ASSOCIATION OF THYROID HORMONES WITH DYSFUNCTIONAL UTERINE BLEEDING AND EFFECTS OF MENORRHAGIA IN YOUNG GIRLS OF DISTRICT PESHAWAR KHYBER PUKKTOONKHWA

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ABSTRACT

Introduction: Menstrual disorders in adolescence may present diagnostic and management challenges for the gynecologist. It is a particularly common issue for young girls. Abnormal uterine bleeding is a common problem and its management can be complex. Thyroid hormones play a key role in the menstrual and reproductive function of women. It is recognized universally that menstrual disturbances may accompany clinical alterations in thyroid function.

Objective: To find out the prevalence of thyroid disorder in dysfunctional uterine bleeding patients.

Method: A hospital based cross sectional study was carried out at Department of Gynecology and Obstetrics, Khyber Teaching Hospital, Peshawar and the data was analyzed at Department of Biochemistry, Khyber Medical College Peshawar, Khyber Pakhtunkhwa Pakistan. The study subjects were randomly selected and the data was recorded on a predesigned and prestructured questionnaire developed for the study. Blood was analyzed for determination of serum T3, T4, TSH respectively.

Results: Most of the dysfunctional uterine bleeding cases were in the age group of 15–24 years (74.30%) followed by 25-35 years (25.70%) respectively. The commonest menstrual complaint was menorrhagia which was present in hypothyroidism (26.70%) while in hyperthyroidism it was (22.0%).

Conclusions: Thyroid dysfunction is associated with menstrual disturbances. Prevalence of hypothyroidism was more common than hyperthyroidism in subjects diagnosed with dysfunctional uterine bleeding.

Keywords: Thyroid disorders, DUB, Mehnorrgia, Young Girls, Pakistan.

INTRODUCTION:

Abnormal uterine bleeding is a common problem.[1] Dysfunctional uterine bleeding (DUB) is defined as abnormal bleeding from uterus in absence of organic disease of the genital tract and its management can be complex.[2-4] In gynecology, more than 20% of women present with dysfunctional uterine bleeding.[5] Physicians are often unable to identify the cause of abnormal bleeding even after a thorough history and physical examination.[6-7] Abnormal uterine bleeding includes both dysfunctional uterine bleeding and bleeding from structural causes. Dysfunctional bleeding can be anovulatory, which is characterized by irregular unpredictable bleeding, or ovulatory, which is characterized by heavy but regular periods (i.e., menorrhagia). Structural causes include fibroids, polyps, endometrial carcinoma, and pregnancy complications. Abnormal bleeding can also result from contraceptive methods. Systemic diseases that may cause abnormal uterine bleeding include cirrhosis, hypothyroidism and coagulation disorders.[8]

It has long been recognized that thyroid dysfunction may have profound effects on the female reproductive system. A relationship between the thyroid gland and the gonads is suggested by the far more frequent occurrence of thyroid disorders in women than in men and by the common appearance of goiter during puberty, pregnancy and the menopause.[9] Thyroid disorders are ten times more common in women than in men.[10] During the investigations of abnormal uterine bleeding, abnormal sexual development, delayed puberty, hirsuitism, infertility, and recurrent pregnancy loss, the possibility of thyroid dysfunction must always be considered. While activity of the thyroid is closely linked with the process of ovarian maturation, the thyroid gland is itself dependent on direct and indirect stimuli from the

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ovary to discharge its own function. In gynaecology, more than 20% women present with abnormal uterine bleeding.[11] Thyroxin (3,5,3',5'-tetraiodo-l-thyronine; T_4), and Triiodothyronine (3,5,3'-triiodo-l-thyronine; T_3) are the hormones originating from the thyroid gland. T_4 and T_3 are responsible for regulating diverse biochemical processes throughout the body that are essential for protein synthesis, normal development, metabolic and neural activity.[12] The present study was aimed to know the prevalence association of thyroid disorders in patients diagnosed with DUB.

SUBJECTS AND METHODS:

Eight hundred and eighty five (n=885) subjects participated in the study. It aws a hospital based cross sectional study and carried out at the Department of Gynecology and Obstetrics, Khyber Teaching Hospital and Department of Biochemistry, Khyber Medical College, Peshawar for a period of 9 months. Every woman in reproductive age group with complaints of menstrual irregularities presenting to the Gynae, outdoor patient department (OPD) was included in the study. The inclusion criteria for the study population were according to the predesigned questionnaires. All those diagnosed with DUB from puberty to pre-menopausal age were included. All female patients having major complaints of menstrual disturbance like oligomenorrhea, polymenorrhea, menorrhagia, hypomenorrhea and amenorrhea were included. These patients were evaluated for DUB and thyroid profile. The study protocol included a thorough history taking regarding menstrual irregularities. This was followed by clinical evaluation and biochemical analysis of thyroid profile (T_3, T_4, and TSH). Thyroid profile was measured by Enhanced Chemiluminescene Labelled Antibody Immunoassay.[13] Patients on hormonal treatment, which alter thyroid metabolism, bleeding drugs, intrauterine contraceptive device (IUCD) users and patients having goiter were excluded from the study.

RESULTS:

A total eight hundred and eighty five (n=885) females were randomly selected. Age wise distribution of the DUB patients showed that most of them were in the age group of 15–24 years (74.30%) followed by (25.70%) in the age group of 24–35 years (Table 1). Table-2 shows menstrual disorders in hypothyroid and hyperthyroid patients. Menorrhagia has been found to be one of the early manifestations of subclinical hypothyroidism which becomes symptomatic later. Of the total hypothyroid patient (n=567) sixty seven subjects (11.80%) had oligomenohrrea, two hundred and fifty (44.0%) had hypomenorrhea, while only thirty (5.20%) had amenorrhea. It was further revealed that those suffering from menorrhagia were less (n=70) in hyperthyroid as compared to hypothyroid (n=150). Figure-1 shows the distribution of dysfunctional uterine bleeding patient on the basis of thyroid profile and age. Maximum number (58.5%) of hypothyroid DUB patients fall in the age group of 25-35 years. However in the age group 15-24 years maximum number (70.7%) was found to be hyperthyroid DUB patients.

The thyroid profile of study population diagnosed with DUB is shown in Table-3. The data shows that maximum number (n=300) subjects fall in moderate TSH level followed by (n=295) in the high level respectively. Similar trend in result for T_4 was noted in which maximum number (33.89%) were noted to be in moderate level followed by high levels (32.20%). However an opposite trend of results was observed for T_3.

Table 1: Distribution of the dysfunctional uterine bleeding patients on the basis of age group

Age (years)	Number	Percentage
15-24	657	74.30%
25-35	228	25.70%

Table 2: Menstrual disorders in Hypothyroid and Hyperthyroid females diagnosed with DUB

Menstrual Irregularity	Hypothyroidism (n=567)	Hyperthyroidism (n=318)
Oligomenorrhoea	67 (11.81%)	65 (20.44%)
Hypomenorrhoea	250 (44.09%)	60 (18.86%)
Amenorrhoea	30 (5.29%)	63 (19.81%)
Menorrhagia	150 (26.50%)	70 (22.01%)
Polymenorrhoea	70 (12.35%)	60 (18.86%)

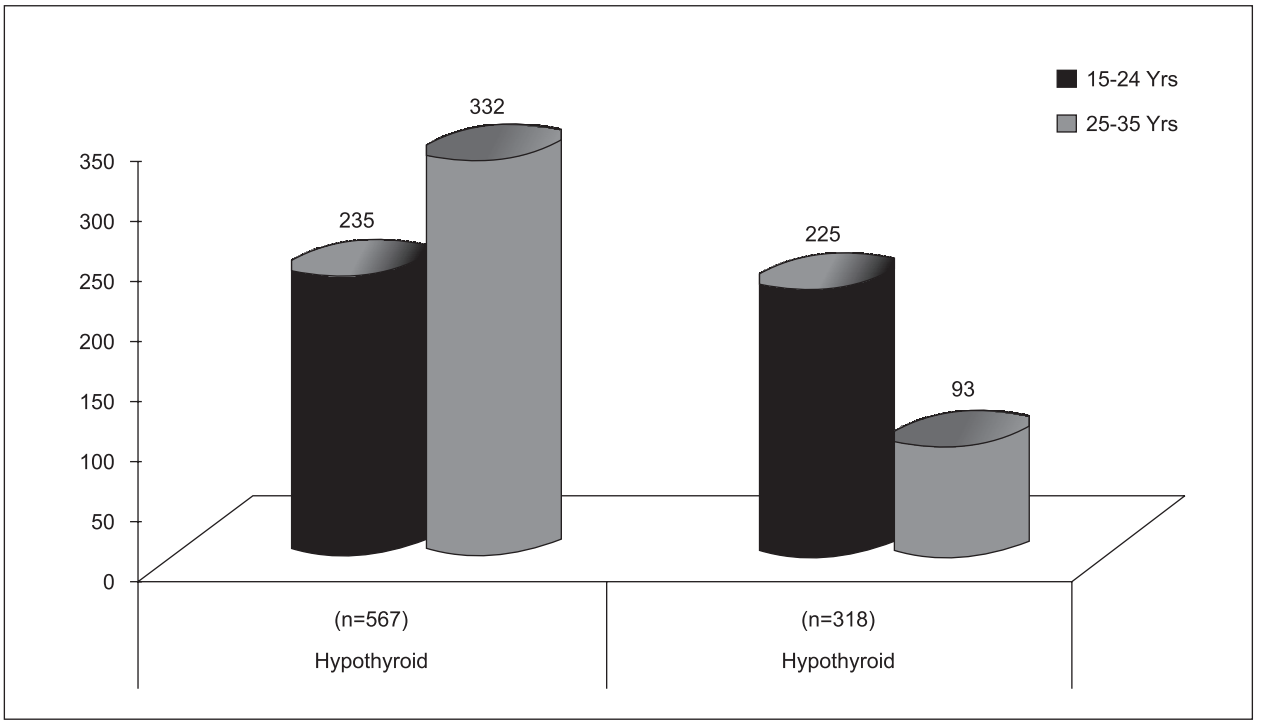

Figure 1: Distribution of Dysfunctional Uterine bleeding patient on the basis of Thyroid Profile

Table 3: Thyroid Profile of Females Subjects Diagnosed with DUB

S. No	Hormones Assayed	Concentration of Hormones		
		Low	Moderates	High
1	TSH (mU/mL)	290 (32.76%)	300 (33.89%)	295 (33.33%)
2	Thyroxin (ng/mL)	300 (33.89%)	300 (33.89%)	285 (32.20%)
3	Triiodothyronine (ng/mL)	295 (33.33%)	270 (30.50%)	320 (36.15%)

DISCUSSION:

It has been found that dysfunctional uterine bleeding affecting 10-15% of all gynaecological patients, has been has been related to single or multiple etiological factors and given a variety of names ranging from functional to dysfunctional. Thyroid disorder id general and hypothyroidism is common especially in women.

In a study conducted by Kuar and colleagues (2011) majority of the patients were of the age between 31-40 years (42%).[14] Pilli et al., also reported most of DUB patients (58%) in 21-40 years age group and only 2% below 20 years of age by Doifode and Fernandes [15-16]. Our findings are consistent with the above cited studies (Table 1). Lacour and co-workers found that the most common menstrual disturbance detected in thyroid patients was menorrhagia (75%). Moghal quoted incidence of 41% menorrghea and 36% polymenorrhea while Shapely and colleagues repotted an incidence of 54% menorrghia[17-19] which is high from the present study. This difference may be due to the difference in the study designs, localities, number of study population and geographical distribution (Table 2).

Ingbar and Pearce in their study demonstrated that menstrual irregularity is significantly more frequent in hypo or hyperthyroidism as compared to control cases.[20-21] In hypothyroidism, polymenorrhea is common and in hyperthyroidism, hypomenorrhea is common. Sirchand also confirmed the same that hypothyroidism causes menorrhgiea and hyperthyroidism reduce menstruation.[22] However our results are not in agreement with the above mentioned studies. This contradiction in result may be due to the difference in two studies designs, number of subjects, regional, climatic and socio-economic conditions (Figure–1). According to Redmond (2004), any type of menstrual irregularity can occur with either hypo or hyper function of the thyroid.[23] Clinical hypothyroidism results from underproduction of thyroid hormones by the thyroid gland, consequently an abnormally low circulating T_4 and T_3 concentration in blood. Clinical hyperthyroidism results from excessive production of thyroid hormones and resulting in eleva-

tion of T_4 and T_3 concentrations respectively and thus are consonance with these studies (Table 3).

CONCLUSION:

Our study concludes that thyroid dysfunction should be considered as an important etiological factor for menstrual abnormality especially during fertile period. It can be concluded that thyroid dysfunction is associated with menstrual disturbance which get relieved with normalization of thyroid status, so thyroid assessment should be performed in all subjects with menstrual irregularities. Thus biochemical evaluation of T_3, T_4 and TSH estimations should be made mandatory in DUB cases to detect apparent and occult thyroid dysfunction.

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