Prevalence of hypothyroidism in patients with provisional diagnosis of dub

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Abstract Objective: DUB accounts for 10% of all the gynecology related problems. This study is conducted to evaluate and detect the thyroid dysfunction in patients with dysfunctional uterine bleeding in all age groups especially in menorrhagic patients and to refer positive cases to the physician for the further management of thyroid disorder. **Methods:** This prospective study consisted of 100 women who presented with menorrhagia to the out-patient department of OBG at MKCG Medical College Berhampur, Odisha, which is a tertiary level hospital, over a period of two years from Sept. 2014 to oct.2016.These patients were categorized as euthyroid, subclinical hypothyroid or hyperthyroid based on thyroid profile. **Results:** In the study conducted, 20% were detected with thyroid disorders of which subclinical hypothyroidism was most prevalent (11%), 8% had hypothyroidism and 1% had hyperthyroidism. **Conclusion:** There is a high prevalence of thyroid disorders in cases clinically diagnosed as DUB. In our study 20% of the patients detected with thyroid disorder were treated medically which was more accurate and cost effective. Hence the biochemical evaluation of T3, T4, TSH is extremely important, valuable and should be made mandatory in cases of DUB to detect thyroid dysfunction thereby avoiding unnecessary surgery.

Key Words: Menorrhagia, dysfunctional uterine bleeding, hypothyroidism, hyperthyroidism, subclinical hypothyroidism.

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INTRODUCTION

Dysfunctional uterine bleeding (DUB) is diagnosis of exclusion. DUB is abnormal uterine bleeding in absence of any palpable pelvic pathology and demonstrable extra genital causes³. Nowadays DUB is referred to as abnormal uterine bleeding, where there is dysfunction at any level of hypothalamo-pituitary-ovarian axis resulting in disturbance in rhythmical production of hormones by ovary. DUB accounts for 10% of all gynaecological problems. It is known that thyroid dysfunction has profound effects on female reproductive system in terms of delayed puberty, DUB, infertility, recurrent pregnancy loss, premature menopause. Thyroid disorders are 10 times more common in females than males.⁵ High prevalence in female is possibly due to autoimmune nature of thyroid disorders. The underlying cause of DUB is uncertain but most common associated basic pathology is ovarian dysfunction and consequent hormonal imbalance. Ovarian dysfunction may be primary (pathological lesion of ovary) or secondary to endocrine dysfunction eg. hypothalamus, pituitary & thyroid. Singh et al found 63% of hypothyroid patients had anovulatory cycles. Recently "occult menorrhagia" has been found to be an early manifestation of subclinical hypothyroidism with disease becoming symptomatic later. Various studies done earlier show that menorrhagia being the chief symptom in hypothyroidism. Prevalence of subclinical hypothyroidism is as high as 9.5% in women. Majority of subclinical hypothyroidism cases pass unrecognized because patients are usually asymptomatic. Prevalence of subclinical hypothyroidism is so high that it should be given enough consideration justifying the screening of women with menstrual irregularities even if no sign or symptom seen. The introduction of serum thyroxine (T3) serum thyroid stimulating hormone (TSH) and radioimmunoassay has increased the sensitivity and specificity of thyroid function testing. Serum TSH assay has been shown to be a sensitive indicator of diminished

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thyroid functional reserve, since TSH levels become elevated before circulating serum thyroxine levels fall below the normal range. This study is to evaluate thyroid function in patients having abnormal menstrual bleeding from puberty to premenopausal age groups to know prevalence of hypothyroidism in patients provisionally diagnosed as DUB for further management.

MATERIALS ANDMETHODS

This prospective study was conducted in dept. of Obstetrics and gynecology, MKCG medical college, Berhampur from Sept 2014 to Oct 2016 and 100 women provisionally diagnosed as DUB in the OPD were taken into the study.

Selection of Subjects: All patients with complaints of menorrhagia, polymenorrhoea, polymenorrhagia, metropathia hemorrhagica, metrorrhagia, Oligo and hypomenorrhoea were selected for estimation serum thyroid stimulating hormone (TSH), serum T_3 , serum T_4 . Normal serum concentrations taken for standard references:

 $T_3 - 1.3-3.1\eta mol/L$

T₄ - 66-181ηmol/L

TSH-0.27-4.2m/µ/ml

Inclusion Criteria

• All cases provisionally diagnosed as DUB from puberty to premenopausal age groups.

Exclusion Criteria

• Patients who were on drug or hormones, IUCD users, with overt clinical symptoms of thyroid dysfunction, history of bleeding disorder, goiter, CA thyroid. were excluded.

Study Technique

- Detailedmenstrual historytaken with special relevance to age, onset, duration, amount.
- Thorough clinical examination including general physical examination, neck gynecological, systemic examination done, with special reference to thyroid dysfunction.
- Patients with clinical signs and symptoms of thyroid disease are excluded.

• All cases underwent routine investigations like hemoglobin percentage, blood counts, urine examination for albumin, sugar, microscopy, BT, CT(to rule out coagulation defect). And were subjected for serum T3,T4,TSH estimation by competitive chemiluminescent immunoassay (C.L.I.A)

Investigations estimated by C.L.I.A method using reagent Monobind I N C; USA; Kit. with help of fully automatic Alpha lite machine in our Bio-chemical lab These test will be done in random blood samples as the variation in TSH secretion due to circadian rhythm with a peak at 01.00 hrs and nadir at 11.00 hrs is small and does not influence the timing of blood sampling. The following are noted.

• Level of T3, T4, TSH noted.

Patients will then be grouped into 4 categories

- Euthyroid
- Subclinical hypothyroid
- Overt hypothyroid
- Hyperthyroid

Patients with thyroid dysfunction was referred to physician for further management. Data collected, tabulated and analyzed.

OBSERVATIONS AND RESULTS

Table 1: Age distribution of DUB						
Age (years) No of cases Percentage (%						
<20	10	10%				
21-30	19	19%				
31-40	39	39%				
41-50	23	23%				
>50	9	9%				

Table 2: Distribution of patients according to parity

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Parity	No of cases	Percentage (%)
Unmarried	16	16%
Nulliparous	6	6%
Para 1	14	14%
Para 2	32	32%
Para 3	22	22%
Para 4	10	10%

Table 3: Thyroid dysfunction in DUB in relation to parity

			Thyroid dysfunction					
Parity	No of cases	euthyroid	hypothyroid Subclinical hyperthyroid hypothyroid		hyperthyroid	Total thyroid dysfunction	Percentage%	
Unmarrie d	16	11	1	3	1	5	31.25%	
Nullipara	6	5	0	1	0	1	16.67%	
Para 1	14	13	0	1	0	1	7.14%	
Para 2	32	26	3	3	0	6	18.75%	
Para 3	22	17	2	3	0	5	22.72%	
Para 4	10	8	2	0	0	2	20%1	

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	Table 4: Body mass index (BMI)						
	BMI	Range	No of cases (n=100)	Percentage %			
Un	derweight	<18.5	0	0			
I	Normal	18.5-24.9	43	43%			
Ov	verweight	25-29.9	39	39%			
	obese	>30	18	18%			

Table 5: Distribution of patients according to bleeding patterns

Pattern of bleeding	No of cases (n=100)	Percentage (%)
Menorrhagia	54	54%
Acyclical(MPH)	18	18%
Metrorrhagia	8	8%
hypomenorrhoea	3	3%
Oligomenorrhoea	3	3%
polymenorrhoea	5	5%
polymenorrhagia	9	9%

Table 6: Thyroid status in DUBThyroid dysfunctionNo of casesPercentage (%)Euthyroid8080%Overt hypothyroid88%Subclinical hypothyroid1111%

Hyperthyroid

 Table 7: Distribution of thyroid dysfunction among different bleeding patterns of DUB:

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Thyroid ds	Menorrhagia	Polymenorrhagia	Polymenorrhoea	Oligomeno.	Hypomeno.	MPH	Metro.
euthyroid	40	7	5	2	3	17	6
Subclinical hypo.	9	0	0	0	0	0	2
Overt hypo.	5	2	0	0	0	1	0
hyperthyroid	0	0	0	1	0	0	0
Total thyroid dysfunction	14 (25.9%)	2 (22.2%)	0	1 (33.3%)	0	1 (5.5%)	2 (25%)

Table 8: Distribution of patients with euthyroidism in relation to type of bleeding pattern

Type of bleeding	no of patients (Euthyroid) (n =80)	Percentage %	
Menorrhagia	40	50%	
Metrorrhagia	6	7.5%	
Acyclical (MPH)	17	21.25%	
Oligomenorrhea	2	2.5%	
Hypomenorrhea	5	6.25%	
Polymenorrhagia	7	8.75%	
polymenorrhea	3	3.75%	

Table 9: Distribution of patients with subclinical hypothyroidism in relation to type of bleeding pattern

Type of bleeding	No of patients(n =11)	Percentage
Menorrhagia	9	82%
Metrorrhagia	2	18%
Acyclical (MPH)	0	0
Oligomenorrhea	0	0
Hypomenorrhea	0	0
Polymenorrhagia	0	0
 polymenorrhea	0	0

Table 10: Distribution of overt h	whothyroidism	natients in relation to	type of bleeding nattern
Table 10. Distribution of overtin	iypoti iyi olulali	patients in relation to	type of bleeding pattern

Type of bleeding	No of patients(n =8)	Percentage
Menorrhagia	5	62.5%
Metrorrhagia	0	0
Acyclical (MPH)	1	12.5%
Oligomenorrhea	0	0
Hypomenorrhea	0	0
Polymenorrhagia	2	25%
polymenorrhea	0	0

Table 11: TSH level and different bleeding patterns (n=100)

т (SH level µm/ml)	No of cases	acyclical	menorrhagia	metrorrhgia	Olgiomenorrhea	hypomenorrhea	polymenorrhgia	polymenorrhea
	<0.45	1	0	0	0	1 (100%)	0	0	0
().45- 4.5	80	17(21.25%)	40(50%)	0	2 (2.5%)	3 (3.75%)	7 (8.75%)	5(6.25%)
	4.6-10	11	0	9 (82%)	2 (18%)	0	0	0	0
	>10	8	1(12.5%)	5(62.5%)	0	0	0	2(25%)	0

Table 12: T₄ level and different bleeding patterns (n=100)

T₄ level (nm/l)	No of cases	acyclical	menorrhagia	metrorrhgia	olgiomenorrhea	Hypomenorrhea	polymenorrhgia	polymenorrhea
<66	8	1(12.5%)	5(62.5%)	0	0	0	2(25%)	0
66-181	91	17	49	8	2	3	7	5
>181	1	0	0	0	1	0	0	0

Table 13: T ₃ level in different patterns of DUB													
T₃ level	No of cases	acyclical	menorrhagia	metrorrhgia	olgiomenorrhea	olgiomenorrhea	hypomenorrhea	polymenorrhgia	polymenorrh				
< 1.3ηmol/L	7	1(14.3%)	4(57.1%)	0	0	0	0	2(28.6%)	0				
1.3-3.1ηmol/L	92	17	50	8	2	2	3	7	5				

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DISCUSSION

>3.1 nmol/L

Menstrual irregularities are significantly more frequent in patients with thyroid dysfunction and may precede it. Thyroid disorders may result in a spectrum of menstrual irregularities ranging from menorrhagia to oligomenorrhoea. Kakuno et al showed patients with severe hypothyroidism had a high prevalence of menstrual disturbances (34.8%) than mild to moderate cases $(10.2\%)^2$. This study is an attempt to know the prevalence of hypothyroidism in patients with provisional diagnosis of DUB Table.1 shows that most DUB patients belonged to age group 31-40 years (39%) followed by 41-50years (23%). Das and Chugh *et al*³ reported highest incidence of DUB in 41-50 years (32.5%) and then 31-40years (28.2%). Sangeethapahwa *et al*,⁴ observed majority of patients in between 31-40 years (42%). Mirlankanti et al⁵observed majority of patients in age group 31-40 years. N Bhabani et al⁶ showed most of AUB patients in age group of 41-50 years (40%) followed by 31-40years (37%). In our study as shown in table -2most of cases belong to2nd (32%) and 3rd (22%) parity. 16% were unmarried and 6% were nulliparous. Pilli et al found DUB in 87% multipara, 7% primipara and 6% in

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nulliparous women. N Bhabani et al found that most cases were of 2^{nd} (21.5%) and 3^{rd} (20.5%) parity. para 2 women were more in our study compared to other studies because most of the women were undergoing sterilization after two children. Doifode¹ observed that DUB was more common among parous women than nulliparous. This was because of alterations in spiral arterioles of endometrium with age and parity which constitutes an important local factor in hemorrhage. Table.3 shows 31.25% unmarried cases had thyroid dysfunction, And incidence of thyroid abnormalities in nulliparous, primiparous, para 2, para 3 and para 4 were 16.67%, 7.14%, 18.75%, 22.72% and 20% respectively. Of the total19 hypothyroid patients, 13 patients (68.4%) were para2-4, 4 patients (21%) were unmarried 1(5.2%) were nulliparous and 1(5.2%) was para 1. Pahwa et al⁵¹ found 80% of the patients belonged para 2-4, 12% were para 1, 7% were nulliparous and only one was para 5.Lee²⁵ concluded that thyroid disorders leading to menstrual dysfunction are most common among perimenopausal group. Table 4 shows out of 100 cases 39 cases (39%) were overweight and 18 cases (18%) were obese i.e. 57% cases were having BMI >25. and 43%

0

0

0

cases were having normal BMI. High BMI patients have more prevalence of DUB due to peripheral conversion of androgens to estrogens, and altered estrogen-progesterone ratios. Chronic estrogen driven proliferation of endometrial tissue leads to endometrial overgrowth and bleeding at irregular intervals⁹ Table 5 shows distribution of DUB patients according to their bleeding patterns which shows menorrhagia (54%) was most common followed by metropathiaheamorrhagica (18%) among others 9% presented with polymenorrhagia, 8% had metrorrhagia,3% with oligomenorrhoea,3% with hypomenorrhea and 5% with polymenorrhoea. Study conducted by N Bhabani et al also found that menorrhagia is the commonest bleeding pattern seen in 54% of the cases followed by metropathiahemorrhagica was seen in 20.5% of the cases⁶. Mehrotia *et al* found an incidence of 54.2% of menorrhagia in their study¹⁰. This result is quite similar to that of Moghal et al.;¹¹ 41% and quite near to that of the studies of Pilli *et al*^{,7} 34% and Sangeeta Pahwa et al.;8 50%. Also, the percentage of cases presenting with menorrhagia and metrorrhagia alone or combined was 75% in the study conducted by Scott and Mussey¹²; 68% in the study conducted by Sangeeta Pahwa *et al.*;⁸ and 72% in our present study, which is comparable. Table-6 shows distribution of DUB patients according to their thyroid status which shows 80% cases were euthyroid.19% had hypothyroidism out of which11% had subclinical hypothyroidism and 8% had overt hypothyroidism and only 1% had hyperthyroidism. Prevalence of hypothyroidism was found to be 19%. N Bhabani et al⁶ study constitutes 19% cases with thyroid dysfunction out of which subclinical hypothyroidism 10%. overt hypothyroidism 7.5% and hyperthyroidism1.5% and euthyroidism 81% cases. Sangeeta Pahwa et al observed in their study that 22% of cases were found to be hypothyroid, 2% hyperthyroid and 76% were euthyroid⁴ In the study conducted by Kaur et al 14% were diagnosed with hypothyroidism guitesimilar to our study where 9% had subclinical and 5% established hypothyroidism¹³. Wilkansky et al¹⁴ also reported the prevalence of 22% of early hypothyroidism in menorrhagic women. T shruti et al¹⁵ study 11% were diagnosed with thyroid disorders of which 8% hadasubclinical hypothyroidism, 2% were hypothyroid and 1% were diagnosed with hyperthyroidism. Table 7 revealed that thyroid dysfunction is related to various types of bleeding abnormalities. Thyroid dysfunction was commonest in patients with oligomenorrhea (33.3%) followed by menorrhagia (25.9%) and metrorrhagia (25.5%). Of the total 19 hypothyroid patients, 14 (73.7%) had menorrhagia, 2(10.5%) had polymenorrhagia, 2 (10.5%) had metrorrhagia and one suffered from metropathiaheamorrhagica. Thyroid dysfunction is least

common in acyclical MPH and absent in polymenorrhea, polymenorrhagia and hypomenorrrhea. Table 8 shows Distribution of Euthyroid patients in relation to type of bleeding pattern and was observed that majority of the patients were suffering from Menorrhagia (50%).Next to menorrhagia acyclical MPH was common 21.25%. N. Bhabani et al^6 study constituted 81% of euthyroid patients. According to Shruthi et al. Euthyroid patients constituted 85% of patients with provisional diagnosis of DUB¹⁵ Table 9shows distribution of 11 Subclinical hypothyroidism patients, in relation to type of bleeding pattern & observed that majority of the patients were suffering from Menorrhagia, 9 cases (82%) and only 2 patients (18%) had metrorrhagia. The distribution of subclinical hypothyroidism (High TSH Levels) patients in relation to type of bleeding pattern was Studied by J. Divya Maria et al¹⁶ and observed 43.52%menorrahgia, 12.94% metrorrahgia, 10.6% oligomenorrhea and 32.94% hypomenorrhea. Douglas observed 22.3% of cases with menorrhagia had subclinical hypothyrodism¹⁷. Menorrhagia in hypothyroidism was the commonest menstrual abnormality seen by Mirlankanti et al (40%) which is similar to Singh et al study result of 44.4%. Table 10 shows distribution of 8 overt hypothyroidism patients, in relation to type of bleeding pattern and majority of the patients 62.5% were suffering from Menorrhagia. J. Divya Maria *et al*¹⁶ study also found a prevalence of 44% of menorrhagia in overt hypothyroidism. In N. Bhabani et al study the most common of menstrual abnormality type in hypothyroidism menorrhagia.73.3% was Overt hypothyroidism 65%subclinicalhypothyroidism and patients presented with menorrhagia. Doi Fode et al found menorrhagia in 63.33% cases of overt hypothyroidism¹⁸. Douglas *et al* observed that 22.3% of cases with menorrhagia had subclinical hypothyrodism¹⁹. Lakshmi Singh et al observed that oligomenorrhoea was seen in 63.6% of hyperthyroid patients and 36.3% of patients²⁰.Pushpaetalfound hypothyroid that hypothyroidism causes menorrhagia and hyperthyroidism reduces menstruation²¹. In the above collected data based on the thyroidstatus and bleeding pattern of the patients majority were suffering from menorrahgia in all the 3 conditions that is euthyroid, overt and subclinical hypothyroidism [80 patients (80%), 8 patients (8%), 11 patients (11%)] which is correlating with the study done by Neelu Sharma (22% hypo, 14% hyper, 64% euthyroid)²² Patients with TSH levels <0.45 all of them presented with symptoms of oligomenorrhoea. Patients with TSH levels moderately elevated 4.6-10 as seen in subclinical hypothyroidism, 82% presented with menorrhagia, 18% presented with metrorrhagia. Patients with TSH levels profoundly elevated i.e. >10 had

menorrhagia in 62.5% of cases, polymenorrhagia in 25% of cases and acvclical MPH in 12.5% of cases.TSH is the most sensitive parameter in detecting thyroid disorders. 20 % had abnormal TSH level and 80% had normal TSH values in our study. Patients with T4 level \leq 66nm/l, incidence of acyclical MPH 12.5%, menorrhagia 62.5% and polymenorrhagia 25% each. Patients with T4 levels >181nm/l had predominantly oligomenorrhoea as their complaint (100%). T4 levels were found to be abnormal in 9 cases of which 8 had low T4 levels and one had higher than normal range. T4 alone does not appear to be a very sensitive parameter in detecting thyroid dysfunction. Joshi et al²³ showed 44% of women with menstrual abnormalities apparently were euthyroid whereas in our study euthyroid patients constituted 80%. In our study 20% were diagnosed with thyroid disorders of which11% had subclinical hypothyroidism, 8% were overt hypothyroid and 1% were diagnosed with hyperthyroidism. Out of 20% diagnosed with thyroid disorders 8 had abnormal T3 and 9 had abnormal T4 value. Kaur *et al*²⁴ in their study diagnosed 15% of cases with subclinical hypothyroidism. In our study 11% of cases constituted subclinical hypothyroidism. Hence TSH appears to be the most sensitive test to evaluate thyroid function as it was abnormal in 100% of cases detected to have the disorder. Thus, the present study was aimed at detecting and evaluating thyroid dysfunction in patients with provisional diagnosis of DUB and positive cases were referred to physician for further management.

CONCLUSION

DUB is a common but complicated clinical presentation. It occurs in 9-14% of women between menarche and menopause, significantly impacting quality of life and imposing financial burden. If the bleeding workup does not provide any clue to the etiology of the menorrhagia, a patient often is given the diagnosis of DUB. Most cases of DUB are secondary to anovulation. Without ovulation, the corpus luteum fails to form, resulting in no progesterone secretion. Unopposed estrogen allows the endometrium to proliferate and thicken. The endometrium finally outgrows its blood supply and degenerates. The end result is asynchronous breakdown of the endometrial lining at different levels of maturation. This also is why anovulatory bleeding is heavier than normal menstrual flow. Both subclinical hypothyroid and overt hypothyroid cases together were the commonest thyroid dysfunction and menorrhagia was their commonest menstrual abnormality and majority of the cases has subclinical hypothyroidism and easily pass unrecognized. This prospective study was aimed at evaluating thyroid dysfunction in patients with DUB in all age groups and treat them medically thereby avoiding unnecessary

surgery. In our study there was a high prevalence of thyroid disorders in cases clinically diagnosed with DUB (20%). 55% of the thyroid dysfunction cases constituted subclinical hypothyroidism. The prompt response to treatment with thyroxin will not only preclude unnecessary surgery but will also prevent clinical thyroid disorder at a later date in cases of subclinical hypothyroidism. As subclinical hypothyroidism has a high prevalence in the population, it is mandatory to evaluate thyroid function in cases with DUB in all age groups.

REFERENCES

- 1. Doifode CD, fernandes K, study of thyroid dysfunction in patients with dysfunctional uterine bleeding, J.obst&gynecoindia 2001 51(2),93-95.
- 2. Kakuno Y, Amino N et al. Menstrual disturbances in various thyroid diseases, Endo J, 2010; 57(12): 1017 -22.
- Dass and chughs, Dysfunctional uterine bleeding J. ObstetGynaecol of india 1964; 348-353.
- Sangeeta Pawha, Kaur, Ga. Thyroid dysfunction in dysfunctional uterine bleeding. JARBS. 2013; 5(1):78-83.
- Mrinalkantikundu, Nibeditachattopadhyay, role of thyroid dysfunction in patients with provisional diagnosis of DUB, J of evolution of medical and dental science 2014,volume 3(38)p 9751-9756
- 6. N bhabani, Avanthisathneedi, a study of correlation between AUB and thyroid dysfunction, IJ of recent trends in science and technology 2015,vol14(1) p131-135
- 7. Pilli GS, Sethi B, Dhaded AV, Mathur PR. Dysfunctional uterine bleeding J. obst gynae India 2001;52(3):87-89.
- 8. Pahwa S, Gupta S, Kumar J; Thyroid dysfunction in Dysfunctional uterine bleeding. Journal of advanced research in biological science. 5(1):2013:78-83.
- Impacts of obesity on reproductive health and fertility. (FertilSteril_ 2009; 91:1712–6.©2009 by American Society for Reproductive Medicine.
- Mehrotia VG, Mukherjee k, Pandey M, Sumanth V A study to evaluate etiological factor and management of puberty menorrhagia. J Obst Gynae India 1972; 12:684.
- Moghal N; Diagnostic value of endometrial curettage in abnormal uterine bleeding-a histopathological study. J Pak Med Assoc 1997; 47(12):295-9.
- 12. Scott JC, Mussey E; Menstrual patterns in myxedema. Am J ObstetGynecol 1987; 70:789-798.
- 13. Kaur T, Aseeja V, Sharma S. Thyroid dysfunction in dysfunctional uterine bleeding, Web med central Obstet and Gynae, 2011;2(9):WMC002235
- Wilansky DL, Greisman B. Early hypothyroidism in patients with menorrhagia. Am J of ObstetGynecol, 1990 Aug; 163(2): 697.
- 15. TalasilaSruthi, Shilpa Shivanna B Prevalence of hypothyroidism in patients with provisional diagnosis of DUB, J of Evolution of med and dental sciences2014; vol3 (1):2967-72.
- J. Divya Maria*et al, A Prospective Study on Hypothyroidism in Premenopausal Women, Int. J. Pharm. Sci. Rev. Res., 39(1), July – August 2016; Article No. 35, Pages: 183-187

- Thomas R, Reid R L, Thyroid disease & reproductive dysfunctions, Obstetrics Gynaecology, volume 70, 1987,789-985.
- Charusheela D, Doifode, Kalpana Fernandes Study of thyroid dysfunction in patients with Dysfunctionaluterine bleeding. J obstet and gynecol of India, March2001; 51(2):93-95.
- Douglas L Wilansky, Bernard Grisesman. Early hypothyroidism in patients with menorrhagia Am JObstet and Gynaecol 1990; 163(2):697.
- Lakshmi singh CG Agawal, SR Chowdary, P Mehra, RajanaKhare Thyroid profile in infertile women J of Obs and gyn of India 1990; 40:248

- Pushpa Sirichand, Impaired thyroid functions in patients with menstrual disturbances. World applied sciences journal 2009;7(4) 538-542
- 22. Sharma N, Sharma A, Thyroid profile in menstrual disorders, JK Science, vol 14(1), 2014, 14-17.
- JV Joshi, SD Bhandarkar, M Chandha et al. Menstrual irregularities and lactation failure may precede thyroid dysfunction or goitre, journal of postgraduate medicine, 1993; 39(3): 137 – 41
- 24. Kaur T, Aseeja V, Sharma S. Thyroid dysfunction in dysfunctional uterine bleeding, Web med central Obstet and Gynae, 2011;2(9):WMC002235

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