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A Study of Thyroid Dysfunction in Patients with a Provisional Diagnosis of Dysfunctional uterine bleeding

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Introduction

Dysfunctional uterine bleeding is an abnormal bleeding from the uterus in the absence of organic disease of genital tract and demonstrable extragenital cause(1). It is estimated that about one-third of all gynecological consultations are carried out for abnormal uterine bleeding(2), of which only 20% are due to organic causes(3). Thyroid dysfunction is a common cause of DUB and accounts for 30-40% of cases (Koutras DA, 1997)(4). Abnormal menstrual cycles are occasionally the first sign of hypothyroidism or hyperthyroidism (Wilansky DL, Griesman B, 1992)(5). Majority of the cases has subclinical hypothyroidism and easily pass unrecognized. The serum TSH assay has been shown to be a sensitive indicator of diminished thyroid functional reserve, since TSH levels become elevated before circulating serum thyroxine levels fall below the normal range(6). The main clinical objective of this study is to detect and treat thyroid disease before the symptoms and signs are significant and intense. Moreover, thyroid dysfunction is an easily correctable cause of DUB. Hence this study is to evaluate the thyroid function in patients having abnormal menstrual bleeding from puberty to premenopausal age groups which will be interesting and justifiable and will help in further management of DUB.

Objectives of the Study

1. To determine the association between menstrual irregularities and thyroid function.
2. To analyse the pattern of menstrual dysfunction among women with thyroid disorder.
3. To estimate the prevalence of subclinical thyroid disease among reproductive age group women with dysfunctional uterine bleeding.
4. To analyse that the early testing of thyroid dysfunction helps to diagnose the disease in subclinical stage.

Materials and Methods

The study was a case control study conducted in a tertiary acre teaching hospital in Kerala for a period of one year. Study population includes 200 women belong to the reproductive age group with

complaints of oligomenorrhoea, menorrhagia, polymenorrhoea, amenorrhoea and with no demonstrable pelvic pathology and not on thyroxine replacement therapy satisfying the inclusion criteria were selected randomly as control group. Women with any pelvic pathology, clinical symptoms of thyroid dysfunction, bleeding disorder, on any drugs and those belong to prepubertal and postmenopausal age group were excluded from both cases and control group. After obtaining a detailed history regarding menstrual complaints and other risk factors patients are examined in detail to rule out other causes of abnormal bleeding. TSH was estimated by ultrasensitive fully automated ADVIA centaur, Bayer USA chemilumniscent system using two-site sandwich, chemiluminiscent immunoassay. Physiological range was 0.5-5 mIU/ml with due consideration given to diurnal/pulsatile variation and based on that patients are categorized into Euthyroid, Subclinical Hypothyroid, Hypothyroid and Hyperthyroid and were evaluated with their thyroid dysfunction and its relation with dysfunctional uterine bleeding.

Data Analysis

Statistical analysis was done with SPSSS version 16.0 for windows. Data was analyzed by Chisqu are test for association. Risk was estimated in terms of odds ratio and 95% confidence interval for OR ratio was also calculated. P value < 0.05 was considered to indicate statistical significance.

Salient findings

1. Distribution of patients according to age

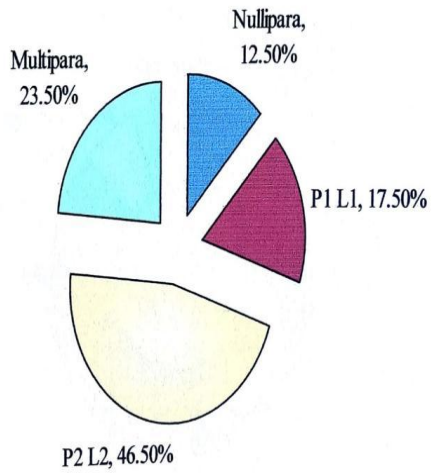
ASSOCIATION BETWEEN AGE AND THYROID DYSFUNCTION

Age	Thyroid Dysfunction				Total
	Euthyroid	Hypo-thyroidism	Subclinical Hypo-thyroidism	Hyper-thyroidism	
< 20 yrs	19	2	2		23
	13.20%	7.10%	9.10%		11.50%
21 – 30	23	1	2		26
	16.00%	3.60%	9.10%		13.00%
31 – 40	50	14	10	4	78
	34.70%	50.00%	45.50%	66.70%	39.00%
41 – 45	52	11	8	2	73
	36.10%	39.30%	36.40%	33.30%	36.50%
Total	144	28	22	6	200
Chi Square: 8.594; P > 0.05					

From the table we can see that thyroid dysfunction was commonest in the age group between 31- 40 years followed by patients in the age group between 41 -45 years. This shows that thyroid dysfunction becomes common as age advances and in this study it is common in women more than 30 years. But the difference in the thyroid functioning in individual age group is not statistically significant (P>0.05).

2. Distribution according to parity

Fig.#. Parity



In this study maximum number of patients belong to P2L2 group (46.5%0 and minimum number of patients were in nullipara group (12.5%).

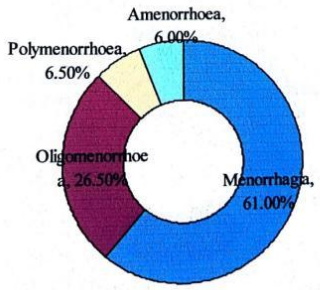
3. Distribution of patients according to type of DUB

DISTRIBUTION OF PATIENTS ACCORDING TO THE TYPE OF DUB

Type of DUB	Frequency	Percent
Menorrhagia	122	61
Oligomenorrhoea	53	26.5
Polymenorrhoea	13	6.5
Amenorrhoea	12	6
Total	200	100

According to the table commonest complaint was menorrhagia which consists of (61%). It was followed by oligomenorrhoea (26.5%).

Fig.#. Type of DUB



4.Distribution of patients according to duration of DUB

DISTRIBUTION OF PATIENTS ACCORDING TO THE DURATION OF DUB

Duration of DUB	Frequency	Percent
1 - 3 Months	74	37
4 - 6 Months	76	38
7 - 12 Months	41	20.5
1 - 3 years	5	2.5
Since Menarche	4	2
Total	200	100

From the above table we can see that most of the patients presents in 4-6 months period.

5. Distribution of patients according to frequency of DUB

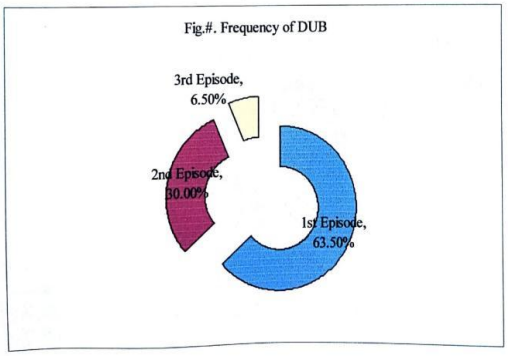
TABLE – 5

DISTRIBUTION OF PATIENTS ACCORDING TO THE FREQUENCY OF DUB

Frequency of DUB	Frequency	Percent
1st Episode	127	63.5
2nd Episode	60	30
3rd Episode	13	6.5
Total	200	100

Majority of patients presented in the first episode itself (63.5%). After the second episode only a minority presented.

Fig.#. Frequency of DUB



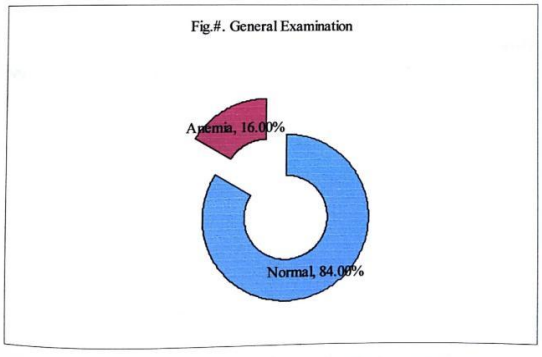
6. General Examination of study group

GENERAL EXAMINATION OF THE STUDY GROUP

General Examination	Frequency	Percent
Normal	168	84
Anemia	32	16
Total	200	100

In the present study 16% of patients had anemia.

Fig.#. General Examination



7. Association between BMI and Thyroid dysfunction

ASSOCIATION BETWEEN BMI AND THYROID DYSFUNCTION

BMI	Thyroid Dysfunction				Total
	Euthyroid	Hypo-thyroidism	Subclinical Hypo-thyroidism	Hyper-thyroidism	
< 18 (Lean)	4			1	5
	2.80%			16.70%	2.50%
18 - 24 (Normal)	118	10	11	5	144
	81.90%	35.70%	50.00%	83.30%	72.00%
25 - 29 (Over Weight)	15	7	7		29
	10.40%	25.00%	31.80%		14.50%
30 - 34 (Obese)	7	9	3		19
	4.90%	32.10%	13.60%		9.50%
> 34 (Morbid Obesity)		2	1		3
		7.10%	4.50%		1.50%
Total	144	28	22	6	200

Chi Square: 52.894; P < 0.001

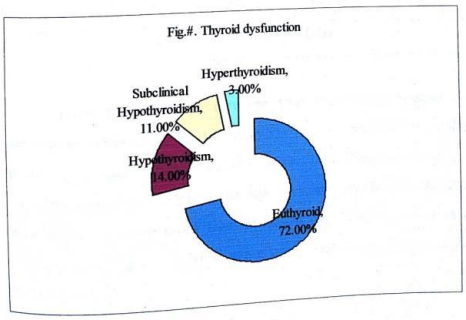
According to the table most of the hypothyroid patients including subclinical belong to the overweight or obese category. 32% of the hypothyroid patients belong to the obese group and in subclinical variety 31.8% of the patients were in overweight category. This correlates with the finding that hypothyroidism has association with obesity.

8. Distribution of Thyroid dysfunction in study group

DISTRIBUTION OF THYROID DYSFUNCTION IN THE STUDY GROUP

Thyroid Dysfunction	Frequency	Percent
Euthyroid	144	72
Hypothyroidism	28	14
Subclinical Hypothyroidism	22	11
Hyperthyroidism	6	3
Total	200	100

In this study hypothyroidism constitute 14% and subclinical hypothyroidism constitute 11%.



9. Association between thyroid dysfunction and age

ASSOCIATION BETWEEN AGE AND THYROID DYSFUNCTION

Age	Thyroid Dysfunction				Total
	Euthyroid	Hypo-thyroidism	Subclinical Hypo-thyroidism	Hyper-thyroidism	
< 20 yrs	19	2	2		23
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21 – 30	23	1	2		26
	16.00%	3.60%	9.10%		13.00%
31 – 40	50	14	10	4	78
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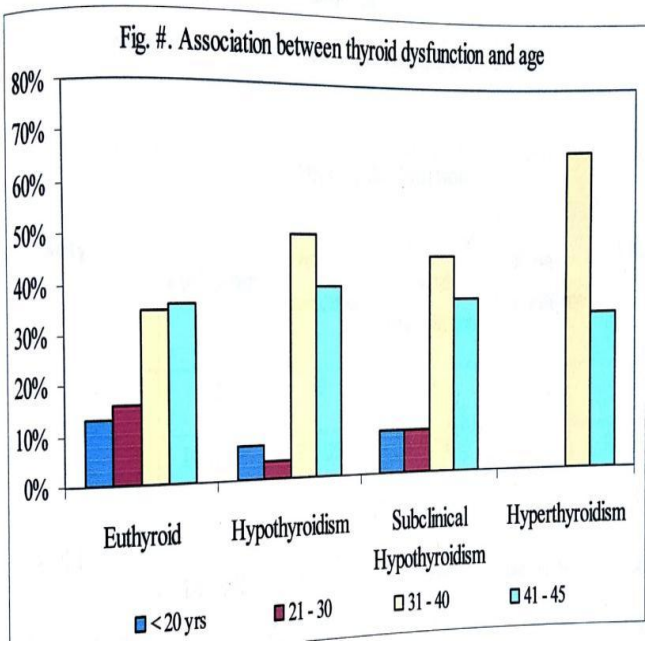
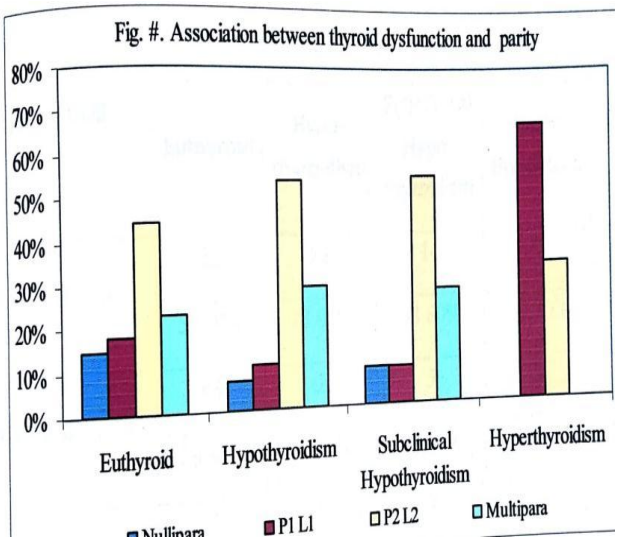
	36.10%	39.30%	36.40%	33.30%	36.50%
Total	144	28	22	6	200

Chi Square: 8.594; P > 0.05

From the table we can see that thyroid dysfunction was commonest in the age group between 31- 40 years followed by patients in the age group between 41 -45 years. This shows that thyroid dysfunction becomes common as age advances and in this study it is common in women more than 30 years. But the difference in the thyroid functioning in individual age group is not statistically significant (P>0.05).



10. Association between thyroid dysfunction and parity

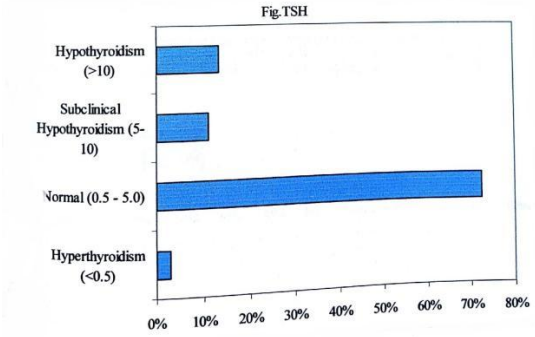


11. TSH Value

TSH VALUE

TSH	Frequency	Percent
Hyperthyroidism (<0.5)	6	3
Normal (0.5 - 5.0)	145	72.5
Subclinical Hypothyroidism (5-10)	22	11
Hypothyroidism (>10)	27	13.5
Total	200	100

According to the study hypothyroidism constitute 13.5% and subclinical hypothyroidism 11%. Hyperthyroidism was only 3%



12. T3 Value

T3 VALUE

T 3	Frequency	Percent
Hypothyroidism	28	14
Ethyroid & Subclinical Hypo	166	83
Hyperthyroidism	6	3
Total	200	100

13. T4 Value

T4 VALUE

T 4	Frequency	Percent
Hypothyroidism	28	14
Ethyroid & Subclinical Hypo	166	83
Hyperthyroidism	6	3
Total	200	100

14. Association between type of DUB and Thyroid dysfunction

ASSOCIATION BETWEEN TYPE OF DUB AND THYROID DYSFUNCTION

Type of DUB	Thyroid Dysfunction				Total
	Euthyroid	Hypo-thyroidism	Subclinical Hypo-thyroidism	Hyper-thyroidism	
Menorrhagia	85	22	14	1	122
	59.00%	78.60%	63.60%	16.70%	61.00%
Oligomenorrhoea	43	2	3	5	53
	29.90%	7.10%	13.60%	83.30%	26.50%
Polymenorrhoea	9	2	2		13
	6.30%	7.10%	9.10%		6.50%
Amenorrhoea	7	2	3		12
	4.90%	7.10%	13.60%		6.00%
Total	144	28	22	6	200
Chi Square: 20.247; P < 0.05					

This table shows the influence of thyroid abnormalities in different bleeding patterns. Most common bleeding abnormality which was observed in patients with thyroid dysfunction was Menorrhagia (61%) and next was oligomenorrhoea. Menorrhagia was more commonly seen in both hypothyroid and subclinical hypothyroid patients.

Discussion

Dysfunctional uterine bleeding is a benign yet debilitating disease with a strong association with thyroid disorders. This study highlights the association between DUB and thyroid dysfunction by measurement of T3, T4 and TSH.

In the present study patients were taken from the age group of puberty to 45 years. Maximum number of patients belonged to the age group of 31- 40 years (39%). C A Petta et al 2007, in their cross sectional study carried out in 148 women with menstrual dysfunction found a mean age of 34.6 years[7]. Sampath S et al 2007, in their study on clinic biochemical spectrum of hypothyroidism found amean age of 36.2 years among 944 women referred for thyroid testing[8].

In the present study 46.5% were constituted by para 2, followed by multipara. In this study we found an association in the occurrence of menorrhagia in hypothyroid women. Col P Singh et al 2007, in their analysis of menstrual dysfunction among hypothyroid women stated, menorrhagia was seen in 32.4% of hypothyroid women[9].

Also in the present study, oligomenorrhoea was more frequent in women with hyperthyroidism which correlated with findings in other studies. Tunbridge et al 2002 and Daniels 2004, in their study detected oligomenorrhoea more frequent in hyperthyroid patients [1011]. Hence screening of thyroid function in these women with menstrual dysfunction is of great significance. In this study women diagnosed of subclinical hypothyroidism presented with menorrhagia mainly (14%) and oligomenorrhoea (3%) which is significant. Wilson GR et al, in their article on subclinical thyroid disease, stated that the menstrual dysfunction in preclinical hypothyroids will be similar to that in overt hypothyroidism[12].

Majority patients presented with abnormal bleeding of >4 months duration (38%) had increased occurrence of thyroid dysfunction.BMI abnormality in the sample population correlated well with thyroid abnormalities in which 14.5% were overweight and 9.5% were obese women. Similar incidence was concluded by Pi- sunyer FX et al and Tomlinson et al [13,14].

The overall prevalence of thyroid dysfunction in the present study was 27.5%, of these 14% by hypothyroidism, 11% by subclinical hypothyroidism and 3 % by hyperthyroidism.

Our findings for the prevalence of subclinical hypothyroidism are in the expected range of female reproductive age (11%) which should be considered as the major benefit of testing because progression rate to overt hypothyroidism is approximately 4-18% (Huber G 1998).

There is a good evidence to support the fact that the treatment of patients with subclinical hypothyroidism who have TSH levels > 5 mIU/L prevents progression to overt hypothyroidism (Surks MI 2004). A major benefit of routine testing is the earlier detection of unsuspected overt thyrotoxicosis or subclinical hypothyroidism or hyperthyroidism. ACOG has recommended screening with sensitive TSH – assay in asymptomatic women over the age of 40 years.

TSH assay can also be used as a management and prognostic tool besides its use in diagnosis and screening.

Conclusion

Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality. It brings into focus the increased incidence of hypothyroidism among women with menorrhagia. It is suggested that women with early onset menorrhagia and oligomenorrhoea with or without symptoms and signs attributable to thyroid dysfunction should be offered thyroid function testing to detect them in the early stage. Early detection by selective screening and specific pharmacotherapy for subclinical thyroid disease early in the course of disease will prove to be a superior alternative to surgical treatments.

Recommendations

1. There is significant association between thyroid disorders and dysfunctional uterine bleeding'
2. Thyroid function tests should be done foe all the women in the reproductive age group presenting with DUB.
3. TSH screening is a very sensitive test to detect thyroid dysfunction.
4. Women with early onset menorrhagia or oligomenorrhoea with or without symptoms and signs of thyroid dysfunction should be offered thyroid function testing to detect them in the subclinical stage.
5. Early detection of thyroid dysfunction by selective screening will prove to be an alternative to surgical treatments for dysfunctional uterine bleeding.

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