Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Obstetrics and Gynecology Research

Journal homepage: www.ijogr.org

Original Research Article

Prevalence of thyroid disorders and pattern of bleeding among women with abnormal uterine bleeding, a cross-sectional study

Sridevi A. S[1], Ashwini Mallikarjun Kollur[2], Anoop Gurunath Kanthi[1], Sunil Kumar K S[1]*

[1]Dept. of Obstetrics and Gynecology, Sri Dharmasthala Manjunatheshwara College of Medical Sciences and Hospital, Dharwad, Karnataka, India
[2]Dept. of Obstetrics and Gynecology, KLE JGMM Medical College, Hubballi, Karnataka, India

Abstract

Background: Abnormal uterine bleeding refers to bleeding from the uterus in the absence of any organic disease of the genital tract or a clear extragenital cause. Thyroid dysfunction is frequently associated with a variety of menstrual abnormalities. Early detection of thyroid disorders in patients presenting with menstrual dysfunction can help prevent unnecessary surgical interventions. This study was conducted to estimate the prevalence of thyroid disorders and assess the menstrual patterns among the study subjects.

Materials and Methods: This is a cross-sectional study conducted among eighty reproductive age women presenting with various menstrual disorders in the Department of Obstetrics and Gynecology at SDM College of Medical Sciences and Hospital, Dharwad. All patients underwent routine investigations, including the estimation of T3, T4, and TSH levels, and were classified as euthyroid, subclinical hypothyroid, overt hypothyroid, or overt hyperthyroid.

Results: Majority (36.3%) belonged to the age-group of 21 to 30 years. Most patients (71.2%) were euthyroid, while sub-clinical hypothyroidism was the most common thyroid dysfunction (25.0%) with overall prevalence of thyroid dysfunction being 28.8%. Menorrhagia was the most common bleeding pattern (42.5%). Thyroid dysfunction was most prevalent in patients with polymenorrhea/ oligomenorrhea/ amenorrhea with or without dysmenorrhea (35.5% vs 24.5%), but no significant association was found (P>0.05).

Conclusion: Sub-clinical hypothyroidism was the most common thyroid dysfunction (25.0%) and menorrhagia was the most common AUB pattern (42.5%) in the current study.

Keywords: Thyroid dysfunction, Abnormal uterine bleeding, Menorrhagia, Oligomenorrhea, Euthyroid, Hypothyroidism, Menstrual disorders.

Received: 24-09-2024; **Accepted:** 24-05-2025; **Available Online**: 14-08-2025

1. Introduction

Abnormal uterine bleeding (AUB) is been reported more commonly among women between 15 to 50 years of age significantly affecting the quality of life.[1-3] Any deviation from normal pattern of menstrual cycle results in abnormal uterine bleeding.[1] It is reported among at least 20% of new outpatient visits.[3]

There are different etiological factors leading to menstrual disturbances and spectrum of thyroid dysfunction either hypothyroidism or hyperthyroidism is one of them that is found to be associated due to the interaction of thyroid hormone on female reproductive system.[4] Disorders related to thyroid hormone is noted to be more common among women and the overall prevalence amongst individuals between the age group of 15 to 49 years, was less than 1% in males but nearly 2% in females and it was also reported to increase with age in women i.e., 0.7% between 15 to 19 years, 1.8% between 20 to 34 years and 3.4% between 35 to 49 years. According to NFHS V, 1,969 women per 1,00,000 in Karnataka have been reported to have thyroid disorders.[5]

Hypothyroidism can lead to menorrhagia, oligomenorrhea or Hypomenorrhea and most of the patients with hyperthyroidism in reproductive age group present with menorrhagia[2,4] and a study conducted by Tara, have highlighted that menstrual disturbances in women with

*Corresponding author: Sunil Kumar K S
Email: ashwinikollur11@gmail.com

https://doi.org/10.18231/j.ijogr.v.12.i.3.27

thyroid dysfunction can sometimes be the first symptoms which can help in early diagnosis but the subclinical thyroid cases could be missed.[6] The fact of association between thyroid dysfunction and AUB if strongly established, many clinicians shall prefer women consulting for AUB to undergo screening for thyroid function. Most of the thyroid disorders are moreover easy to diagnose and treat with the widely available thyroid function tests.[7] With the current background the current study was conducted with the following objectives:

1. To estimate the prevalence of thyroid disorders among the study subjects.
2. To assess the menstrual patterns among the study subjects.

2. Materials and Methods

This was a cross-sectional study conducted among eighty reproductive aged women between 15 to 45 years from 1st November 2017 to 30th October 2018 using convenient sampling. It was carried out in the Department of Obstetrics and Gynaecology, Shri Dharmasthala Manjunatheshwara College of Medical Sciences & Hospital, Sattur, Dharwad. It involved the patients presenting with menstrual irregularities including menorrhagia, oligomenorrhea, hypomenorrhea, polymenorrhea, metrorrhagia, and amenorrhea to the outpatient department of Obstetrics and Gynaecology at Shri Dharmasthala Manjunatheshwara College of Medical Sciences & Hospital. Patients with menstrual disorders due to known organic pathologies such as uterine fibroids, adenomyosis, tubercular endometriosis, polyps, uterine malignancy, and patients with an intrauterine contraceptive device (IUCD) in situ and those with features of Polycystic Ovarian Disease (PCOD) were excluded. Ethical Clearance was obtained from the Institutional Ethical Committee.

2.1. Procedure of data collection

After obtaining written informed consent, detailed history including age, parity, age at menarche, menstrual disorders, and dysmenorrhea was recorded for each participant. General physical and pelvic examinations were conducted for all patients. Along with the routine investigations like, haemoglobin levels, platelet count, total and differential white blood cell count, erythrocyte sedimentation rate (ESR), blood grouping, Rh typing, a complete thyroid profile (T3, T4, TSH) was performed. Based on their thyroid status, they were classified into different categories as mentioned below:

1. Euthyroid: The subjects were considered euthyroid if their TSH, T3, and T4 levels were within the normal ranges (TSH: 0.39-6.16 μIU/ml, free T3: 1.4-4.2 pg/ml, free T4: 0.8-2.0 ng/ml).
2. Sub-clinical hypothyroidism: The subjects were diagnosed with sub-clinical hypothyroidism when TSH was elevated while T3 and T4 remained within normal limits.
3. Overt hypothyroidism: The subjects were diagnosed to have overt hypothyroidism when TSH was elevated and both T3 and T4 levels were low.
4. Sub-clinical hyperthyroidism: If the subjects had low TSH with normal T3 and T4 levels, they were diagnosed to have sub-clinical hyperthyroidism.
5. Overt hyperthyroidism: When both TSH levels were low and T3 and T4 levels were elevated, the subjects were considered to have overt hyperthyroidism.

2.2. Other definitions[8-10]

1. Abnormal uterine bleeding: Abnormal Uterine Bleeding (AUB) is flow outside of normal volume, duration, regularity or frequency.[8]
2. Menorrhagia:[9] It was defined as 80 mL blood loss per cycle or menstruation or menstruation lasting longer than a week.
3. Oligomenorrhea:[9] The subjects with history of regular bleeding with an interval longer than 35 days were considered to have oligomenorrhea.
4. Polymenorrhea:[9] Subjects with history of regular bleeding with an interval shorter than 21 days were categorized to have polymenorrhea.
5. Metrorrhagia:[9] Those with history of frequent bleeding at irregular intervals were considered to have Metrorrhagia.
6. Menometrorrhagia:[9] Women with reported history of excessive uterine bleeding with irregular intervals were considered to have menometrorrhagia.
7. Secondary amenorrhea:[9] Subjects with no history of bleeding during a minimum of three normal cycles were classified to have secondary amenorrhea.
8. Dysmenorrhea:[10] Subjects with history of pain during the menstrual cycle were considered to have dysmenorrhea.

2.3. Statistical analysis

The collected data were entered and compiled in Microsoft Excel 2010. Continuous data were expressed as mean, median, and standard deviation, while categorical data were presented as percentages or proportions. Statistical analysis was performed using SPSS software, version 21.0. For categorical data, to determine the association, Chi-square test was applied. A *p*-value of less than 0.05 was considered as statistically significant.

3. Results

There were a total of eighty study subjects with the mean age of 31.8±9.7 years. Though 21 to 30 years aged subjects alone formed the majority (29/80, 36.3%), 48.7% constituted for more than 30 years subjects. Majority i.e., 40/80, 50.0% were multiparous women. (**Table 1**)

Highest proportion of the study subjects (57/80, 71.2%) were Euthyroid, and most common thyroid dysfunction was

found to be sub-clinical hypothyroidism (20/80, 25.0%) and 23/80 i.e., 28.8% had overall thyroid dysfunction. (**Table 2**)

It was noted that menorrhagia was the most common Abnormal Uterine Bleeding (AUB) pattern among the study subjects (34/80, 42.5%). (**Figure 1**)

Most common condition among the thyroid dysfunction being sub-clinical hypothyroidism (20/80, 25.0%), the most common type of bleeding was noted to be Oligomenorrhea with or without Dysmenorrhea (07/20, 38.9%). (**Table 3**)

When analysed for an association, slightly higher proportion of the study subjects with overall thyroid dysfuncion (30.8% vs 26.8%) were aged more than 30 years and majority had polymenorrhea/oligomenorrhea/ amenorrhea with or without dysmenorrhea (35.5% vs 24.5%) but the difference in proportions were not significant and there was no significant statistical association of thyroid dysfunction with age and bleeding pattern (P>0.05). (**Table 4**)

Table 1: Distribution of the study subjects according to age and parity

Variables	**Frequency (n) (n=80)**	**Percentage (%)**
Age Group in years		
≤20 years	12	15.0
21 – 30 years	29	36.3
31 – 40 years	20	25.0
≥40 years	19	23.7
Parity		
Nullipara	33	41.2
Primipara	07	08.8
Multipara	40	50.0

Table 2: Estimated prevalence of thyroid dysfunction among the study subjects

Thyroid Dysfunction	**Frequency (n) (n=80)**	**Percentage (%)**
Subclinical Hypothyroidism	20	25.0
Overt Hypothyroidism	02	02.5
Overt Hyperthyroidism	01	01.3
No Thyroid Dysfunction/ Euthyroid Status	57	71.2

Table 3: Distribution of thyroid disorders among different types of bleeding pattern

Bleeding pattern	**Euthyroid n (%)**	**Overt Hyperthyroidism n (%)**	**Overt Hypothyroidism n (%)**	**Subclinical Hypothyroidism n (%)**
Menorrhagia with or without Dysmenorrhea (n=39)	28 (71.8)	01 (02.6)	01 (02.6)	09 (23.0)
Metrorrhagia with or without Dysmenorrhea (n=09)	07 (77.8)	00 (0.0)	01 (11.1)	01 (11.1)
Menometrorrhagia (n=01)	01 (100.0)	00 (0.0)	00 (0.0)	00 (0.0)
Polymenorrhea (n=05)	04 (80.0)	00 (0.0)	00 (0.0)	01 (20.0)
Oligomenorrhea with or without Dysmenorrhea (n=18)	11 (61.1)	00 (0.0)	00 (0.0)	07 (38.9)
Amenorrhea (n=02)	02 (100.0)	00 (0.0)	00 (0.0)	00 (0.0)
Only Dysmenorrhea (n=06)	04 (66.7)	00 (0.0)	00 (0.0)	02 (33.3)

Table 4: Association of age-group and bleeding pattern with the thyroid dysfunction

Variables	Thyroid Dysfunction		χ^2 – value (*P*-value)
	Yes (n=23)	No (n=57)	
Age-group in years			
≤30 years (n=41)	11 (26.8)	30 (73.2)	0.20 (0.70)
>30 years (n=39)	12 (30.8)	27 (69.2)	
Bleeding Pattern			
Menorrhagia/ Metrorrhagia/ Meno-metrorrhagia with or without dysmenorrhea (n=49)	12 (24.5)	37 (75.5)	1.12 (0.29)
Polymenorrhea/ Oligomenorrhea/ Seconary Amenorrhea with or without dysmenorrhea (n=31)	11 (35.5)	20 (64.5)	

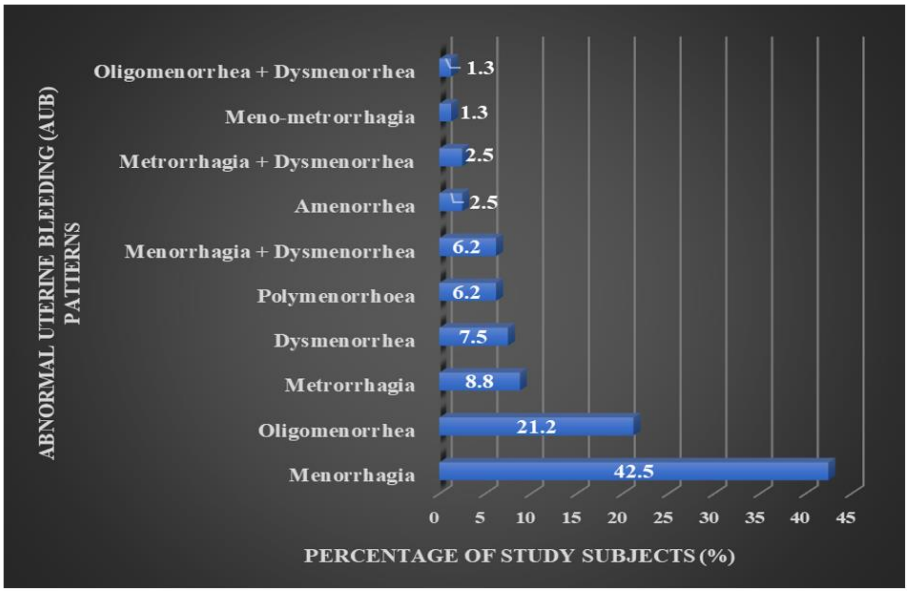

Figure 1: Abnormal uterine bleeding (AUB) patterns among the study subjects

4. Discussion

Abnormal uterine bleeding (AUB) being a common finding among women in the reproductive age-group is noted to have association with the thyroid hormone.[11,12] However it is multifactorial involving a complex interaction of hormonal, structural, and systemic factors.[12] The current study intended to assess the status of thyroid dysfunction among the women who presented with AUB and also to determine the pattern of bleeding among the women with AUB.

Mehta S et al., in their study found most of the AUBs among 36 to 45 years however, in this study many i.e., 36.3% of the study participants belonged to the age group between 21 to 30 years and the mean age of the subjects was 31.8±9.7 years but nearly 50.0% contributed for more than 30 years subjects and is a fact that throughout the reproductive lifespan of women, endocrine disorders are known to trigger the onset of menstrual disturbances.[13,14] Bedi M et al., found a proportion of 42.5% to be para 2, followed by para 1 (41.5%), and then multipara contributing to 14.6% and is in line with the current study with 50.0% of them being para 2 and above.[3]

Singh H et al., in their study have classified 59.2% as euthyroid[12] and similarly majority of the women with AUB were euthyroid, however the proportions were slightly higher (71.2%) compared to the Singh H et al.,[12] and slightly lesser when compared to Hema KR et al.,[15] and this difference may be due to different study settings.

Overall thyroid dysfunction was noted in this study among 28.8% of the women and most common type which prevailed in this study was sub-clinical hypothyroidism noted among 25.0% of the subjects and subclinical hypothyroidism is shown to be more common in women[16] and also similar to the findings by Pujari P et al.[8]

Patil A et al., have reported menorrhagia as the most common complaint 44.3% and is comparable to this study findings with menorrhagia reported in 42.5% of the subjects.[17]

Hypothyroidism in early phases can cause menorrhagia and in later phases, oligomenorrhea and hyperthyroidism could cause oligomenorrhea and amenorrhea, and similarly, in the current study, the proportion of subjects with

hypothyroidism has oligomenorrhea with or without dysmenorrhea.[17]

This study did not establish any association of thyroid dysfunction and bleeding pattern and it was beyond the purview of the current study, however few studies like Singh S et al.,[18] and Pujari P et al.,[8] have established the associations. This difference may be due to different study subjects and study setting. In addition to that the cause of AUB can be many and there may be certain confounders like other endocrine disorders which might be hindering the effect. However, certain limitations like absence of assessment of other parameters contributing to menstrual irregularities cannot be ruled out in the study. The fact that menstrual abnormalities can occur in thyroid disorders[19] cannot be ignored, as majority women with AUB might not have thyroid disorders alone. Hence screening for thyroid function is indicated for the women with AUB.

5. Conclusion

The overall estimated prevalence of thyroid dysfunction was 28.8% and most common thyroid dysfunction was found to be sub-clinical hypothyroidism noted among 1/4th of the study subjects. Menorrhagia was the most common Abnormal uterine bleeding (AUB) pattern noted among 42.5% of the study subjects. Among the subjects with sub-clinical hypothyroidism, Oligomenorrhea with or without dysmenorrhea was the most common type of bleeding (38.9%). There was no statistically significant association of thyroid dysfunction with bleeding pattern in the current study. However with the established biological plausibility in the literatures[14,20,21] screening for thyroid disorders among the women presenting with Abnormal Uterine Bleeding (AUB) must not be ignored in the routine clinical practice.

6. Source of Funding

None.

7. Conflict of Interest

None.

8. Ethical Approval

Ethical No.: SDMIEC:0369:2017.

References

1. Meenakshi S, Manimaran V. Thyroid Disorders in Patients with Abnormal Uterine Bleeding. *Int J Pharm Clin Res*. 2023;15(10):1123–6.
2. Thakur M, Maharjan M, Tuladhar H, Dwa Y, Bhandari S, Maskey S, et al. Thyroid dysfunction in patients with abnormal uterine bleeding in a tertiary care hospital: a descriptive cross-sectional study. *JNMA J Nepal Med Assoc*. 2020;58(225):333
3. Bedi M, Khosa SK, Das I, Khaira HK, Gupta K. Evaluation of thyroid hormone profile in abnormal uterine bleeding. *J South Asian Fed Menopause Soc*. 2020 Jan;8(1):38–41.
4. Maryam T, Rizwan N, Uddin SF, Afsheen S. Abnormal uterine bleeding in patient having thyroid dysfunction. *Int J Multidiscip Curr Res*. 2020;8:196–200.
5. MoHFW. Status of goitre or thyroid disorders in India [Internet]. PIB Delhi; 2022 [cited 2025 Apr 22]. Available from: https://pib.gov.in/PressReleseDetailm.aspx?PRID=1796440&reg=3&lang=1.
6. Tara. Thyroid dysfunction and abnormal uterine bleeding. *J Gynecol Women's Health*. 2019;15(4):555919.
7. Nekkanti D, Kumar VS. The study of thyroid dysfunction in patients with abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2023;12(12):3498–503.
8. Pujari P, Shenoy H, Chellamma V. Evaluating patterns of abnormal uterine bleeding (AUB) in thyroid dysfunction at a tertiary care centre in North Kerala, India. *Int J Health Clin Res*. 2021;4(6):66–72.
9. Semiz GG, Hekimsoy Z. Menstrual cycle characteristics in women with and without thyroid disease. *Cureus*. 2024;16(6):e62724.
10. Nagy H, Carlson K, Khan MAB. Dysmenorrhea. [Updated 2023 Nov 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK560834/.
11. Joshi BR, Rizal S, Subedi S. Thyroid dysfunction in patient with abnormal uterine bleeding in a tertiary hospital of eastern Nepal: a descriptive cross-sectional study. *JNMA J Nepal Med Assoc*. 2021;59(239):635.
12. Singh H, Vaghela T, Singh H. Thyroid dysfunction among patients with abnormal uterine bleeding: A hospital based prospective study from North India. *Int J Pharm Clin Res*. 2023;15(10):158–64.
13. Mehta S, Pande S, Mukherjee K, Sen S. Thyroid dysfunction and menstrual disorders - one year prospective observational study. *Indian Obstet Gynaecol*. 2022;12(1):42–7.
14. Naz MS, Dovom MR, Tehrani FR. The menstrual disturbances in endocrine disorders: a narrative review. *Int J Endocrinol Metab*. 2020;18(4):e106694.
15. Hema KR, Girish BL, Dhananjaya BS, Kalaburgi RA. Prevalence of thyroid dysfunction in women with abnormal uterine bleeding in reproductive age. *Int J Reprod Contracept Obstet Gynecol*. 2020;9(7):2792–6.
16. Bhulle. A Study on the frequency of thyroid disorders in India's population. *Int J Med Health Res*. 2023;9(6):5–11.
17. Patil A, Shiragur SS, Gobbur V, Mudanur S, Bidri S, Yaliwal R, et al. Association of bleeding patterns with thyroid dysfunction in patients with abnormal uterine bleeding: A prospective cross-sectional study. *J Clin Diagn Res*. 2022;16(11):QC05–8.
18. Singh S, Singh V, Tiwari H, Mehta A. Evaluation of thyroid dysfunction in reproductive-age women with menstrual disorders- A case control study. *Eur J Cardiovasc Med*. 2024;14(1):794–800.
19. Sharan M, Kumar M. Study of thyroid disorders as a cause of abnormal uterine bleeding. *IOSR J Dent Med Sci*. 2021;20(4):35–8.
20. Dittrich R, Beckmann MW, Oppelt PG, Hoffmann I, Lotz L, Kuwert T, et al. Thyroid hormone receptors and reproduction. *J Reprod Immunol*. 2011;90(1):58–66.
21. Krassas GE, Poppe K, Glinoer D. Thyroid function and human reproductive health. *Endocr Rev*. 2010;31(5):702–55.

Cite this article: Sridevi AS, Kollur AM, Kanthi AG, Sunil Kumar KS. Prevalence of thyroid disorders and pattern of bleeding among women with abnormal uterine bleeding, a cross-sectional study. *Indian J Obstet Gynecol Res*. 2025;12(3):529–533.