoms and signs are significant and intense. Therefore the key to early diagnosis is to maintain a high index of suspicion and to readily screen for the presence of abnormal thyroid function. Moreover, thyroid dysfunction is an easily correctable cause of Dysfunctional uterine bleedig.

Appropriate treatment is rewarded by the prompt return of normal menstrual cycles. It is recognized universally that menstrual disturbances may accompany clinical alterations in thyroid function. Hypothyroidism causes menorrhagia. Hyperthyroidism causes oligomenorrhea and the decrease in flow is proportional to the severity of the thyrotoxicosis. This abnormal bleeding can be treated by proper management of thyroid disorders. Hence this study is a measure to detect patients with AUB due to thyroid disorders at the earliest. Aim of the study is to detect the various menstrual disturbances (oligomenorrhea /menorrhagia) that may accompany alterations in thyroid function, (hyperthyroidism and hypothyroidism) as a cause for dysfuntional uterine bleeding.

Materials and Methods

The present prospective study is carried out in Department of Obstetrics and Gynaecology in Government Medical College and Hospital, for a period of 1 year with Sample size of 150 patients.The study group included women with complaining of Oligomenorrhea that is cycle length greater than 35 days and Menorrhagia that is blood loss more than 80 ml or more.

Inclusion Criteria

Women in the age group of 15 – 45 years having Puberty menorrhagia with signs and symptoms of hypo/hyperthyroidism with no organic disease of the genital tract

Exclusion Criteria

Womens of age more than 45 years, on hormones, oral contraceptives, hormone replacement therapy with history of bleeding diathesis and pelvic pathology.

Study Design

Patients were selected based on the above criteria and history was taken as per the proforma including a detailed menstrual history and questions regarding the signs and symptoms of hypothyroidism and hyperthyroidism were asked, following examination was done. A detailed general examination focusing specifically on the presence/ absence of anemia, thyroid swelling , cardiovascular abnormality, gross nervous system dysfunction, galactorrhea and abnormal hair distribution. The height in centimeters and weight in kilograms was measured and the BMI calculated. An abdominal, speculum examination and pelvic examination were done to rule out other causes of abnormal bleeding. 5 ml of venous blood was taken in a dry plain glass container without any anticoagulant for TSH assay and T3,T4 estimation. Morning sample in the fasting state was taken. The physiological range was 0.22 to 4.22μIU/ml with due consideration given to diurnal /pulsatile variation. The physiological range for T4 was 12.2 TO 20.02 pmol/1. The physiological range for T3 was 2.02 to 4.43 pg/ml

Results

After ruling out those patients with palpable organic pelvic pathology by pelvic examination and ultrasonogram, a total of 150 patients were included in the study group.

Table 1: Free T3 (pg/ml) distribution of patients studied

Free T3 (pg/ml)	No. of patients	%
<2.02	22	14.6
2.02-4.43	124	82.6
>4.43	4	2.6
Total	150	100.0

Table 2: Free T4 (pmol/l) distribution of patients studied

Free T4 (pmol/l)	No. of Patients	%
<12.2	22	14.6
12.2-20.02	124	82.6
>20.02	4	2.6
Total	150	100.0

Table 3: TSH (ìIU/ml) distribution of patients studied

TSH (µIU/ml)	No. of Patients	%
<0.22	7	4.7
0.22-4.22	110	73.3
>4.22	33	22.0
Total	150	100.0

Table 4: Body Mass Index

BMI Range	Hypothyroidism	Euthyroidism	Hyperthyroidism	Total
< 18.5	0(0%)	2(1.8%)	3(42.9%)	5(3.3%)
18.5-24.9	5(15.2%)	87(79.1%)	4(57.1%)	96(64%)
25-29.9	21(63.6%)	22(20%)	0(0%)	43(28.7%)
29.9-34.9	7(21.2%)	2(1.8%)	0(0%)	9(6%)
Total	33(100%)	110(100%)	7(100%)	150(100%)

Table 5: Oligomenorrhea and Thyroid Function Tests

	T3 (N=2.02-4.43pg/ml)	T4 (N=4.8-11.5µg/dl)	TSH (0.22- 4.22µIU/ml)
<Normal	2(13.3%)	2(13.3%)	3(20%)
Normal	11(73.3%)	11(73.3%)	9(60%)
>Normal	2(13.3%)	2(13.3%)	3(20%)
Total	15(100%)	15(100%)	15(100%)

Table 6: Menorrhagia and Thyroid Function Tests

Menorrhagia	T3 (N=2.02-4.43pg/ml)	T4 (N=4.8-11.5µg/dl)	TSH (0.22- 4.22 µIU/ml)
<Normal	15(18.2%)	15(18.5%)	1(1.23%)
Normal	66(81.5%)	66(81.48%)	58(71.6%)
>Normal	0(0%)	0(0%)	22(27.2%)

Table 7: Incidence of Thyroid Disoreder

Incidence of	No. of patients	%
Hypothyroidism	22	14.6
Hyperthyroidism	4	2.6
Subclinical Hypothyroidism	11	7.3
Subclinical Hyperthyroidism	3	2.0

Discussion

Dysfunctional uterine bleeding is a benign yet debilitating disease with a strong association with thyroid disorders. Our study highlights the association between AUB and thyroid dysfunction by measurement of free T3, T4 and TSH in the fasting state in women with AUB. The present study is a cross-sectional study of 150 women with abnormal uterine bleeding in the reproductive age group undertaken in Government Medical college and Hospital over a period of 1 year. It was done to ascertain the correlation between thyroid dysfunction and dysfunctional uterine bleeding. As per the observations from Table 1, 2 and 3 shows that among 150 patients 22 patients had clinical hypothyroidism and 4 patients had clinical hperthyroism with 11 had subclinical hypothyroidism, 3 had subclinical hyperthyroidism. Table 4 shows that Increased BMI was found in hypothyroid patients. Decreased BMI was found in hyperthyroid patients. Table 7 shows that in this study, thyroid dysfunction account for 26.5% in AUB patients. The overall incidence of

thyroid dysfunction is 26.5%. This correlates with the study by Padmaleela et al, 1995. who have stated that thyroid disorders were prevalent in 26.5% of the women Hypothyroidism was present in 18.1% and Hyperthyroidism in 8.4% of the women with DUB's. The history was elicited according to the proforma. Anthroprometric measurements were taken and a detailed examination was done. T3, T4 and TSH levels were evaluated in the fasting rate and the results interpreted. The Body Mass Index showed a significant correlation ($p<0.001$) with thyroid dysfunction .Hypothyroidism was associated with obesity. The Study showed a significant correlation between thyroid profile (T3, T4 and TSH) and AUB ($p=0.076$). The study showed significant association of menorrhagia with hypothyroidism and hypomenorrhea, oligomenorrhea were associated with hyperthyroidism.

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