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MENSTRUAL IRREGULARITIES IN HYPOTHYROIDISM

P. Kalyani¹

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ABSTRACT: AIM OF THE STUDY: To study the effect of hypothyroidism, on the menstrual cycle of women in the reproductive age group. **MATERIAL & METHODS:** A total number of 50 cases of hypothyroidism patients recruited over a period of one year from the department of Nuclear Medicine K.G.H Visakhapatnam. All these subjects were evaluated clinically and the data recorded as per the proforma. **RESULTS:** In my study out of 50 hypothyroid women, 22% had normal menstrual cycle & 40% showed menorrhagia as major menstrual dysfunction. 18% had oligomenorrhea followed by 14% with polymenorrhea & 6% with amenorrhea. 14% of hypothyroid women had normal T₃ & T₄ levels. Out of 50 cases 6% had goiter and 20% showed no significant symptoms of hypothyroidism. Frequency of menstrual disturbances in hypothyroidism is approximately 3 times greater than in the normal population and main menstrual irregularity in these patients was oligomenorrhea which is also inconsistent with what is believed. Thyroid antibodies have no role in the development of menstrual abnormalities, suggesting that etiology has no role. Sub clinical hypothyroidism may be of greater clinical importance in infertile woman with menstrual disorders especially when the luteal phase is inadequate than is usually thought. **DISCUSSION:** In our study, out of 50 hypothyroid women, 22% had normal menstrual cycles and 40% showed menorrhagia as major menstrual dysfunction. 18% had oligomenorrhea, followed by 14% with polymenorrhea and 6% with amenorrhea. Women in the age group of 25-34 years showed menstrual dysfunction in 40% of the cases. 38% of the study group belongs to the age group of 35-44 years and 20% in 15-24 years, 2% in the age group of 45 years & above. 14% of the hypothyroid women had normal T₃ & T₄ levels. Out of 50 cases 6% had goiter and 20% showed no significant symptoms of hypothyroidism. **CONCLUSIONS:** 1. Hypothyroidism affects the reproductive system more frequently in women. 2. Thyroid diseases in general & particularly hypothyroidism in premenopausal women are often associated with menstrual abnormalities. 3. In women of fertile age hypothyroidism may result in menstrual dysfunction.

KEYWORDS: Hypothyroidism, Menstrual dysfunction, Reproductive age group

INTRODUCTION: The thyroid gland has for many years been recognized as a seat of disorders. The thyroid gland is a center of attraction for the physiologist, biochemist, pathologist, endocrinologist and to the surgeon. The main reason for the modern physician's preoccupation with the thyroid is the existence of certain diseases, which are grouped as hypothyroid and hyperthyroid states. With increasing knowledge of the facts of thyroid physiology and biochemistry, more and more refined diagnostic and therapeutic methods have been, and are being, applied to this group of disorders.

Hypothyroidism is the most common clinical disorder of thyroid function due to decrease production of thyroid hormones. Primary hypothyroidism is invariably accompanied by increased thyrotrophin secretion. Hypothyroidism affects persons of all ages & both sexes but more common in women. Overt with high Serum Thyroid Stimulating Hormone (s.TSH) & low freeT₄ Concentration (conc) or subclinical with high s.TSH & normal serum free T₄ conc Now with the availability of

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reliable & sensitive thyroid hormonal assays, the diagnosis of Hypo/Hyperthyroidism is made with hormonal assays.

AIM OF THE STUDY: To study the effect of hypothyroidism on the menstrual cycle of women who are in the reproductive age group.

METHODS AND MATERIALS: A total number of 50 cases of hypothyroid patients recruited over a period of one year from July 2007- June 2008 from the department of Nuclear Medicine KGH, Visakhapatnam. All these subjects were evaluated clinically and the data recorded as per the proforma.

THE CRITERIA FOR ENROLMENT IN THE STUDY WERE:

1. All women in the reproductive age group.
2. Women having menstrual cycle dysfunction.

EXCLUSION CRITERIA:

1. Women with anatomical reproductive tract abnormalities.
2. Women with debilitating diseases.
3. Women with h/o recent parturition.
4. Women on oral pills.

OBSERVATIONS:

Menstrual dysfunction	No of cases	Percentage
Normal cycles	11	22%
Menorrhagia	20	40%
Oligomenorrhea	9	18%
Polymenorrhea	7	14%
Amenorrhea	3	6%
Total	50	100%

Table 1: Distribution of Menstrual irregularities in hypothyroid patients

Out of 50 cases of hypothyroid patients 22% had normal cycles. Most common dysfunction was menorrhagia constituting 40% of the total cases. Followed by oligomenorrhea (18%) & polymenorrhea (14%). Only 6% had amenorrhea.

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Age group	No of hypothyroid women	No of cases with menstrual irregularity
15-24	10	8
25-34	20	16
35-44	19	14
≥ 45	1	1

Table 2: Distribution of hypothyroid women with menstrual dysfunction in different age groups.

Among 50 hypothyroid patients in the study group 40% were in the age group of 25-34 years. 38% were in the age group of 35-44 years and only one case seen after 45 years.

Age group in years.	↑TSH (n=0.25-4.30lu/ml)	No of cases with menstrual dysfunction
15-24	10	8
25-34	20	16
35-44	19	14
>45	1	1

Table 3: TSH levels in various age groups

In the study of 50 hypothyroid women showing raised levels of TSH, 40% belong to the age group of 25-34 years. Out of which 80% had menstrual dysfunction. 38% of women were in the age group of 35-44 years, and 73.7% showed menstrual irregularity. Women in the age group of >45 years showed 100% menstrual dysfunction. 22% of women had normal menstrual cycle.

Age group in years	↓ T ₃ levels (n=70-200ng/dl)	No of cases with menstrual dysfunction
15-24	9	8
25-34	18	16
35-44	15	14
> 45	1	1

Table 4: T₃ in various age groups

Among 50 cases of hypothyroid women majority are in the age group of 25-34 years and 90% had decreased T₃ levels out of which 88.9% showed menstrual dysfunction. Women in the age group of 35-44 years had decreased T₃ levels in 78.9%, and 93.3% showed menstrual dysfunction. 90% of women in the age group of 15-24 years showed decreased T₃ levels with 88.9% having menstrual disturbances.

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Age group in years.	↓ T ₄ levels (n=5-13µg/dl)	No of cases with menstrual dysfunction
15-24	9	8
25-34	18	16
35-44	15	14
> 45	1	1

Table 5: T₄ levels in various age groups.

Out of 50 cases of hypothyroid women majority were in the age group of 25-34 years. 90% had decreased T₄ levels out of which 88.9% showed menstrual dysfunction. Women in the age group of 35-44 years had decreased T₄ levels in 78.9% and 93.3% showed menstrual dysfunction. 90% of women in the age group of 15-24 years showed decreased T₄ levels with 88.9% having menstrual disturbance.

DISCUSSION: In our study, out of 50 hypothyroid women, 22% had normal menstrual cycles and 40% showed menorrhagia as major menstrual dysfunction. 18% had oligomenorrhea, followed by 14% with polymenorrhea and 6% with amenorrhea.

Women in the age group of 25-34 years showed menstrual dysfunction in 40% of the cases. 38% of the study group belongs to the age group of 35-44 years, 20% in 15-24 years and 2% in the age group of 45 years & above.

14% of the hypothyroid women had normal T₃ & T₄ levels. Out of 50 cases 6% had goiter and 20% showed no significant symptoms of hypothyroidism.

Gold Smith et al found that 8(80%) out of 10 patients with primary myxedema had menstrual disturbances^(1,2). Specifically one patient had amenorrhea, five had clinical metropathia haemorrhagica & two had menorrhagia. In our study, 39 (78%) out of 50 hypothyroid patients had menstrual dysfunction. Three had amenorrhea, twenty had menorrhagia and rest showing oligomenorrhea & polymenorrhea. Benson & Dailey studied the menstrual pattern in hyperthyroidism & subsequent post therapy hypothyroidism. Menorrhagia, polymenorrhea or both were noted in 18(58.6%) of 31 women during the period of decreased thyroid function subsequent to specific therapy for hyperthyroidism.

Scott & Mussey found that 28 (56%) of 50 hypothyroid patients had menstrual irregularities, mainly menorrhagia alone. Joshi, et al found that 15(68.2%) of 22 patients with hypothyroidism had menstrual irregularities in comparison with 6(12.2%) of 49 controls, of those 8 had Oligomenorrhea, 2 had amenorrhea and 5 had polymenorrhea and menorrhagia³.

In a recent study found that 40 (23.4%) of 171 hypothyroid women had irregular cycles, of those 17 had oligomenorrhea, 6 had hypomenorrhea, 5 had amenorrhea and 12 had hypermenorrhea/menorrhagia. None had polymenorrhea³.

For the purpose of study 214 normal controls with similar age & BMI were investigated about their menstrual history. They found that only 18 (8.4%) had irregular cycles.

Although this finding indicates that the frequency of menstrual disturbances in hypothyroidism is approximately 3 times greater than in the normal population, & found that main menstrual irregularity in these patients was oligomenorrhea (42.5%) which is also inconsistent with

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what is believed. Moreover as expected patients with more severe hypothyroidism had higher TSH levels and tendency for these patients to have more menstrual disturbances, but not statistically significant⁴. Thyroid antibodies have no role in the development of menstrual abnormalities, suggesting that etiology has no role¹. Severe hypothyroidism is associated with diminished libido & failure of ovulation. Pregnant women have more fetal wastage.

Sub clinical hypothyroidism may be of greater clinical importance in infertile women with menstrual disorders, especially when the luteal phase is inadequate than is usually thought⁵.

Mean serum TSH & antithyroid peroxidase antibodies were higher among women with infertility compared with controls. Use of T₄ enhanced the action of gonadotropins on lutenization and progesterone secretion by cultured granulosa cells. Infertile women with increased TSH show higher incidence of out of phase biopsies than with normal s.TSH.

CONCLUSIONS:

1. Hypothyroidism affects the reproductive system more frequently in women.
2. Thyroid diseases in general & particularly hypothyroidism in premenopausal women are often associated with menstrual abnormalities.
3. In women of fertile age hypothyroidism may result in, changes in cycle length & amount of bleeding i.e. oligomenorrhea, amenorrhea, polymenorrhea, & menorrhagia. Menorrhagia is due to estrogen breakthrough bleeding secondary to anovulation³.
4. Defects in hemostasis such as decreased levels of factor VII, VIII, IX & XI that may occur in hypothyroidism may also contribute to polymenorrhea, & menorrhagia^(3,4,6).
5. Women presenting with menstrual irregularities or conception difficulties should be examined in depth for thyroid dysfunction before considering for more elaborate tests.

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AUTHORS:

1. P. Kalyani

PARTICULARS OF CONTRIBUTORS:

1. Assistant Professor, Department of Physiology, Andhra Medical College, Visakhapatnam.

NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. P. Kalyani,
Flat No. 4-C, R. K. Lakshmi Residency,
Plot No. 72, Kirlampudi Layout,
Visakhapatnam-17.
E-mail: kalyaniparry@gmail.com

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