



Incidence of puberty Menorrhagia - A Case Study in Dhaka, Bangladesh

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ABSTRACT-

Introduction: *This study aims to evaluate the incidence, clinical presentation, etiological factors and treatment outcomes of the patients suffering from puberty menorrhagia.*

Methods: *30 patients with puberty menorrhagia attending the outpatient as well as indoor department of Delta Medical college and Hospital, Dhaka, during the period from February, 2005 to July, 2006 were included in the study. They were prospectively analyzed to assess the aetiological factors and the outcome of treatment required to manage these cases.*

Results: *The incidence of puberty menorrhagia was 9.6% in our study. 48% patient's age were between 14-16 years, 56.6% had anovulatory dysfunctional uterine bleeding (DUB). 23% had hematological PCOD, Hypothyroidism 10%. Out of 30 patients 26.6% were relieved with tranexamic acid, 63% required hormone treatment and 10% received blood transfusion.*

Conclusion: *Anovulatory DUB is the cause of menorrhagia in most of the cases .Medical treatment is mostly effective while surgical procedures are limited to few specific cases.*

Key Words: *Puberty menorrhagia, Anovulation, Hematological disease*

INTRODUCTION

Puberty is defined as the period during which secondary sex characters begin to develop and the capability of sexual reproduction is attained. Puberty menorrhagia is defined as excessive bleeding in amount (>80ml) or in duration (>7days) between menarche and 19 years of age.¹ Menstrual disorders affect 75% of adolescent females and are a leading reason for visit to physicians.² Almost a quarter of population in developing countries comprises girls below 20 years.³ There are five main physical features of puberty: breast growth, pubic hair growth, axillary hair growth, increase in height and menstruation. The onset of menstruation is influenced by a number of factors: genetics, nutrition, body weight and maturation of the hypothalamic pituitary ovarian axis. The onset of menstruation does not mean that ovulation has occurred; in the majority early menstrual cycles are anovulatory. Puberty menorrhagia in adolescent group, almost always caused by anovulatory cycles due to immaturity of hypothalamic pituitary ovarian axis. The cycle length varies for some considerable years after menarche. During this time it is common for adolescents to present with menstrual irregularities⁴. The complete maturation of the axis may take up to 2 years.¹ Menstrual disorders affect 75% of adolescent females and are a leading reason for visit to physicians.³ Almost a quarter of population in developing countries comprises girls below 20 years.⁴ During this period, it is common for them to present with complaints of menstrual irregularities. Postmenarcheal cycles are initially

anovulatory. Without ovulation estrogen effect is unopposed by endogenous progesterone resulting in endometrial proliferation, with eventual excessive menstrual bleeding. Thus puberty menorrhagia is a fairly common gynecological disorder in adolescence and sometimes it invites life threatening event. Adolescents with gynaecological problems require a degree of privacy and sensitive handling, as many of the gynaecological problems encountered relate to intimate body functions at a time when the individual is maturing sexually and having to deal with issues that are embarrassing and may be considered taboo. This study was conducted to find out the incidence and causes of puberty menorrhagia in our setup, and role of conservative management.

OBJECTIVE OF THE STUDY

1. To recognize the significance of socio economic status and literacy rate of parents in puberty menorrhagia and its severity.
2. To understand the various causative factors and their management in reducing severity of pubertal menorrhagia.
3. To evaluate the rate of hormones, oestrogen, progesterone or combination of both in controlling the excessive menstrual bleeding.

MATERIAL AND METHOD

A total of 30 young girls from the age of menarche to 19 years with history of excessive

bleeding per vagina attending outdoor patient department or admitted in the indoor department of Obstetric and Gynecology, Delta Medical College and Hospital, Dhaka were included for the study. Blood loss during menstruation was considered excessive if (i) the girl had persistence of menstruation of more than seven days or/and (ii) if there was history of passage of clots and the girl had pallor and hemoglobin 10 gm% or less. The study was carried out from 1st February, 2012 to 31st July 2012. A detailed history regarding age, socioeconomic status, birth incidents, milestones of her growth, pubertal developments, onset of thelarche, pubic and axillary hair development, growth pattern, and menarche was noted. The presenting complaint with onset, duration and amount of blood loss were noted in details. Enquiries were made about menstrual interval, duration of bleeding, passage of clots, number of pads required daily. The medical history included history of recent weight gain or loss, any voice changes, tuberculosis, endocrine disease like diabetes, thyroid disorder, any cardiac, renal and haematological disorders. Past surgical history was explored for any complication especially for any excessive bleeding. Personal history included history of any drug intake. Sexual behaviour, any history of trauma or abortions were also noted. Family history was taken in details regarding presence of any disease like tuberculosis, diabetes, thyroid disorders, bleeding diathesis. The physical examination included calculation of height, weight and BMI of the individual. Pallor, icterus, signs of

malnutrition for any vitamin deficiency was noted. Abdominal palpation was done to find hepatosplenomegaly, ascites and any other abdomino-pelvic mass. Skin was noted for any purpuric spots, acne, hirsutism. Tenderness in sternum and other bony areas were seen along with presence of any joint swelling. Secondary sex characters, like breast development, axillary and pubic hairs were inspected. A protocol for investigations to be carried out was made. Some of the investigations were done routinely in all patients which include complete blood count and peripheral blood smear examination b) bleeding time, clotting time, prothombin time, activated partial prothombin time, platelet aggregation study The management protocol was followed on the basis of early diagnosis of the underlying causes. Menstrual calendar was maintained in all patients. Clinical assessment was done to assess the amount of blood loss or whether the patient is in shock or having hypovolemia. Prostaglandin synthetase inhibitors like Mefenamic acid, antifibrinolytic drugs like Tranexamic acid were used as a first line of drugs during the days of menstruation for control of blood loss. Hormones like oral contraceptive pills, progestins were prescribed in cases not responding to nonhormonal therapy. Anaemia was corrected by oral haematinics or blood transfusion in consultation with haematologist. Specific treatments for correction of haematological disease, thyroid disease, tuberculosis, surgery for organic disease were carried out.

ANALYSIS AND RESULTS

Total 30 patients with puberty menorrhagia were analyzed for the study. Amongst them 27(90%) were treated in the outpatient department. The rest 3 (10%) needed admission due to severe bleeding. Ages of the patients are shown in Table 1. In this study most of the patients were of 14-16 years (50%) and only 20% were above 16 years.

Haemoglobin levels are shown in Table 2. Four patients (13.33%) were severely anaemic (haemoglobin level <7mg/dl), eighteen patients were moderately anaemic (haemoglobin level 7-10 mg/dl) and eight patients had normal haemoglobin level.

In Table 3 causes of anaemia has shown. In 53.33% of cases the cause of puberty menorrhagia

were anovulatory dysfunctional uterine bleeding, 16.66% had PCOD, 13.33% had hypothyroidism, bleeding disorder was found in 06.66% cases and 03.33% of puberty menorrhagia were due to pregnancy related cause.

Table 4 Eight (26.66%) patients responded well to iron and a 3-5 day course of tranexamic acid in the dose of 1-2 gm/day. Twelve (40%) patients responded to oral progesterone for 3 cycles, Seven (23.33%) patients responded to oral contraceptive pills and three patients (10%) need blood transfusion. The hypothyroid patient responded to thyroxin therapy.

Table 1: Age of patients

Age	No. of patients	Percentage
10-13	9	30%
14-16	15	50%
17-19	6	20%
Total	30	

Table 2: Hemoglobin percentage of the patients

Hemoglobin %	No of patient	percentage
7<	4	13.33%
7-10	18	60%
>10	8	26.66%
Total	30	

Table 3: Etiological factors of puberty menorrhagia

Etiology	No of patient	Percentage
Anovulation	18	53.33%
Hypothyroidism	4	13.33%
PCOD	5	16.66%
Bleeding disorder	2	6.66%
Pregnancy related	1	3.33%
Total	30	

Table 4: Management of Puberty Menorrhagia

Type of management	No. of patient	Percentage
Iron+Tranexamic acid	8	26.66%
Iron+progesterone	12	40%
Iron+Oral pill	7	23.33%
Blood transfusion	3	10%
Total	30	

DISCUSSION

Adolescence (from Latin: *adolescere* meaning "to grow up")¹ is a transitional stage of physical and psychological human development that generally occurs during the period from puberty to legal adulthood (age of majority).⁵ Menarche is a hallmark event in the life of adolescent girls, it marks the transformation from childhood to puberty. During puberty, maturation of the hypothalamic pituitary ovarian axis is characterized by an increase in frequency and amplitude of pulsatile GnRH, which initiates and regulates secretion of pituitary gonadotrophins^{6,7}. Mehotra⁸ in their series found 10% of their adolescent patients suffering from menorrhagia.

The present study shows an incidence of puberty menorrhagia as 9.6% among 312 adolescents during the study period. Out of 30 patients 9 patients belonged to early adolescent group, 15 patients belonged to middle adolescence group and 6 patients were from late adolescence period. This study is similar with that of Gautum allahabadia et al⁹. In our study 60% of patients had moderate anaemia, 13.33% patients had haemoglobin below 7 mg/dl. In our study 53.33% of cases of puberty menorrhagia were due to anovulatory dysfunctional uterine bleeding. Chaudury et al¹⁰ reported 71%⁶, Roychowdhury¹¹

61.5%⁷ of cases of puberty menorrhagia as being due to anovulation due to immaturity of hypothalamic pituitary ovarian axis. Most of these patients had already received a combination of medical regimes which had improved their condition. However on stopping the medicines their bleeding recurred. Treatment is directed towards stabilizing the endometrium and treating the hormonal alterations. It includes reassurance that this is a self limiting problem. First line treatment in mild cases is tranexamic acid and NSAIDS during the menstrual cycle¹². Tranexamic acid is effective, safe, the bioavailability is 35% which requires administration of at least 1 gm 4-6 hourly¹³. Hormonal treatment is required where the girl is anaemic or where the problem is recurrent and restricts her activity for 3-6 months. Progesterones alone are generally effective but can be used in combination with estrogen. Progesterone can be used cyclically in two different treatment protocols: as a short course during the luteal phase and a relatively longer course lasting 21 days from day 5 of the cycle. Heavy bleeding can be treated with (1) oral Medroxyprogesterone 10 mg three times /day for 14 days. (2) Medroxyprogesterone acetate injection (Depo Provera) 150 mg intramuscularly every 12 weeks. (3) Progesterone

can also be used for medical curettage, in the form of norethisterone acetate 20-30 mg daily for 3 days to arrest haemorrhage. It may then be continued at a lower dose for up to 21 days. Withdrawal bleeding will occur on stopping the treatment that ceases in 4-5 days. (4) Oral contraceptive pills taper using monophasic pills can also be given, 4 pills evenly spaced per day for 4 days, 3 pills per day for 3 days, 2 pills per day for 2 days and 1 pill /per day for 2 months without taking the placebo pill¹⁴. In patients with severe bleeding associated with haemodynamic changes blood transfusions are indicated with administration of intravenous conjugated equine oestrogen, 25 mg I/V every 4 hours for upto 24 hours. Bleeding usually decreases Within 24 hours and then oral oestrogen can be substituted. Progesterone is also usually added. In Polycystic ovarian disease, ovaries typically have multiple follicular cysts less than 10mm in size and increased stroma. It is associated with chronic anovulation and hyper androgenism. All 30 patients were subjected to basic investigations along with ultrasonogram and it was found that 7 patients (23%) had PCOD. Rao¹ found 13% of the causes of puberty menorrhagia were due to polycystic ovarian disease.¹ Diagnosis was confirmed with altered day 2 LH & FSH ratio, features of hyperandrogenism and USG diagnosed polycystic ovaries. Both of them were prescribed OCP for 3 months. The cycle regularized and menstrual bleeding became normal. Five out of 30 patients who were suspected to have hypothyroidism were also subjected to thyroid

profile, but three patients (10%) had elevated TSH value and diagnosed as hypothyroidism. According to the study conducted by CD Doifode et al¹⁵ the incidence of hypothyroidism in this age group was 11.67%. Young girls with blood coagulopathies are at a high risk of abnormal bleeding with the onset of menarche, bleeding is usually heavy causing anaemia and may require blood transfusion. Phillip et al¹⁶ reported an incidence of abnormal platelet aggregation in 45% of women with bleeding disorder. In our study 2 patients (7%) had idiopathic thrombocytopenic purpura. Acute idiopathic thrombocytopenic purpura is most commonly seen in the young and is immunological, caused by immune complex containing viral antigens that bind to platelet Fc receptors or by antibodies produced against viral antigens that cross react with platelets. The possibility of pregnancy complications like miscarriage must be excluded as a cause of abnormal uterine bleeding in adolescents.¹⁷ The present study shows pregnancy related complications in 4.6 % of patients. 26 patients (40%) in this study group responded well with use of tranexamic and mefenamic acid during menstruation along with oral iron therapy. In the present study 12(18.4%) patients received oral progesterone therapy. The present study shows seventeen patients (In the follow-up of these patients 43(66.2%) were cured with therapy and normal cycle was restored. Rest were controlled on continued treatment.

CONCLUSION

Abnormal menstrual bleeding in adolescents can be caused by a number of conditions; the most common cause is immaturity of the hypothalamic pituitary ovarian axis. Assessment of each case with thorough history, physical examination, and laboratory investigations are crucial in reaching the diagnosis. Once a proper diagnosis is made, counselling of the patient and her parents follow up and long term therapy in some cases is required.

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