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Prevalence of thyroid disorders in women with abnormal uterine bleeding

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Abstract

Introduction: Abnormal uterine bleeding (AUB) is a common problem faced by most of the women. It has a physical and emotional impact on women, potentially reducing their quality of life. The thyroid gland is essential for proper functioning of the female reproductive system. Thyroid dysfunction can cause a variety of menstrual irregularities and have an impact on fertility.

Aim: To study the prevalence of thyroid disorders in women with abnormal uterine bleeding.

Materials and Methods: A cross sectional observational study was conducted after obtaining Ethics Certificate with 157 AUB cases which were selected through Simple Random sampling method. All the study population were tested for serum thyroid stimulating hormone (TSH), serum Triiodothyronine (T3), and serum thyroxine (T4).

Results: In this study, 32.5% of cases had hypothyroidism, and 2.6% cases had hyperthyroidism. The age group of 41-50 years were most (52.2%) commonly affected. Of the total, 56.1% of cases were of para 2 and 31.2% cases were of parity ≥ 3 . The most common AUB pattern among hypothyroidism and euthyroidism cases was menorrhagia, 74.6% and 55.9% respectively.

Conclusion: Thyroid dysfunction was observed among 35.1% of AUB.

Keywords: Abnormal uterine bleeding, thyroid disorders, bleeding irregularities

Introduction

Abnormal uterine bleeding (AUB) is defined as change in regularity, frequency, duration of flow, or amount of blood loss of the normal menstruation [1]. The "FIGO PALM COEIN" classification for AUB causes contains both structural causes (Polyps, adenomyosis, fibroids, malignancies, and hyperplasia) and nonstructural causes (coagulopathy, endometrial causes, iatrogenic causes, and unclassified causes) [2]. AUB is seen 10-30% of women in reproductive age and nearly 50% of perimenopausal women [3]. On an average AUB is seen in 15-20% of women from menarche to menopause [4]. Thyroid dysfunction is linked to menstrual irregularities in women of all ages [5, 6]. AUB related to hypothyroidism may cause menorrhagia, and hyperthyroidism may manifest as oligomenorrhea or amenorrhea [7, 8].

Aim: To study the prevalence of thyroid disorders in women with abnormal uterine bleeding.

Materials and Methods

Source of data

One hundred fifty-seven patients who had attended the outpatient department at Katuri Medicals College, between March 2022 to June 2022, were included in the study. Approval was obtained from the Institutional Ethics Committee. Consent was taken from the patients before conducting the study.

- Study Design: Cross sectional Observational study.
- Study area: Katuri Medical College, Guntur
- Sample Size: 157
- Duration of study: 6 months.
- Sampling Method: Simple Random sampling.

Methodology

Selection of Subjects: All patients with menstrual abnormalities were selected and were estimated for serum thyroid stimulating hormone (TSH), serum Triiodothyronine (T3), serum thyroxine (T4).

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Standard references ^[4]

T3 – 1.3-3.1nmol/L
 T4 - 66-181nmol/L
 TSH-0.27-4.2 m/μ/ml

Inclusion Criteria

Provisionally diagnosed as AUB.

Exclusion Criteria

Patients on anti-thyroid drugs, IUCD users, and those with a history of bleeding diathesis, goiter, or Carcinoma thyroid were all excluded.

Study Technique

Demographic data along with detailed menstrual history was collected. All cases underwent routine investigations, serum T3, T4, and TSH estimation by competitive chemiluminescent immunoassay (C.L.I.A).

Sample size

Sample size (n) = $(1.96)^2 pq/d^2$

P= Prevalence =15% (according to Padubidri VG *et al.*) ^[9]

q=100-p=100-15= 85%

d=absolute precision=6%

n= $(1.96)^2 pq/d^2 = 1.96 \times 1.96 \times 15 \times 85/6^2 = 4898.04/36$

=136.05= 137. While collecting the sample, a total of 157 cases came to OPD, all of these were considered as study sample.

Analysis and statistical methods

Collected data were entered into Microsoft excel, and the data were analyzed using SPSS software version 25.0. Categorical data were reported as frequencies and percentages.

Results

In the present study, 32.5% of cases had hypothyroidism, and 2.6% cases had hyperthyroidism (Table 1).

In this study, majority (52.2%) of the thyroid cases were in 41-50 years age group, followed by 31-40 years (32.5%), 21-30 years (8.9%), <20 years (3.2%), and >50 years (3.2%) (Table 2).

As shown in table 3, the most common AUB pattern among Hypothyroidism cases was Menorrhagia (74.6%), and among Euthyroidism cases was Menorrhagia (55.9%).

As shown in figure 1, 45.2% of cases were Overweight, and 19.7% of cases were Obese.

As per table 4, 1.3% of cases were Nullipara, 8.3% of cases were primipara, 56.1% of cases were of para 2 and 31.2% cases were of parity ≥ 3 .

In this study, the majority (61.8%) of cases had menorrhagia, followed by metrorrhagia (10.8%), Polymenorrhoea (9.6%), Polymenorrhagia (6.4%), Acyclical bleeding (3.2%), and Oligomenorrhoea (1.3%) (Table 5).

Discussion**Prevalence of thyroid disorders**

In the present study, 32.6% of cases had Hypothyroidism, which was lesser than Bedi M *et al.* ^[10] (47.6%), but higher than Deshmukh PY *et al.* ^[11] (27%), Nayak AK study ^[12] (18%), and Hema KR *et al.* ^[13] (8.8%). Hyperthyroidism was noticed in 2.5% of cases in this study, which was similar to Deshmukh PY *et al.* ^[11] (3%), but lesser than Hema KR *et al.* ^[13] (3.4%), Bedi M *et al.* ^[10] (8.9%), and was higher than Nayak AK study ^[12] (1.33%).

In the present study, 64.9% cases had Euthyroidism, which was higher than Bedi M *et al.* ^[10] (43.5%) but lesser than the studies by Deshmukh PY *et al.* ^[11] (70%), Nayak AK ^[12] (80.7%), and Hema KR *et al.* ^[13] (87.7%).

Age distribution

In this study, majority (52.2%) of the cases were in 41-50 years age group, followed by 31-40 years (32.5%), 21-30 years (8.9%), <20 years, and >50 years had each 3.2% cases.

In this study, the majority (52.2%) of the cases were in 41-50 years age group, followed by 31-40 years (32.5%). Similar age wise patterns were observed in the studies by Bedi M *et al.* ^[10] (39.8%, 36.6% respectively), Bhavani N *et al.* ^[14] (40%, 37% respectively), Dass and Chugh ^[4] (32.5%, 28.2% respectively), while different age distributions were mentioned by studies by Nayak AK ^[12], and Hema KR *et al.* ^[13]

Age wise thyroid dysfunction

Thyroid dysfunction was seen in 20% of cases of <20 years, 7.1% of cases of 21-30 years, 29.4% of cases of 31-40 years, 42.7% of cases of 41-50 years, and 60% of cases of >50 years. In Hema KR *et al.* ^[13] study, in 5.6% of cases of <20 years, 44.1% of cases of 21-30 years, 10.6% of cases of 31-40 years, 11.3% of cases of >40 years had thyroid abnormalities. In Deshmukh PY *et al.* ^[11] study, in 31.8% of cases of <20 years, 22.2% of cases of 21-30 years, 31.8% of cases of 31-40 years, 42.8% of cases of >40 years, and in Doifode CD *et al.* ^[15] study, among 11.7% of cases of <20 years, 16.7% of cases of 21-30 years, 48.3% of cases of 31-40 years, 23.3% of cases of >40 years had thyroid abnormalities.

Thyroid status based on pattern of bleeding

The most common AUB pattern among Hypothyroidism cases was Menorrhagia (74.6%), which was higher than Hema KR *et al.* ^[13] (65.2%), Bedi M *et al.* ^[10] (67.5%), Doifode CD *et al.* ^[15] (63.3%). Among Euthyroidism the most common AUB pattern was Menorrhagia (55.9%), which was higher than Hema KR *et al.* ^[13] (51.9%), but lesser than Nayak AK ^[12] (77.8%).

In the present study, Menorrhagia (61.8%), metrorrhagia (10.8%), polymenorrhoea (9.6%), polymenorrhagia (6.4%), acyclical bleeding (3.2%), and oligomenorrhoea (1.3%) were seen, but different menstrual abnormalities were seen in the studies by Deshmukh PY *et al.* ^[11], Hema KR *et al.* ^[13], and Bedi M, *et al.* ^[10].

BMI

In this study, 45.2% of cases were of Overweight which was higher than Bedi M *et al.* ^[10] (38.6%), Mohapatra S, and Behera SK ^[16] (39%). Obesity was seen in 19.7% of cases which was almost similar to Mohapatra S, and Behera SK ^[16] (18%), but less than Betha K *et al.* ^[17] (57.6%) and was higher than Bedi M *et al.* ^[10] (4.1%). Normal BMI was noticed in 35.1% of cases, which was less than studies by Bedi M *et al.* ^[10] (52.8%), Mohapatra S, and Behera S K ^[16] (43%).

Parity

In this study, 56.1% of cases were of para 2 followed by parity ≥ 3 (31.2%), primipara (8.3%), and nullipara (1.3%), while different parity distributions were observed by Bedi M *et al.* ^[10] (42.5% of para 2, 41.5% of primipara, 14.6% of multipara, 1.63% of nullipara), and Hema KR *et al.* ^[13] (nullipara 18.4%, Primipara 20.1%, multipara 61.5%).

Table and Graphs

Table 1: Prevalence of thyroid disorders

Prevalence of thyroid disorders	Frequency	Percentage (%)
Euthyroidism	102	64.9
Hypothyroidism	51	32.5
Hyperthyroidism	4	2.6
Total	157	100

Table 2: Age distribution of AUB based on thyroid status

Age distribution (in years)	Number of patients	Hypothyroidism	Hyperthyroidism	Euthyroidism
<20	5 (3.2%)	1(20%)	0	4(80%)
21-30	14 (8.9%)	1(7.1%)	0	13(92.9%)
31-40	51 (32.5%)	14(27.5%)	1(1.9%)	36(70.6%)
41-50	82 (52.2%)	33(40.2%)	2(2.4%)	47(57.4%)
>50	5 (3.2%)	2(40%)	1(20%)	2(40%)
Total	157 (100%)	51 (32.5%)	4(2.6%)	102 (64.9%)

Table 3: Distribution of thyroid status based on pattern of bleeding

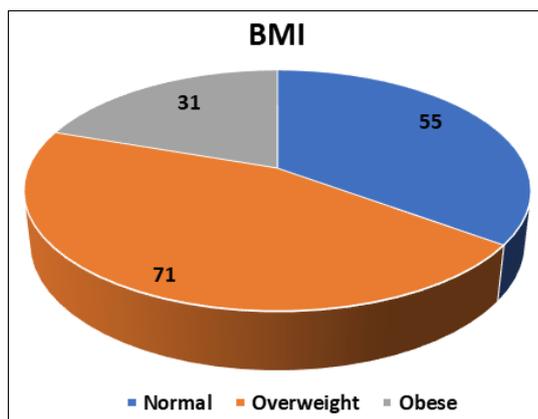
Pattern of bleeding	Total number of patients	Hypothyroidism	Hyperthyroidism	Euthyroidism
Oligomenorrhoea	4 (1.3%)	3(5.9%)	0	1(0.9%)
Menorrhagia	96 (61.8%)	38(74.6%)	1(25%)	57(55.9%)
Metrorrhagia	21 (10.8%)	6(11.8%)	1(25%)	14(13.7%)
Acyclical bleeding (Metropathia haemorrhagica)	12 (3.2%)	2(3.9%)	0	10(9.8%)
Polymenorrhagia	17 (6.4%)	1(1.9%)	1(25%)	15(14.8%)
Polymenorrhoea	7 (9.6%)	1(1.9%)	1(25%)	5(4.9%)
Total	157 (100%)	51 (32.5%)	4(2.6%)	102 (64.9%)

Table 4: Distribution of AUB cases based on parity

Parity	Frequency	Percentage (%)
Unmarried	5	3.2
Nulliparous	2	1.3
Para 1	13	8.3
Para 2	88	56.1
Para 3	38	24.2
Para \geq 4	11	7
Total	157	100

Table 5: Pattern of bleeding

Pattern of bleeding	Frequency	Percentage (%)
Oligomenorrhoea	2	1.3
Menorrhagia	97	61.8
Metrorrhagia	21	10.8
Acyclical bleeding (Metropathia haemorrhagica)	12	3.2
Polymenorrhagia	17	6.4
Polymenorrhoea	8	9.6
Total	157	100

**Fig 1:** BMI**Conclusion**

Thyroid hormone plays a key role in women's reproductive health. This study showed 35.1% of the cases with AUB were hypothyroidism, so having a high index of suspicion and early screening of thyroid function will be key for early diagnosis and correction of AUB.

Conflict of Interest

Not available

Financial Support

Not available

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