

Research Article



A Prospective Study on Hypothyroidism in Premenopausal Women

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ABSTRACT

Thyroid dysfunction is known to affect all aspects of reproductive function in the female. Hypothyroidism may cause disturbance by disrupting the function of hypothalamo-pituitary ovarian axis. Thus, clinically it has a close relationship with menstrual irregularity, infertility, miscarriage and complications of unwanted pregnancy may occur. The main objective of this study is to analyze and assess the prevalence of hypothyroidism and also the menstrual patterns in premenopausal women. The study was carried out among 200 patients and only females were included from age group of 18-45 years. All inpatients subjected with complications like menorrhagia etc and hypothyroidism patients were included in the study. Thyroid function tests were done in all the patients. Among the 200 patients included in the study 148 patients had hypothyroidism and 72 patients were euthyroid. Among the 148 hypothyroidism patients it was observed that majority of people have subclinical hypothyroidism., 85 in number (42.5%) than the overt hypothyroidism patients, 43 in number (21.5%) and patients were divided on their bleeding pattern among them 89 patients (45%) were majorly suffering from menorrhagia and 73 patients (36.5%) were suffering from hypomenorrhea and were found to be more significant in both subclinical and overt hypothyroidism. This study concludes that the menstrual irregularities are significantly more in patients with Hypothyroidism most common in subclinical hypothyroidism and patients with the menstrual irregularity of menorrhagia and hypomenorrhea were more common. Hence, Thyroid dysfunction affects the menstrual patterns in women should be considered as an important etiological factor for menstrual abnormality. Biochemical estimation of T3, T4, TSH should be made mandatory especially in menorrhagia and hypomenorrhea and also in those presenting with fatigue, obesity, Lethargy.

Keywords: Premenopausal, Euthyroid, menorrhagia and hypomenorrhea.

INTRODUCTION

Hypothyroidism is also called as underactive thyroid disease. It is a common disorder where the thyroid gland do not produce sufficient thyroid hormone¹. Thyroid dysfunction is known to affect all aspects of reproductive function in the female. Reproductive function is a vital process for continuation of life and requires an appropriate endocrine, molecular and cellular organization.

Hypothyroidism may cause disturbance by disrupting the function of hypothalamo-pituitary ovarian axis². Thus, clinically it has a close relationship with menstrual irregularity, infertility, miscarriage and complications of unwanted pregnancy may occur. Low levels of thyroxine (T4) is the main reason for symptoms of hypothyroidism. The main clinical symptom of hypothyroidism is ovulatory dysfunction and the most common type is menorrhagia, oligomenorrhea, hypomenorrhea³.

The main causes of hypothyroidism are radiation therapy near the neck area, radioactive iodine treatment, use of certain medications (Eg: amiodarone, lithium), thyroid surgery and too little amount of iodine intake⁴.

Women are most likely to develop hypothyroidism than men, risk factors include age, autoimmune disorders, genetic factors⁵.

Symptoms of hypothyroidism includes Changes in the menstrual cycle, Constipation, Depression, Dry hair and

hair loss, Dry skin, Fatigue, Greater sensitivity to cold, Slow heart rate, Swelling of the thyroid gland (goiter), difficulty losing weight⁶.

Thyroid hormones play a key role in the menstrual and reproductive function of women. It is recognized universally that menstrual disturbances may accompany clinical alterations in thyroid function.

Both hypothyroidism and hyperthyroidism may result in menstrual disturbances⁷.

Since thyroid dysfunction is commonly prevalent in women, present study was conducted to assess the prevalence of hypothyroidism in premenopausal women.

B Rijal⁸ conducted a study on association of thyroid dysfunction among infertile women and concluded that there is high prevalence of thyroid dysfunction among the infertile women.

Proper management of the thyroid dysfunction can result regain of fertility.

Therefore, routine screening is required to all cases of infertility for possible thyroid disorders. N Bhavani⁹ conducted a study of correlation between abnormal uterine bleeding and thyroid dysfunction. Both subclinical and overt hypothyroid cases together were the commonest thyroid dysfunction and menorrhagia was their commonest menstrual abnormality.



The study concludes that biochemical evaluation of thyroid function should be made mandatory in all cases of AUB.

Aim & Objectives:

- To analyze and assess the prevalence of hypothyroidism in premenopausal women.
- To evaluate the effect of hypothyroidism and assess the menstrual abnormalities in premenopausal women.
- To understand the role of hypothyroidism in various obstetrics and gynaecological complications.

MATERIALS AND METHODS

Study Design

Prospective, single centered study.

Study Site

The study was carried out in a 300 bedded tertiary care hospital Employee State Insurance Corporation Hospital located at Ayanavaram, Chennai.

Department

Obstetrics & Gynecology

Duration of the Study

12 months

Design Of Patient Information Form

A patient information form has been prepared to inform the patient or the care takers about the purpose and necessity of the study.

The patient information form assures that the confidentiality will be strictly maintained and also the study will help the betterment of patient health. The form includes the details like department address, name and signature of the investigator and supervisor, date, place and details about the study.

Data Entry Form

A separate data entry form for incorporating patient details was also designed.

The format contains the details such as Name, Age, Height, Weight, Patient past medical and medication history, Family and Personal history, marital status, Obstetric history, Vital signs, Blood counts, Blood sugar, thyroid function tests, Diagnosis and treatment given to the patient.

Study Population

200 patients

Inclusion Criteria:

- Female Patients getting admitted with complications in the obstetrics and gynecology department.

- Female patients above 18 - 45years of age subjected with complications.
- Patients with complications such as Menorrhagia, Abnormal uterine bleeding, polycystic ovarian syndrome, Pelvic inflammatory disease, miscarriage, uterine fibroid, Infertility.

Exclusion Criteria:

- Patients below the age of 18 years and above the age of 45 years.
- Patients who underwent Bilateral oophorectomy and Hysterectomy.
- Pregnant and lactating women.
- Patients who were not willing to participate and patients terminally ill were excluded from the study.

Data Analysis

The obtained data were analyzed by using the statistical method i.e. Analysis of variance (ANOVA) and was categorized based on the type of bleeding pattern and their thyroid status.

Patient medical history and other comorbidities have also been categorized. even the treatment given was also categorized. This study was approved by the ethics committee. REF: IEC/DOPV/2015/11

RESULTS

The following results were obtained from the patient data collected.

Table 1: Age Distribution

Age group (in years)	No of patients (n=200)	Percentage
18-25	70	35%
25-35	80	40%
35-45	50	25%

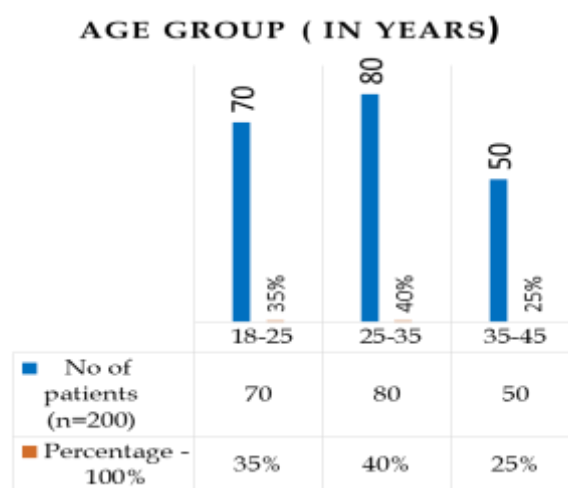


Figure 1: Age Distribution

The above data, shows that prevalence of hypothyroidism was observed to be more significant in patients between age group 25-35 Yrs. which was (40% -80 in no) out of 200 Patients.

Table 2: Body Mass Index

Body mass index (BMI)	Range value	No. of patients (n=200)	Percentage
Underweight	<18.5	0	0
Normal	18.5-24.9	86	43%
Overweight	25-29.9	78	39%
Obese	>30	36	18%

The body mass index was also calculated and observed that 86 patients were normal (43%), 78 (39%) were overweight and 36 (18%) were obese.

Table 3: Distribution Of Patients According To Thyroid Status

Thyroid status	No. of patients (n=200)	Percentage
Overt Hypothyroidism	43	21.5%
Subclinical Hypothyroidism	85	42.5%
Euthyroid	72	36.0%

From the above data, Among the study population of 200 patients the total number of patients were distributed based on their thyroid status & it was observed that majority of people have subclinical hypothyroidism, 85 in number (42.5%).

Table 4: Distribution Of Patients According To Bleeding Pattern

Type of bleeding pattern	No. of patients (n=200)	Percentage
Menorrhagia	89	44.5%
Metrorrhagia	24	12%
Oligomenorrhoea	14	07%
Hypomenorrhoea	73	36.5%

Based on the above findings patients were divided on their bleeding pattern among them 89 patients (45%) were majorly suffering from menorrhagia and 73 patients (36.5%) were suffering from hypomenorrhoea.

Table 5: Distribution of Euthyroid Patients In Relation To Type of Bleeding Pattern

Type of bleeding	Euthyroid (n=72)	Percentage
Menorrhagia	33*	45.83%
Metrorrhagia	08	11.11%
Oligomenorrhoea	03	4.16%
Hypomenorrhoea	28	38.9%

Distribution of 72 Euthyroid patients, in relation to type of bleeding pattern was studied & observed that majority of the patients were suffering from Menorrhagia, 33 in Number (46%).

Table 6: Distribution of Overt Hypothyroidism Patients in Relation to Type of Bleeding Pattern

Type of bleeding	No of patients (n=43)	Percentage
Menorrhagia	19 *	44.18%
Metrorrhagia	05	11.63%
Oligomenorrhoea	02	4.65%
Hypomenorrhoea	17	39.54%

Distribution of 43 overt hypothyroidism patients, in relation to type of bleeding pattern was studied & observed that majority of the patients were suffering from Menorrhagia, 19 in Number (44%).

Table 7: Distribution of Patients with Subclinical Hypothyroidism In Relation To Type of Bleeding Pattern

Bleeding pattern	No of patients (n=85)	Percentage
Menorrhagia	37 *	43.52%
Metrorrhagia	11	12.94%
Oligomenorrhoea	09	10.6%
Hypomenorrhoea	28	32.94%

Distribution of 85 Sub clinical hypothyroidism patients, in relation to type of bleeding pattern was studied & observed that majority of the patients were suffering from Menorrhagia, 37 in Number -44%.

DISCUSSION

- Subclinical hypothyroidism is increasingly being recognized as having significant health implications¹⁰. Thyroid disorders are more common in women with menstrual irregularities ranging from menorrhagia to oligomenorrhoea as compared to general population¹¹.
- Goldsmith demonstrated a 70% occurrence of ovulatory failure in patients with hypothyroidism while 20% had normal ovulation¹².
- Fraser studies showed that In hypothyroid patients the menstrual abnormality is much more severe and anovulatory cycles are common. Menorrhagia and polymenorrhoea are more common¹³.
- In the above study prevalence of hypothyroidism was observed more significant in patients between the age group of 25-35 years was found to be (40%) 80 in number, rather than the patients between the age group of 18-25years was (35%) 70 in number and patients between the age group of 35-45years was (25%) 50 in number. N Bhavani and Sangeetha Pahwa

observed that majority of patients were in the age group between 31-40yrs (42%)¹⁴.

- Female infertility occurs in about 37% of all infertile couples and ovulatory disorders account for more than half of these¹⁵. Thyroid hormone has profound effects on reproduction and pregnancy.
- Shruthi T¹⁶ also conducted similar studies and quoted that majority of the patients had subclinical hypothyroidism and this study was done among the study population of 200 patients, the total number of patients distributed based on their thyroid status, were as follows among them patients who had subclinical hypothyroidism 85(42.5%) in number were found to be more significant rather than euthyroid patients who were found to be 72(36%) in number and patients with overt hypothyroidism were found to be 43(21.5%) in number.
- Patients surveyed for the study, were distributed based on their bleeding pattern among them 89 patients (44.5%) were suffering from menorrhagia were found to be more significant then 24 patients (12%) having metrorrhagia, 14 patients (7%) suffering from oligomenorrhoea and 73 patients (36.5%) suffering from hypomenorrhoea which correlates the study done by Padmaleela (HMB in 50%, 27.3% polymenorrhagia and 18.2% oligomenorrhoea)¹⁷.
- The Distribution of Subclinical hypothyroidism(High TSH Levels) Patients In Relation To Type of Bleeding pattern was Studied and observed as follows that 37 patients (43.52%) suffering from menorrhagia were found to be more significant then 11 patients (12.94%) having metrorrhagia, 09 patients (10.6%) suffering from oligomenorrhoea and 28 patients (32.94%) suffering from hypomenorrhoea. Douglas observed that 22.3% of their cases with menorrhagia had subclinical hypothyroidism¹⁸.
- In the above collected data based on the thyroid status and bleeding pattern of the patients majority were suffering from menorrhagia in all the 3 conditions that is euthyroid, overt and subclinical hypothyroidism [33 patients (45.83%), 19 patients (44.18%), 37 patients (43.52%)] which is correlating with study done by Neelu Sharma (22% hypo, 14% hyper, 64% euthyroid)¹⁹.
- According to Thomas, their study showed menstrual irregularities to be significantly more frequent in patient with thyroid dysfunction concluding that systematic study of thyroid function in dysfunctional uterine bleeding²⁰.

CONCLUSION

This study concludes that the menstrual irregularities are significantly more in patients with Hypothyroidism. Most common in patients having subclinical hypothyroidism. Hence, Thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality.

So Screening & Biochemical estimation of T3, T4, TSH should be made mandatory for thyroid disease should be routinely performed in patients with menstrual abnormalities and also who present with symptoms like fatigue & obesity for early diagnosis and treatment.

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