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A study to evaluate the prevalence of menstrual and reproductive dysfunctions in women of Reproductive age group with thyroid dysfunction

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Abstract

Background: Thyroid dysfunctions are marked by various menstrual irregularities. Most common thyroid dysfunction among reproductive age group women is hypothyroidism. This study is being done to evaluate prevalence of menstrual and reproductive dysfunction in women of 18-45 age group with thyroid dysfunction.

Methods: The study population consisted of 200 women attending gynaecology outpatient clinic, at KIM's medical college a teaching and referral hospital, Amalapuram. Based on inclusion and exclusion criteria study population was selected and detailed personal, demographic and gynaecological history was taken. Subjects with menstrual disorders were further investigated for subclinical hypothyroidism. Clinical test done by taking early morning sample of venous blood for T3, T4 and TSH estimation.

Results: Among 200 women under study majority were in the age group of 25-31 years (40%), 7% had infertility and 12% had history of abortions.

Majority in the study group had menorrhagia (28%), dysmenorrhea (20.5%) and oligomenorrhea (16%). Among 200 women, 45 women (23.5%) detected to have a subclinical hypothyroidism.

Conclusion: The study revealed that subclinical hypothyroidism is the most prevalent thyroid disorder among females with menstrual disorder. Moreover, the prevalence of subclinical hypothyroidism was found to be the most prevalent among females suffering from menorrhagia and dysmenorrhea. There is a significant association between thyroid disorders and abnormal uterine bleeding. Measures should be taken to manage subclinical hypothyroidism in an attempt to reduce its later consequences.

Keywords: Subclinical hypothyroidism, menstrual disorder, thyroid dysfunction

Introduction

Thyroid dysfunctions are associated with change in reproductive function including delay in puberty, anovulation etc. There is a change in cycle duration and flow. Subclinical hypothyroidism is defined as a state in which T3, T4 are within the normal range but there is slight increase in TSH level. It is more common in females^[1], common presenting features are complaining of fatigue, weight gain, constipation, menstrual irregularities. Subclinical hypothyroidism is early stage of disease and it is found to be significantly prevalent according to some studies^[2]. Subclinical hypothyroidism can progress to occult hypothyroidism. So we need to subject them to TSH screening. The impact of hypothyroidism on menstrual cycle has been identified^[3]. Subclinical hypothyroidism has been associated with occult menorrhagia before becoming symptomatic. This study is being done to evaluate how change in thyroid function can affect abnormal uterine bleeding in women of 18-45 years age group. Most common cause of hypothyroidism is iodine deficiency in developing countries and chronic autoimmune thyroiditis in developed countries. Other causes are radioactive iodine ablation of thyroid gland, antithyroid drugs etc.

Aim and Objective

The study is being done to know the prevalence of menstrual irregularities among 18-45 years age group women with subclinical hypothyroidism and to determine the association between menstrual irregularities and thyroid dysfunction.

Material and Methods

It is a prospective analytical study designed of 200 cases from KIM's medical college, a

teaching institute and referral hospital to find the prevalence of reproductive and menstrual dysfunction among women of reproductive age group with thyroid dysfunction. Period of study is from January 2020 to October 2020. Based on inclusion and exclusion criteria study population was selected after obtaining ethical clearance from the patients and detailed personal, demographic and gynaecological history was taken. Subjects with menstrual disorders were further investigated for subclinical hypothyroidism. Clinical test done by taking early morning sample of venous blood for T3, T4 and TSH estimation.

Inclusion criteria

- Age group 18-45 years
- Menstrual irregularities
- Symptoms of thyroid dysfunction
- No demonstrable pelvic pathology

Exclusion criteria

- Pregnant and menopausal women
- subjects already diagnosed with any case of gynaecological disorder
- Palpable pelvic pathology
- Known case of thyroid disorder
- Patients on drugs like amiodarone, lithium, aspirin, heparin, steroids

Result and Analysis

Data collected has been compiled up and tables have been made according to type of menstrual disorders found among the females and the type of thyroid disorders found on the basis of TSH value. Percentage values of each table has been found and mentioned in the form of pie charts and tables. The description of all the tables and pie charts is also explained.

Table 1: Age distribution

Age group	Frequency	Percentage
18-24 years	32	16%
25-31 years	80	40%
32-39 years	62	31%
40-45 years	26	13%

In our study 200 cases were taken and 40% were found to be between 25-31 years.

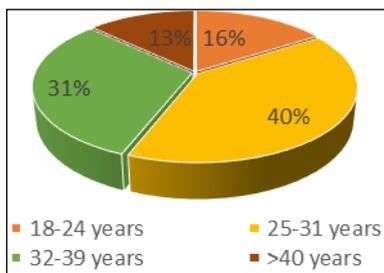


Table 2: Type of menstrual dysfunction in study group

Menstrual dysfunction	Number	Percentage
Amenorrhea	23	11.5%
Menorrhagia	57	28.5%
Hypomenorrhea	11	5.5%
Polymenorrhea	8	4%
Oligomenorrhea	32	16%
Dysmenorrhea	41	20.5%
Premenstrual syndrome	28	14%

Most common menstrual dysfunction among study group was menorrhagia (28.5%).

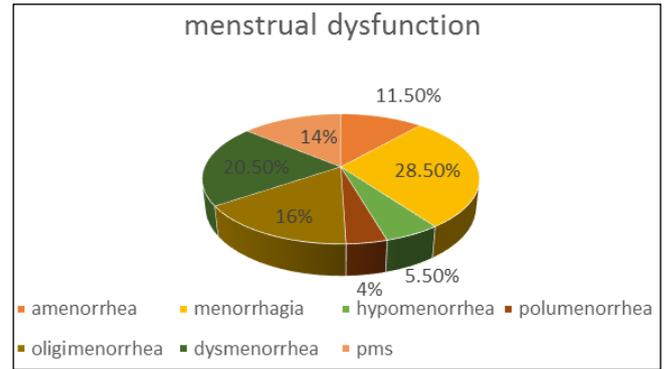


Table 3: Type of reproductive dysfunction in study group

Reproductive dysfunction	Number	Percentage
Null	162	81%
Infertility	14	7%
Pregnancy wastage	24	12%

In our study group 12% women had history of pregnancy wastage and 7% had infertility.

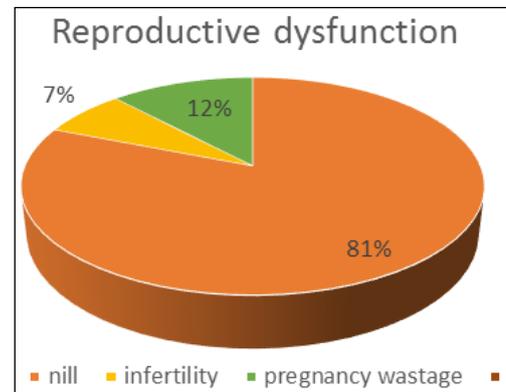


Table 4: T3 values (1.72-4.2 pg/ml)

T3 value	Number	Percentage
<1.72	47	23.5%
1.72-4.2	142	70.5%
>4.2	11	5.5%

Table 5: TT4 values (0.7-1.8 ng/ml)

T4 value	Number	Percentage
<0.7	47	23.5%
0.7-4.2	142	70.5%
>4.2	11	5.5%

Table 6: TSH values (0.5-5.2 mIU/ml)

TSH value	Number	Percentage
<0.5	11	5.5%
0.5-5.2	97	48.5%
>5.2	92	46%

Table 7: Type of thyroid dysfunction

Thyroid dysfunction	Number	Percentage
Normal	97	48.5%
Hypothyroidism	47	23.5%
Subclinical hypothyroidism	45	22.5%
Hyperthyroidism	11	5.5%

In our study group 48.5% patients had normal thyroid profile. Most common thyroid dysfunction among study group was hypothyroidism (23.5%) followed by subclinical hypothyroidism (22.5%).

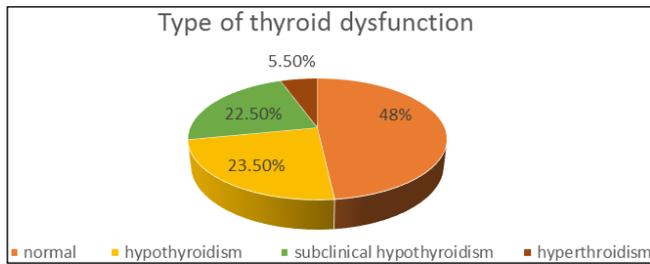
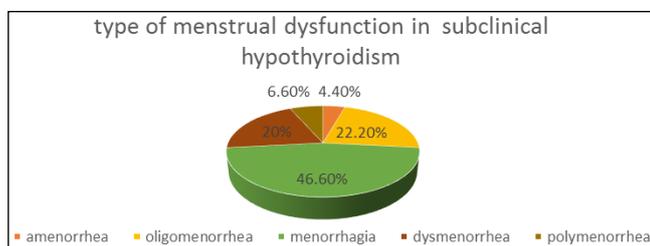


Table 8: Type of menstrual dysfunction in subclinical hypothyroidism

Menstrual dysfunction	Subclinical hypothyroidism	Percentage
Amenorrhoea	2	4.4%
Oligomenorrhoea	10	22.2%
Menorrhagia	21	46.6%
Dysmenorrhoea	9	20%
Polymenorrhoea	3	6.6%

Out of 45 cases of subclinical hypothyroidism 46.6% people had menorrhagia, 22.2% had oligomenorrhoea, 20% complained of dysmenorrhoea.



Discussion

Thyroid disorders are common worldwide as well as in India. The prevalence was found to be more common in younger age group. Moreover, females were found to be more affected than males [1]. Subclinical hypothyroidism was found to be significantly prevalent [2]. There is significant association between thyroid disorders and menstrual irregularities [3]. Subclinical hypothyroidism is defined as an elevated serum TSH level associated with normal total or free T₄ and T₃ values. It can progress to overt hypothyroidism [4]. According to a study subclinical hypothyroidism usually presents as vague manifestations. The common presenting complaints being fatigue, body aches, weight gain, constipation, menstrual irregularities and infertility. Females with menstrual disorders must be screened at an earlier stage so as to prevent its later consequences [5]. Owing to the nonspecific nature of the hypothyroidism-related symptoms (e.g., fatigue), the diagnosis of subclinical hypothyroidism is based on laboratory testing [6]. In contrast to the known negative impact on conception and pregnancy of overt hypothyroidism (e.g., increased risk of pregnancy loss, premature birth, lower offspring intelligence quotient), in which TSH is elevated and the FT₄ level is below normal, the impact of SCH remains unclear. In some studies, it has been associated with infertility [7], an increased risk of adverse pregnancy and neonatal outcomes [8] and possibly with an increased risk of neurocognitive deficits in the offspring [9]. However, other studies have not found an association of SCH with adverse outcomes, although there are a few observational studies suggesting a beneficial effect of LT₄ treatment in

pregnant women with subclinical hypothyroidism [10], results from large randomized trials suggest the opposite.

Abnormal uterine bleeding is a debilitating disease, there is association with thyroid disorder [11]. This study highlights the association between AUB and thyroid dysfunction. According to our study most of the women in their 25-31 years age group complain of menstrual dysfunction. Most common menstrual dysfunction complained by patients according to our study was menorrhagia, dysmenorrhoea and oligomenorrhoea.

In the present study hypothyroidism and subclinical hypothyroidism were found to be more common thyroid disorders among women with menstrual disorders. A study conducted by Ambika Gopalakrishnan [12] Unnikrishnan Indian J Endocrinol Metab. 2013 Jul-Aug; 17(4): 647-652 found that the prevalence of hypothyroidism was high, affecting approximately one in 10 adults in the study population. Female gender and older age were found to have significant association with hypothyroidism. Subclinical hypothyroidism and anti-TPO antibody positivity were the other common observations.

In Our study, Subclinical hypothyroidism was found to be more prevalent among women complaining of menorrhagia, oligomenorrhoea and dysmenorrhoea. However, a study conducted by Dadia Sadbhawna *et al.*, [13] subclinical hypothyroidism was found to be most prevalent among the females suffering from dysmenorrhoeal and Pre-menstrual disorder.

Present study could not find any association between infertility and subclinical hypothyroidism. According to study by [14] Niroopama Pushpagiri N *et al.* Int J Reprod Contracept Obstet Gynecol. 2015 Dec; 4(6):1733-1738, the prevalence of hypothyroidism in infertile women was 27%. Among them, 25% were subclinical hypothyroid and 2.33% overt hypothyroid. Menstrual dysfunction was observed in 52% of subclinical and 51.15% of overt hypothyroid women, predominant type being oligomenorrhoea. We found a negative correlation of hypothyroidism with the family history of thyroid disease. 91.4% of hypothyroid infertile women were obese and the association was strongly significant.

Conclusion

The study revealed that subclinical hypothyroidism is the most prevalent thyroid disorder among females with menstrual disorders. Moreover, the prevalence of subclinical hypothyroidism was found to be most prevalent among the females suffering from menorrhagia and dysmenorrhoea.

It is suggested that women with early onset of menorrhagia, dysmenorrhoea, oligomenorrhoea attributable to thyroid dysfunction and should be offered thyroid function test to detect subclinical stage in them.

There is a significant association between thyroid disorder and abnormal uterine bleeding.

Measures should be taken to manage subclinical hypothyroidism in an attempt to reduce its later consequences.

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