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Original Research Article

Evaluation of Hyperprolactinemia and Thyroid Disorder among Women with Dysfunctional Uterine Bleeding at Tertiary Care Hospital of western Rajasthan

Jaya Purohit[1*], Dr. Ranjana Barjatya[2], Sushma K. Kataria[3]

[1]PhD Scholar, JLN Medical College, Kala Bagh, Ajmer, Rajasthan 305001, India
[2]Senior Professor, JLN Medical College, Kala Bagh, Ajmer, Rajasthan 305001, India
[3]Senior Professor and Head Dr SN Medical College, 7294+QXM, Sector-D, Bhagat Ki Kothi, Jodhpur, Rajasthan 342001, India

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***Corresponding author:** Jaya Purohit
PhD Scholar, JLN Medical College, Kala Bagh, Ajmer, Rajasthan 305001, India

Abstract

Background*:** Women suffers 10 times more with thyroid disorders than men. Alterations in menstrual cycle alters thyroid function which could be either hypo or hyper thyroidism. Abnormal increase in serum prolactin level can cause disturbance in follicle maturation and corpus luteum function, and can lead to inhibition of normal secretion of GR hormone in hypothalamus which results in anovulation. The aim of the present study was to assess the thyroid and the prolactin levels among the women with dysfunctional uterine bleeding at tertiary care Hospital of western Rajasthan. ***Methods*:** An observational study was conducted for a period two years i.e from 2020 to 2022 in our institution at the gynaecology OPD with help of pathology department. 250 Patients with the complaints of dysfunctional uterine bleeding of age group between 25 to 70 years were included in the study. Estimation of Free T3, Free T4, TSH and prolactin was done by chemiluminescent immunoassay for the patients. ***Results*:** The mean TSH levels among the DUB cases was high. Similarly, hyperprolactinemia was found in cases and the mean prolactin levels were higher in cases. Significantly strong positive correlation between thyroid function and prolactin with p value <0.0001 was found.which indicates that as the TSH level increases prolactin levels also increases. ***Conclusions: Early detection of hypothyroidism in DUB cases can save the patient from recurrent curettage and at times hysterectomy. The financial implications of screening for prolactin/thyroid hormone abnormalities will have to be evaluated before a general recommendation can be made.

Keywords: DUB, Prolactin, Thyroid stimulating hormone.

INTRODUCTION

Thyroid disorders are 10 times more common in women than men [1]. Menstrual disturbances usually accompany clinical alterations in thyroid function and every clinician would have encountered altered menstrual pattern among women suffering from either hypo or hyper thyroidism. Hypothyroidism commonly causes menorrhagia. Hyperthyroidism is associated with menorrhagia followed by oligomenorrhoea and amenorrhoea proportionate to the severity of thyrotoxicosis [2, 3]. Abnormality of menstruation is primarily a disorder of hypothalamo-pituitary-ovarian axis either through direct effect or indirectly by their effect on target organ [4]. Endocrinological disturbances other than the reproductive hormones form a small but significant sub-group in the aetiopathogenesis of abnormal uterine bleeding. Amongst the endocrinological causes, after the pituitary, thyroid is probably the most important endocrine organ which exerts a broad range of effects on the development, growth, metabolism and function of virtually every organ system in the human body [5]. Alterations in production and activity of the thyroid hormones thyroxine (T4) and tri-iodothyronine (T3) may result in menstrual abnormality. Both hyperthyroidism and hypothyroidism may result in menstrual disturbances. The mechanism of menorrhagia in hypothyroidism is incompletely understood. It is postulated that infrequent or absent ovulation leads to deficient secretion of luteinizing hormone which may result in relative oestrogen excess thereby causing menorrhagia. Hyperthyroidism occurring before

puberty has been reported to delay the onset of menses. In women of fertile age group, oligomenorrhea and amenorrhea are the commonest abnormalities associated with hyperthyroidism. These irregularities sometimes precede thyroid dysfunction. In the present times, subclinical hyper- and hypothyroidism can be diagnosed very early, whereas these would have passed unnoticed a few decade ago. Timely detection of Thyroid disorder in patients presenting with menstrual disorders and their management can prevent surgical intervention like curettage and hysterectomy. Thyroid autoimmunity has been shown to have association with various kinds of thyroid dysfunction. A high serum prolactin level can disturb the follicular maturation and corpus luteum function, and leads to inhibition of normal pulsatile secretion of gonadotrophinreleasing hormone in hypothalamus [6]. It also leads to deficient secretion of LH and FSH which leads to inadequate induction of proper ovarian response. As of today very few studies had been done to see the association of prolactin and thyroid levels among females with abnormal uterine bleeding, so the present study was aimed to assess these levels among women with DUB. The aim of the present study was to assess the thyroid and the prolactin levels among the women with dysfunctional uterine bleeding at tertiary care Hospital of western Rajasthan.

METHODS

An observational study was conducted for a period two years i.e from june 2020 to September 2022 in our institution at the gynaecology OPD with help of pathology department. 250 Patients with the complaints of dysfunctional uterine bleeding of age group between 25 to 70 years were included in the study. A detailed history related to onset, duration, interval and amount of bleeding was obtained from the patients. Estimation of Free T3, Free T4, TSH and prolactin was done by chemiluminescent immunoassay for the patients.

RESULTS

Table 1: Incidence of prolactin levels in Dysfunctional uterine bleeding cases

Prolactin levels	No. of cases	Percentage
Normal prolactin levels(≤1.3 nmol/I)	191	76.40
Hyperprolactenemia(>1.3 nmol/I)	59	23.60
Total	250	100.00

Above table number 1 depicts that 191 (76.40%) cases were found in normal ≤1.3 prolactin levels and 59 (23.60%) cases were found in Hyperprolactenemia >1.3 prolactin levels. Mean prolactin of our study participants was 1.44±0.63.

Table 2: Distribution of Total Number of Dysfunctional Uterine Bleeding Cases Based on Thyroid Hormone Levels

Thyroid function test		No. of cases	Percentage
TSH (µIU/ml)	<0.35	68	27.20
	0.35-5.5	75	30.00
	>5.5	107	42.80
Free T3 (pg/ml)	<2.1	92	36.80
	2.1-4.4	149	59.6
	>4.4	9	3.6
Free T4 (ng/dl)	<0.8	87	34.80
	0.8-2.7	131	52.4
	>2.7	32	12.8

Above table number 2 depicts that in107 (42.80%) maximum cases TSH levels were >5.5 µIU/ml, followed by 75 (30.00%) cases with TSH levels in range of 0.35-5.5 µIU/ml and 68(27%) cases with TSH <0.35µIU/ml.

T3 levels in Maximum number of cases 149 (59.6%) was found in range of 2.1-4.4(pg/ml), followed by 92(36.80%) cases with T3 levels <2.1 (pg/ml)and 9 (3.6%) cases with T3 levels <4.4(pg/ml).

T4 levels in Maximum number of cases 131 (52.4%) was found in range 0.8-2.7 ng/dl, followed by 87(34.80%) cases with T4 levels <0.8 ng/dl and 32 (12.4%) cases with T4 level <2.7 ng/dl.

DISCUSSION

The present study had shown the prevalence of hypothyroidism in 107 (42%)cases among the 250 patients with dysfunctional uterine bleeding and our results almost matches the results quoted by Doifode *et al*., Douglas *et al*., Singh L *et al*., and Shruthi *et al*., [7-10]. One of the explanation is the activity of thyroid is that closely linked with the process of ovarian maturation. The thyroid gland is itself dependent on direct and indirect stimulation from the ovary to

discharge its own function. Previous studies have evaluated the prevalence of hyperprolactinemia among patients with menstruation related problems. Lee *et al*., studied hyperprolactinemia in adolescents and young women with menstrual problems [11]. The association between thyroid disturbances and hyperprolactinemia has long been postulated, although some studies have not find any correlation between prolactin and thyroid hormones [12]. In the current study, the association between elevated prolactin levels and abnormal TSH was evident by showing a perfect positive correlation between TSH levels and serum prolactin levels.

CONCLUSION

With the advancement in modern hormonal assay techniques estimation of thyroid hormones in serum is possible in a rapid and reliable manner. Treatment of condition like hypothyroidism is very satisfying as it relieves patient of all the symptoms. Hence in investigating a patient with menorrhagia and/or menstrual irregularities, evaluation of thyroid functional status forms an essential component. Early detection of hypothyroidism in DUB subjects saves the patient from surgical interventions like curettage and hysterectomy although financial implications of screening for prolactin/thyroid hormone abnormalities will have to be evaluated before a general recommendation can be made.

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