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Gynecology

ADOLESCENT ABNORMAL UTERINE BLEEDING (AUB) IN A TERTIARY REFERRAL HOSPITAL: A RETROSPECTIVE STUDY

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ABSTRACT

Background: To study the prevalence, etiology and management of Adolescent AUB.

Methods: A retrospective study was conducted in the Department of Obstetrics and Gynecology at Shri Dharmasthala Manjunatheshwara College of Medical Science and Hospital, Dharwad, India. The study included 77 adolescents admitted with abnormal bleeding over a period of 10 years. A detailed history was taken on admission and relevant investigations were done. All patients received non hormonal and/or hormonal therapy, blood transfusion was given in cases with severe anaemia.

Results: Out of the 77 inpatients with puberty menorrhagia, majority of the cases were due to endocrine causes (71.42%), 20.77% were due to coagulation disorders, anatomical causes was seen in 6.49% patients and drug intake was found in 1 patient. Majority of the adolescents had severe anaemia requiring blood transfusion. Most of the cases responded to hormonal therapy

Conclusion: Most common etiology of abnormal bleeding in adolescents was anovulatory AUB secondary to immaturity of HPO axis. Many individuals had severe anaemia at presentation. Individualizing every case, excluding pregnancy, timely hospitalization, a thorough history, physical examination and base line workup are crucial in the management of every case.

KEYWORDS : Adolescent, heavy menstrual bleeding, hormonal therapy.

Introduction:

Puberty is a complex interplay of hormonal and physiological changes that results in sexual maturation and capability for reproduction. This transition from childhood to adulthood can be difficult for few adolescents, puberty menorrhagia (Adolescent AUB) is one of such problems.

Puberty menorrhagia is defined as excessive bleeding in quantity (>80ml) or duration (>7days) between menarche and 19 years of age. Menarche is one of the life turning events for an adolescent girl. Mechanisms triggering puberty and menarche are dependent on genetics, nutrition, body weight and maturation of the hypothalamo-pituitary- ovarian (HPO) axis. Adolescents present with complaints of menstrual irregularities frequently nowadays. Abnormal bleeding accounts for almost 50% of gynecological visits varying from minimal spotting to severe bleeding. In 80% of cases of puberty menorrhagia, anovulation is the cause .Hypothalamic immaturity and inadequate positive feedback results in sustained high levels of estrogen resulting in breakthrough bleeding. After exclusion of pregnancy, abnormal bleeding in adolescents may be due to endocrine, hematological, anatomical and iatrogenic causes. Most of the cases can be managed medically, surgical intervention is rarely required. Abnormal bleeding after a period of regular menstruation has better prognosis than the one with its onset at menarche. Adolescents with gynecological problems require reassurance, sensitive handling and advice regarding diet and life style modification1.

Materials and methods:

This study evaluates 77 cases of severe puberty menorrhagia managed by in hospital admission at Sri Dharmasthala Manjunatheshwara college of Medical Sciences and Hospital, Dharwad from 2007 to 2017. Data was collected from Medical Records Department using a predesigned proforma and analyzed. It was a retrospective analytical study and no interventional procedures were undertaken. The study was approved by the ethical committee of the college.

Inclusion Criteria included:-

1) Persistence of bleeding >7 days
2) Increased flow associated with clots
3) Hemoglobin <10g/dl /signs & symptoms of anemia with or without features of failure
4) History of previous hospitalization and transfusion of blood products
5) Urine pregnancy test negative

Detailed history regarding age at admission, age of menarche, pubertal development, menstrual history regarding the amount of blood loss and duration of symptoms were noted. Medical history of recent weight gain/loss, tuberculosis, endocrine diseases such as thyroid disorder, any renal, cardiac, hematologic disorder, bleeding diathesis, drug intake, previous history of blood transfusion and any surgeries done was recorded. Family history of tuberculosis, thyroid disorder and bleeding disorders taken. Personal history including sexual behavior was noted.

Detailed clinical examination included general physical examination, vitals, secondary sexual characteristics, stigmata of Polycystic Ovarian Syndrome (PCOS), hirsutism and significant findings on systemic examination were noted. A bimanual per-rectal examination was performed for all patients. Per speculum and per vaginal examination was done during examination under anesthesia (EUA) in specific cases when indicated.

Initially routine investigations done were complete hemogram, hormonal profile, blood group & type, coagulation profile and pelvic ultrasound. Further based on these reports specific investigations were done. In severe anemia-red blood cell (RBC) indices, reticulocyte count, Indirect Coomb's test, Direct Coomb's test, liver function test, renal function test, peripheral smear for malarial parasite and bone marrow examination were analysed. In deranged coagulation profile, clotting factor assays, fibrinogen levels, platelet function tests and Von Willebrand specific assays were ordered. In suspected Koch's, Mantoux test and chest radiograph, collected menstrual blood or endometrial biopsy for acid fast bacilli and histopathology were performed.

All patients received hormonal therapy alone or in combination with antifibrinolytics as first line of treatment2. Based on the etiological factors, additional specific treatment was given. All cases with severe anemia and coagulation disorders received blood / blood products transfusion. Cases with acute severe blood loss going in for shock required surgical intervention.

Results:

A total of 77 patients with puberty menorrhagia were analyzed retrospectively. Of these 33 patients attained menarche between 12-13 years (42.85%), 21 patients between 11-12 years (27.27%), 16 patients were more than 13years (20.77%) and 7 patients were less than 11 years (9.09%) of age(Table 1).

Table 1: Age at menarche of cases

Age (in years)	Total number of cases	Percentage of cases
<11	7	9.09
11-12	21	27.27
12-13	33	42.85
>13	16	20.77

Mean duration from onset of menarche to presentation with AUB was :- at AOM (at onset of menarche)16 patients , 18 patients with in 1 year of menarche, 23 patients between1 to 3 years of menarche and 20 patients beyond 3 years of menarche. 46.87% of patients had duration of symptoms less than 6 months, 31.25% had symptoms for more than one year. Of the patients presenting at AOM 13 cases had coagulation disorder (Table 2).

Table 2: Duration in years since menarche

Time of presentation	No.of cases	Patients with hematological disorders	Percentage(%)
At AOM	16	13	81.2
<1yr	18	2	12.5
1-3yrs	23	0	0
>3yrs	20	1	6.25

AOM- at onset of menarche

Of the 77 cases, 32.46% of patients were underweight, 10.38% were overweight, and 57.14% were in normal weight category(Table 3).

Table 3: BMI of patients

BMI(kg/m^2)	No of cases	Percentage(%)
<18.5	25	32.46
18.5 -23	44	57.14
>23	8	10.38

AUB resulted in severe anemia in 55 cases. Hemoglobin level less than 5g/dl was noted in 24 patients (31.16%) and level 5-7g/dl was seen in 31 patients (40.25%). All the patients with hemoglobin less than7g/dl received blood transfusion (Table 4)

Table 4: Hemoglobin levels of patients

Hemoglobin(g/dl)	No of cases	Percentage(%)
<5	24	31.16
5-7	31	40.25
7-10	17	22.07
>10	5	6.49

Majority of the cases were due to endocrine causes (71.42%), of which anovulatory AUB constituted 40 (51.95%) patients. PCOS was diagnosed in 10 patients based on ultrasound findings and /or features of hyperandrogenism. Overt hypothyroidism was diagnosed in 4 patients and 1 patient had hypothyroidism with high prolactin levels. Coagulation abnormalities were seen in 16 patients, 11 of them had congenital coagulation disorders and whereas 5 had acquired causes. Fibroid uterus was seen in 4 patients and bicornuate uterus in 1 patient which resulted in AUB. One patient was on anticoagulant therapy for mechanical prosthetic valve causing excessive blood loss (Table 5).

Table 5: Etiological factors of Puberty Menorrhagia

Etiology	No of cases	Percentage (%)
1.**Endocrine causes**	55	**71.42**
a) Anovulatory AUB	40	51.94
b) PCOS	10	12.98
c) Hypothyroidism	4	5.19
d) Hypothyroidism+hyperprolactinemia	1	1.29
2. **Coagulation Disorders**		**20.77**
a) Thrombocytopenia due to dengue fever	16	
b) Glanzmann's thrombasthenia	2	
c) Idipathic Thrombocytopenic Purpura(ITP)	2	
d) VonWillebrand Disease(vWD)	2	
e) Functional platelet disorder	2	
f) Afibrinogenemia	2	
g) Factor V deficiency	1	
h) Factor VII deficiency	2	
i) Factor X deficiency	1	
j) Factor XIII deficiency	1	
k) Leukemia	1	
3. Anatomical	5	6.49
a) Fibroids	4	
b) Bicornuate uterus	1	
4. **Drugs**	1	1.29

All the cases were managed medically. Of 77 cases, 3 cases received Oral Progesterone only (3.89%), 40 cases received Oral Progesterone + Tranexemic Acid (51.94%), 4 cases received Oral Progesterone + Estrogen (5.19%), 4 cases received Oral Progesterone + Danazole (5.19%),1 case received Oral progesterone + Testosterone(1.29%), 12 cases received Biphasic Oral Contraceptive pills + Tranexemic Acid(15.58%), 12 cases received only Biphasic Oral Contraceptive pills, 1 patient was inserted with LNG IUS.

Besides the above therapy specific treatment for medical conditions given were: corticosteroids for 2 cases of ITP, L- Thyroxine for 5 cases of hypothyroidism, desmopressin spray for 2 cases of VWD and cabergolin for hyperprolactinemia(Table 6).

Table 6: Medical management

R_x	N	%
Biphasic OC pills	12	15.58
Biphasic OC pills + Tranexemic Acid	12	15.58
Oral progesterone + Testosterone	1	1.29
Oral Progesterone + Tranexemic Acid	40	51.94
Oral Progesterone + Danazole	4	5.19
Oral Progesterone + estrogen	4	5.19
Oral Progesterone only	3	3.89
LNG IUS insertion	1	1.29
Blood/Blood products	50	64.93
Adjuvant specific therapy a) Corticosteroids b) L Thyroxine c) Desmopressin spray d)Cabergoline	1 5 2 1	

A total of 55 patients required blood transfusion (71.42%). ICU admission was required for 6 (28.75%) patients, who needed inotrope support. Additional surgical intervention was done in 6 cases (Table 7). Dilatation and curettage was done for thickened endometrium of 3.5cms, not responding to progesterone therapy. Hysteroscopic myomectomy was performed for a submucus fibroid polyp and laparotomy was done for hemoperitoneum resulting from ruptured corpus luteal cyst.

Table 7: Surgical treatment

Procedure done	No. of cases
a) EUA + Dilatation and curratage	1
b) EUA + Hysteroscopic myomectomy	1
c) Laparotomy for hemoperitoneum	2
d) Hysterectomy	2

Discussion:

Common Causes of abnormal uterine bleeding include:-Uterine causes like pregnancy, endometritis, hyperplasia, malignancy, polyp and fibroids. Ovarian causes are immature hypothalamic pituitary ovarian axis, PCOS and estrogen producing tumors. Cervical causes comprise of cervicitis, condyloma, sarcoma botryoides, polyp and malignancy. Vulvo-vaginal causes consist of trauma, foreign body, vaginitis, infection and sarcoma botryoides.Endocrine causes are commonly hypothyroidism and hyperprolactinaemia. Coagulation disorders include, platelet disorders (eg.Glanzmann's Thrombasthenia) Von willebrands disease, other clotting factor deficiencies, drugs and acquired causes.[1]

In the present study,51.94 % of cases of puberty menorrhagia the cause was found to be anovulatory dysfunctional uterine bleeding which is less than reported by Roy Chowdhury (61.5%) and Chaudhary et al., (71%)[3,4]. Koranne et al[5] reported 80 % of cases of puberty menorrhagia due to the same cause. Initially due to immaturity of the HPO axis, the continuous rise in estrogen stimulates endometrial growth. This ultimately outgrows its blood supply and architectural support, resulting in partial breakdown and shedding in an irregular manner. In anovulatory AUB the lack of progesterone results in decrease in the PGE2α:PGE2 ratio and relative increase in the vasodilator and antiplatelet-aggregatory PGE2 which accounts for the increased mean menstrual blood loss[6].

In our series of patients, majority were managed medically to control

the acute phase of bleeding. Rao reported the requirement of blood transfusion to be 37 %in treating cases of pubertal menorrhagia[7].In our study the need for blood transfusion was 71.42 %.Roy Chowdhury reported the requirement for blood transfusion to be 35%[5].

Treatment in anovulatory DUB was directed towards stabilizing the endometrium and treating the hormonal alterations. It includes first of all reassurance that it is a self-limiting problem. Though Tranexamic acid and Mefenemic acid help in reducing the bleeding in mild cases treated on outpatient basis actual control and stoppage of severe bleeding needing admission is achieved by high doses of progestogens (medical curettage), which are then tapered to give a bleed free interval[8]. In severe cases addition of estrogen therapy is required. In our study progestogens and tranexemic acid alone or in combination with other drugs were used in all patients. Subsequently Progestogens can be used cyclically in 2 different treatment protocols as a short course during the luteal phase and a relatively longer course of 21 days from fifth day of the cycle. Progestogens can also be used in combination with estrogen as COCP's or with androgens (but long term treatment is not acceptable due to undesirable side effects).

In our study menorrhagia due to PCOS was 12.98 % which was more compared to other studies[3,5,6]. There is striking increase in incidence of PCOS, causes for which are multifactorial. Diagnosis was confirmed by biochemical or clinical hyperandrogenism, oligo-anovulation and polycystic ovarian morphology (PCOM) on ultrasonography [9]. In immediate post menarche one or more of these features can be physiological, hence diagnosis of PCOS is made only after 2 yrs of AOM unless there is biochemical evidence of hyperandrogenism[10]. Combined hormonal pills are best line of treatment for PCOS(pills with drosperinone or cyproterone acetate, depending on individual requirements) along with life style changes, dietary modification , weight reduction and improving metabolic status[11].

Hypothyroidism is associated with menorrhagia either due to breakthrough bleeding, associated hypocoagulable & hyperfib rinolytic state . The intrinsic clotting mechanism may be defective because of decreased concentrations in plasma of factors VIII and IX, and this, together with an increase in capillary fragility and the decrease in platelet adhesiveness, may account for the bleeding tendency that sometimes occurs.[12]. In our study 6.49 % patients were hypothyroid as opposed to 5.7 % Koranne et al and 7.15 % Mukherjee et al[5,13].

Menorrhagia due to coagulation disorders (CD) were 20.77% in our study . The most common coagulation disorders that cause adolescent AUB are platelet disorders followed by clotting factor deficiencies. Others include associated systemic diseases, infections, leukemias and drug induced. Most of the hereditary conditions are diagnosed in early childhood but in some menorrhagia may be the first presenting symptom[14]. In our study 81 % of cases with CD presented at AOM, 5 patients needed ICU admission, most of them required blood/blood products transfusion, had multiple admissions, 2 underwent laparotomy for hemoperitoneum and two underwent prophylactic hysterectomy after completion of family. Such is the morbidity caused hence all cases of severe puberty menorrhagia should be evaluated for CD.

Conclusion:

Adolescent AUB results in anemia, school absenteeism, hospitalization, morbidity, expenditure and has a long term sequel on nutritional, psychological and academic status of the affected girl. Hence individualization of every case, thorough evaluation, timely hospitalization and/ or referral, and appropriate treatment are crucial in their management and avoidance of iatrogenic/non iatrogenic complications. Reassurance, counselling about reproductive physiology, regular follow-up, balanced diet and iron therapy go a long way in treatment of adolescent AUB.

REFERENCES

1. Caufriez A. Menstrual disorders in adolescence: Pathophysiology and treatment. Horm Res 1991; 36: 156
2. Lethaby A, Farquhar C, Cooke I. Antifibrinolytics for heavy menstrual bleeding. Cochrane Database Syst Rev.2000; (4):CD000249.
3. Roy Chowdhury J, Chaudhuri S, Sarkar A, Kumar B. A Study to evaluate the etiological factors and management of puberty menorrhagia OJHAS.2008;7(1)
4. Chaudhury S, Bhattacharya PK, Sarkar. A study of adolescence menorrhagia. Indian med J. 2007; 101(5):161-64
5. Prachi Saurabh Koranne, Aparna R Wahane . Puberty menorrhagia in modern era: analysis in a tertiary care centre, Int J Reprod Contracept Obstet Gynecol. 2014 Sep; 3(3):622-626
6. Debra A, Minjarez MD, Karen D, Bradshaw MD.Abnormal uterine bleeding in adolescents. Obstet Gynaecol Clin North Am. 2000; 27(1):63-8.
7. Rao S, Pawar V, Badhwar VR. Medical intervention in puberty menorrhagia. Bombay hospital J.2004; 466
8. Royal college of obstetrician and gynaecologist, the initial management of menorrhagia, RCOG evidence based clinical guidelines No.1 London 1999.
9. The Rotterdam ESHRE/ASRM- sponsored PCOS consensus workshop group. Revised 2003 consensus on diagnostic criteria and long term health risks related to polycystic ovarian syndrome. Fertil Steril. 2004; 81:19-25
10. Van Hooff MH, Voorhorst FJ, Kaotien MB et al. Predictive value of menstrual cycle pattern, body mass index, hormonal levels and polycystic ovaries at age 15 years for oligo-amenorrhea at age 18 yrs. Hum Reprod 2004; 19:383-92
11. Ibanez L, Oberfield SE, Witchel SF et al. An International Consortium update: Pathophysiology, Diagnosis, and treatment of Polycystic Ovarian Syndrome in Adolescence. Horm Res Paediatr 2017; Vol.:307-331
12. Tachman ML, Guthrie GP Jr. Hypothyroidism: diversity of presentation. Endocr Rev. 1984;5: 456-465.
13. Mukherjee J, Chowdary RNN. A review of 70 cases of puberty menorrhagia. JOGI 1986; 121
14. Ahuja SP1, Hertweck SP. Overview of bleeding disorders in adolescent females with menorrhagia. J Pediatr Adolesc Gynecol. 2010 Dec;23(6 Suppl):S15-21.