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Abnormal uterine Bleeding in Patient Having Thyroid Dysfunction

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Abstract

Introduction: *Abnormal uterine bleeding (AUB) occurs in women between menarche and menopause, significantly impacting quality of life and imposing financial burden. Thyroid hormone is associated with a broad spectrum of reproductive disorder ranging from abnormal sexual development through menstrual irregularities, ovulatory cycles to infertility and lactational failure. This is because of interaction of thyroid hormone on female reproductive system. This study is designed to check current magnitude of abnormal uterine bleeding among woman having thyroid dysfunction.*
Objective: *To determine frequency abnormal uterine bleeding among women having thyroid dysfunction*
Subjects and method: The cross sectional descriptive study is carried out in the department of Gynaecology and Obstetrics at Liaquat University Hospital Hyderabad from august 2019 to December 2019. There were 177 with premenopausal women of thyroid dysfunction were included in this study and abnormal uterine bleeding as poly menorrhoea, oligomenorrhoea and menorrhagia were investigated. Study method including through history taking with emphasis on history and pelvic examination.
Results: *The average age of the patients was 28.33±5.38 years. Menorrhagia was the commonest abnormal uterine bleeding that was observed in 186(59.89%) women followed by oligomenorrhoea 52(29.38%) and polymenorrhoea 19(10.73%). Menorrhagia was significantly in those women who had hypothyroid dysfunction (p=0.0005). Oligomenorrhoea was significantly high in whose women who had hypothyroid (p=0.0005) and Polymenorrhoea was significantly high in those women who had Hyperthyroidism.*
Conclusion*: Abnormal uterine bleeding is frequently seen to be associated with thyroid dysfunction and in majority of the patients; menstrual abnormality may even precede the occurrence of other clinical signs and symptoms of thyroid dysfunction. Correct diagnosis of ethology of AUB would help in proper management of the patient, treating both the menstrual abnormality along with the thyroid disorder, and would be cost-effective as well.*

Keywords: *Abnormal uterine bleeding, oligomenorrhoea, Polymenorrhoea*

Introduction

The normal menstrual cycle on average is of 28 days with a range of 24 to 32 days. Abnormal uterine bleeding occurs in 9 to 14 percent of women between menarche and menopause, significantly impacting quality of life and imposing financial burden [1]. Abnormal uterine bleeding is characterized by irregular or infrequent periods, with flow ranging from light to excessively heavy. At extremes of the reproductive years, irregular cycles resulting from an ovulation. Following menarche, the immature hypothalamic-pituitary-ovarian axis may result in anovulatory cycles for two to three years. Up to eight years before menopause, women may again have intermittent anovulatory cycles [2]. During the rest of the reproductive years, however, recurrent irregular cycles may be caused by anovulation and are considered abnormal. When ovulation does not occur, no corpus luteum forms to produce progesterone, leading to prolonged estrogenic stimulation of the endometrium, excessive proliferation, endometrial instability, and erratic bleeding [3].

Approximately 6 to 10 percent of women with anovulation have underlying polycystic ovary syndrome. Uncontrolled diabetes mellitus, hyperthyroidism and hyper prolactinemia also may cause anovulation by interfering with the hypothalamic-pituitary-ovarian axis commonly associated with an ovulatory bleeding include amenorrhea (absence of periods for more than three

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cycles), oligomenorrhoea (menses occurring at intervals of more than 35 days), metrorrhagia bleeding is characterized by irregular or infrequent periods, with flow ranging from light to excessively heavy [4].

Thyroid hormone is associated with a broad spectrum of reproductive disorder ranging from abnormal sexual development through menstrual irregularities, an ovulatory cycles to infertility and lactational failure [5]. This is because of interaction of thyroid hormone on female reproductive system. Both hypothyroidism and hyperthyroidism may result in menstrual disturbances [5,6]. The menstrual pattern is influenced by thyroid hormones directly through impact on the ovaries and indirectly through impact on Steroid hormone binding globulin, prolactin and Gonadotropin releasing hormone secretion and coagulation factors [6] .Thyroid hormones also synergize with the Follicle stimulating hormone-mediated Luteinising hormone/human chorionic gonadotropin receptor to exert direct stimulatory effects on granulose cell function (progesterone production) [7]. There is also presence of thyroid hormone receptors in human oocyte [8]

Most of the patients with hyperthyroidism in reproductive age group present with menorrhagia because Steroid hormone binging globulin production increases in hyperthyroidism, the metabolism of oestrogen is altered and conversion of androgen to oestrogen is increase. Hyperthyroidism also increases gonadotropin response to Gonadotropin releasing hormone and baseline gonadotropin concentration are also frequently elevate.

Hypothyroidism can lead to menorrhagia or hypomenorhea by altered production of coagulation factors (decreased levels of factors VII, VIII, IX and XI)9 The study among the 200 women 39(19.5%) had hypothyroidism, 2(1%) had hyperthyroidism and 159(79.55%) were euthyroid. Menorrhagia was the most common menstrual disorder in hypothyroidsm and oilgomenorrhoea in endometrism in 2(1%) hyperthyroid patients. The most common complaint is menorrhagia (47.5%) followed by metrprrhagia (25%) Polymenorrhagia, oligomenorrhoea and hypomenorrhoea were present in 8% 6% and 3.5% of patient's respectively.[10]

It can be concluded that thyroid dysfunction is associated with menstrual disturbances which get relieved with normalization of thyroid status [11]. There is no local data available so I want to check current magnitude of abnormal uterine bleeding among woman having thyroid dysfunction. Patient with thyroid dysfunction having abnormal uterine bleeding was refer to medicine for medical treatment. In this way we prevent unnecessary hysterectomies, endometrial curettage and endometrial ablations. This methodology reduces economical and social burden of patient.

Methodology

Setting: The study was conducted in Department of Gynaecology and Obstetrics at Liaquat University Hospital Hyderabad.
Study design: Cross sectional descriptive study
Duration: 5month from..august2019..to...dec 2019...
Sample technique: Non probability consecutive sampling
Sample size: The Sample calculation was done using the raosoft software for sample size calculation by using proportion Estimates suggest frequency of oligomenorhea 6%. Least proportion margin of error is 3.5% and 95% confidential interval. The sample size is 177 [10]

Sample Selection

Inclusive criteria

- All premenopausal women age 15-45 Years with thyroid dysfunction for all parity.
- Married and Unmarried was included

Exclusive criteria

Patients already on any drug, hormone, intrauterine contraceptive device, history of all congenital n acquired bleeding disorder

Data Collection Procedure

All patients who are diagnosed as a case of thyroid dysfunction (hypothyroidism, hyperthyroidism euthyroidism) by using following variables age , marital status, parity duration of disease and abnormal uterine bleeding as polymenorrhoea, oligomenorrhoea and menorrhagia. Study method including through history taking with emphasis on history and pelvic examination by trainee residents

Data Analysis Procedure

Data was analyzed by using SPSS version 21. Mean and standard deviation was computed for variables like age, duration of abnormal uterine bleeding. Frequency in percentage was calculated for parity, marital status, type of thyroid dysfunction and abnormal uterine bleeding.

Effect modified like age, duration of disease, parity, marital status, type of thyroid dysfunction was addressed through stratification. Chi square test was applied. P value ≤ 0.05 was taken as significant

Results

There were 177 with premenopausal women of thyroid dysfunction were included in this study. Age distribution of the patients is shown in figure 1. The average age and duration of disease was 28.33±5.38 and 9.41±1.75 months as shown in table 2. Most of the women were

married as presented in figure 2. Out of 177, 18(10.17%) had no baby in which all unmarried were included, 42(23.73%) had primi parity, 117(66.10%) had multiparity as shown in figure 3. There were 102(57.63%) women had hypothyroid, 56(31.64%) euthyroidism and 19(10.73%) hyperthyroid as shown in figure 4.

Frequency abnormal uterine bleeding among women having thyroid dysfunction is shown in figure 5. Menorrhagia was the commonest abnormal uterine bleeding that was observed in 186(59.89%) women followed by oligomenorrhoea 52(29.38%) and polymenorrhoea 19(10.73%). Menorrhagia was significantly in those women who had hypothyroid dysfunction (p=0.0005). Oligomenorrhoea was significantly high in whose women who had hypothyroid (p=0.0005) and Polymenorrhoea was significantly high in those women who had Hyperthyroidism as shown in table 3.

Age, parity, marital status, duration of disease were controlled through stratification but there were not significant effect was observed on abnormal uterine bleeding as shown in table 4 to 7 respectively.

Table 1 Descriptive statistics of age and duration of disease

Statistics		Age (Years)	Duration of Disease
Mean		28.33	9.41
Std. Deviation		5.38	1.75
95% Confidence Interval for Mean	Lower Bound	27.53	9.15
	Upper Bound	29.13	9.67
Median		26.00	9.00
Inter quartile Range		7	2
Minimum		20	7
Maximum		42	15

Table 2 Frequency of abnormal uterine bleeding with respect to thyroid dysfunction

Abnormal Uterine Bleeding	Thyroid dysfunction			Total	P-Value
	Hypothyroidism	Euthyroidism	Hyperthyroidism		
Menorrhagia	84(79.2%)	18(17%)	4(3.8%)	106	0.0005
Oligomenorrhoea	15(28.8%)	22(42.3%)	15(28.8%)	52	0.0005
Polymenorrhoea	3(15.8%)	16(84.2%)	0(0%)	19	0.0005

Table 3 Frequency of abnormal uterine bleeding with respect to age groups

Abnormal Uterine Bleeding	Age Groups (Years)		P-Value
	≤ 30 Years; n=127	>30 Years; n=50	
Menorrhagia	78(61.4%)	28(56%)	0.508
Oligomenorrhoea	38(29.9%)	14(28%)	0.801
Polymenorrhoea	11(8.7%)	8(16%)	0.156

Chi Square test applied

Table 4 Frequency of abnormal uterine bleeding with respect to parity

Abnormal Uterine Bleeding	Parity			P-Value
	Nulli parity	Primi parity	Multi parity	
Menorrhagia	11(61.1%)	26(61.9%)	69(59%)	0.940
Oligomenorrhoea	7(38.9%)	15(35.7%)	30(25.6%)	0.303
Polymenorrhoea	0(0%)	1(2.4%)	18(15.4%)	0.020

Chi Square test applied

Table 5 Frequency of abnormal uterine bleeding with respect to age groups

Abnormal Uterine Bleeding	Marital Status		P-Value
	Married	Unmarried	
Menorrhagia	95(59.7%)	11(61.1%)	0.911
Oligomenorrhoea	45(28.3%)	7(38.9%)	0.350
Poly menorrhoea	19(11.9%)	0(0%)	0.121

Chi Square test applied

Table 6 Frequency of abnormal uterine bleeding with respect to duration of disease

Abnormal Uterine Bleeding	Duration of Disease		P-Value
	<10 months; n=106	≥ 10months; n=71	
Menorrhagia	64(60.4%)	42(59.2%)	0.871
Oligomenorrhoea	33(31.1%)	19(26.8%)	0.531
Poly menorrhoea	9(8.5%)	10(14.1%)	0.239

Chi Square test applied

Discussion

Abnormal uterine bleeding is a common but complicated clinical presentation, accounting for at least 20% of all new outpatient visits [12]. These complaints may significantly affect quality of life [13], result in time off work [14], lead to surgical interventions including hysterectomy [15], and ultimately have a significant impact on the health care system [16]. As commonly used, dysfunctional uterine bleeding (DUB) refers to 'abnormal uterine bleeding which is not due to demonstrable pelvic disease, complications of pregnancy or systemic disease'. It is a diagnosis of exclusion [17]. It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system. Both hypothyroidism as well as hyperthyroidism is associated with a variety of changes in reproductive function, including delayed onset of puberty, anovulatory cycles and abnormally high foetal wastage[18] Thyroid dysfunction is associated with menstrual abnormalities in females of all age groups. These menstrual irregularities can be polymenorrhoea, menorrhagia, menometrorrhagia, intermenstrual bleeding, oligo/amenorrhoea etc. Both hypothyroidism and hyperthyroidism result in menstrual disturbances. Since thyroid dysfunction is commonly prevalent in women, present study was conducted to determine frequency abnormal uterine bleeding among women having thyroid dysfunction.

There were 177 with premenopausal women of thyroid dysfunction age 15-45 Years were included in this study. Current study highlights the association between AUB and thyroid dysfunction by measurement of free T3, free T4, and TSH. In the present study, majority of the patients were in the age group of 26-30 years (41.2%) closely followed by the age group less than 25 years (30.5%). In a study done by Narula *et al*.;, 32.8% patients belonged to the age group 31-40 years [19]. In the study by Sangeeta Pahwa *et al*.; 42% cases belonged to this age group [20]. Pilli *et al*.; had 58% cases in the age group 21 – 40 years [21]. In present study, the mean age of women with thyroid dysfunction was 28.33±5.38 years. Petta CA *et al* in their cross-sectional study carried out in 148 women with menstrual dysfunction found a mean age of 34.6 years. [22]. Vanderpump MP *et al* in their 20 years follow up of whickam survey had a mean age of 34 years for occurrence of thyroid disorders..[23] Sampath S *et al* done their study on clinicobiochemical spectrum of hypothyroidism found a mean age of 36.2 years among 944 women referred for thyroid testing.[24] In our study out of 177 women, 57.63% women had hypothyroid, 31.64% euthyroidism and 10.73% hyperthyroid. In a study done by Neelu Sharma *et al*. [25] 22% hypo, 14% hyper, 64% were euthyroid.

In our study, Menorrhagia was the commonest abnormal uterine bleeding that was observed in 59.89% women followed by oligomenorrhoea 29.38% and polymenorrhoea 10.73%. Padmaleela *et al*. reported (Menorrhagia in 50%, 27.3% polymenorrhagia and 18.2% oligomenorrhoea) in their study population.[26] In present study, we found an association in the occurrence of menorrhagia (59.89%) in hypothyroid women. Menorrhagia was significantly in those women who had hypothyroid dysfunction (p=0.0005). Oligomenorrhoea was significantly high in whose women who had hypothyroid (p=0.0005) and Polymenorrhoea was signifcnalty high in those women who had Hyperthyroidism. In a retrospective analysis by Andrew D Weeks among 50 patients with myxoedema, 28 (56%) had menstrual disturbances and the most common complaint was menorrhagia (36%). [27] Singh P *et al* in their analysis of menstrual dysfunction among hypothyroid women stated, menorrhagia was seen in 32.4% of hypothyroid women. Hence, they suggested screening of these women with menstrual dysfunction is of great significance.[28]

Conclusion

Abnormal uterine bleeding is frequently seen to be associated with thyroid dysfunction and in majority of the patients, menstrual abnormality may even precede the

occurrence of other clinical signs and symptoms of thyroid dysfunction. Any type of menstrual disorder should be considered as a possible presenting symptom of thyroid dysfunction and thyroid assessment deemed necessary in such cases. Unless proper evaluation of thyroid function is done among these patients, we often miss an important etiology of AUB. This may in turn lead to unnecessary exposure of the patient to a variety of nonspecific and ineffective diagnostic and therapeutic procedures, including both invasive (surgical) and non-invasive (hormonal) techniques. Correct diagnosis of this etiology of AUB would help in proper management of the patient, treating both the menstrual abnormality along with the thyroid disorder, and would be cost-effective as well.

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