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Pubertal Menorrhagia: Evaluation and Management

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Abstract

Background: Puberty menorrhagia is a common gynecological problem. Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders in adolescent and adult women and importantly has both reproductive and metabolic consequences. . It is challenging to make a diagnosis during the 1-2 years following menarche because normal pubertal changes can mimic features of PCOS. Aims: To determine the cause of puberty menorrhagia and evaluate the efficacy of medical management. **Materials and Methods** This is a prospective observational study included 48 patients who presented with menorrhagic cycles in the pubertal age group to Princess Esra Hospital, DCMS from January 2013 to December 2013. Each case was assessed by thorough history, physical examination and relevant laboratory investigations. **Results**: In 28 patients immaturity of hypothalamic pituitary ovarian endometrial axis was considered to be the cause as their ultrasound and hormonal assays were normal. 10 had PCOS, 3 had hypothyroidism, 4 had tuberculosis, 1 patient had thrombocytopenia, 2 patients had symptomatic fibroid uterus. Blood and its components were given to 8 patients**. Conclusions:** Puberty menorrhagia is a distressing condition which can lead to severe complications and may require blood transfusion. Most of the cases are due to anovulatory cycles with immaturity of the hypothalamo-pitutuary-ovarian-endometrial axis. The current epidemic of childhood obesity may increase the symptoms of polycystic ovarian disease and underscores the importance of its early and accurate diagnosis with emphasis on lifestyle modification.

Key-words: Pubertal Menorrhagia, Medical Management, Prospective study

Introduction

Puberty menorrhagia is a common gynecological problem. Puberty is defined as the state of being functionally capable of procreation. The term is generally used in a more comprehensive sense to refer to the whole period of time during which secondary sexual characters develop, menstruation begins in females and psychosexual outlook of a human being changes. There are five main physical features of puberty: breast growth, pubic hair growth, axillary hair growth, increase in the height and menstruation. The onset of menstruation is influenced by a number of factors: genetics, nutrition, bodyweight and maturation of the hypothalamo-pituitary-ovarian-endometrial axis. The onset of menstruation does not mean that ovulation has occurred; in the majority early menstrual cycles are anovulatory. The cycle length varies for some considerable years after menarche. It may take some 5-8 years before menstrual cycle normality is established. During this time it is common for adolescents to present with menstrual irregularities.[1] Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders in adolescent and adult women and importantly has both reproductive and metabolic consequences. However, PCOS is likely under diagnosed, especially in adolescent patients. It is challenging to make a diagnosis during the 1-2 years following menarche because normal pubertal changes can mimic features of PCOS. These features include anovulatory menstrual cycles, transient multifollicular ovarian morphology that may appear polycystic by ultrasound, increased androgen effects, and relative insulin resistance secondary to increased growth hormone levels. Adolescents with gynaecological problems require reassurance, sensitive handling and advice regarding diet and life style modification.

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Material and Methods

A total of 48 young girls from the age of

menarche to 19 years of age with history of excessive bleeding per vaginum attending the outpatient (OP) ward or admitted in the Dept of Obstetrics and Gynaecology of Princess Esra Hospital, DCMS were included for the study. Inclusion criteria were 1) History of flow of more than seven days duration. 2) History of passage of clots. 3) Hb of 10 gm % or less. The study was carried out from 1st January 2013 to 31st December 2013. A detailed history regarding age, socioeconomic status, age of menarche, previous menstrual history was taken. The present complaint with onset duration and amount of blood loss were noted in detail. They were enquired about menstrual interval, duration of bleeding passage of clots number of pads required daily. The medical history included recent history of weight change, Tuberculosis or contact, thyroid disorders and haematological disorders. Personal history and history of sexual exposure was noted. Family history was taken in detail.Physical examination included calculation of BMI of the individual. Patients were examined for pallor icterus, gum bleeding and lymphadenopathy. Temperature pulse blood pressure and the respiratory and cardiovascular systems were examined. Abdominal palpation was done for hepatosplenomegaly and abdominal masses. Tenderness in sternum and other bony points were examined skin was examined for purpuric spots acne hirsutism and other features of hyperandrogenism. Secondary sexual characters were inspected. Gynecological examination was limited to vulval inspection if the hymen was found intact.

A protocol for investigation was made .Investigations that were done routinely for all included Hb, PCV, a total and differential count, platelet count, peripheral smear, PT, APTT, blood sugar, S. TSH LH, FSH, S. prolactin and ultrasound abdomen and pelvis were done. Some investigations done in selected patients included chest x ray, menstrual blood for TB PCR and Mantoux. GTT and a lipid profile in those with PCOS The management protocol depended upon the condition of the patient and the underlying cause of menorrhagia. Menstrual calendar was maintained in all the patients. In anovulatory bleeding with a haemodynamically stable patient, Prostaglandin synthetase inhibitors and antifibrinolytics were initiated as first line therapy during the days of menstruation for control f blood loss. Harmonal therapy with progestins or COCP`s were recommended to those not responding to non hormonal therapy. Anemia was corrected with oral or parenteral iron or component therapy in consultation with a physician. Specific treatment was initiated for thyroid insufficiency and Koch's. Surgery for organic disease was carried out. Importance was given to provide nutritional, physical and psychological support to the adolescent girls along with reassurance. Lifestyle modification was advised to the obese PCOS. Periodic follow of these patients were done by maintaining menstrual calendar, clinical examination and by monitoring the response to therapy.

Results

A total of 48 patients with pubertal menorrhagia were analyzed. Among them 26 (54.16%) were treated as out- patients and the rest 22 were admitted for correction of anemia. The age of onset of menarche of less than 10 years of age was seen in 16.66%. 54.16% patients had menarche after the age of 12 years (Table: 1). 75% of the patients came under the normal and overweight category while 25% were underweight. Appropriate counseling regarding diet was given to them (Table: 2). Of the 48patients 8 required blood transfusion, rest of them were managed on parenteral iron and oral iron they also received dietary advice (Table: 3). Girls with menarche menorrhagia fall into a high risk group 8.33 % fell into this group (Table: 4). In 28 patients the cause was thought to be immaturity of the HPO axis as they had a normal study on ultrasound and their hormonal assays were within normal limits (Table: 5). 10 were diagnosed due to PCOS based on ultrasound criteria. 4 were tested positive for Tuberculosis and gave a history of contact with a Tuberculous patient. 3 Patients had elevated TSH levels with normal T4 and T3 values. 2 patients had fibroid uterus (Table: 6).

Discussion

Menarche is a hallmark event in the life of adolescent girls it marks the transition from childhood to puberty. Most common presentation of abnormal uterine bleeding in adolescents is puberty menorrhagia. It is defined as excessive bleeding occurring between menarche and 19 years of age. Anovulation is responsible for 80% of cases of puberty menorrhagia.[2] Mehrotra in their series found 10% of followed their adolescent patients suffering from menorrhagia.[3] The present study shows an incidence of pubertal menorrhagia as 8.7% among 548 adolescents, during this study period. Rao reported the requirement of blood transfusion to be 37 %in treating cases of pubertal menorrhagia.[4] In our study the need for blood transfusion was 16.6%.Roychowdhury reported the requirement for blood transfusion to be 35%.[5] In our study 23 (47.9%) girls had duration of pubertal menorrhagia of less than 6 months duration and 4 developed menorrhagia since menarche. Rao in their series observed 62%of their patients had menstrual disorders of less than 6 months duration.[4] In our study

the incidence of menorrhagia due to anovulation secondary to immaturity of hypothalamic pitutuary ovarian endometrial axis was 58.3% which is less than reported by Roy Chowdhury (61.5%) and Chaudhary et al., (71%).[5.6] Treatment in them was directed towards stabilizing the endometrium and treating the hormonal alterations. It includes reassurance that it is a self limiting problem. First line of treatment in mild cases is Tranexamic acid and NSAIDS during the menstrual cycle.[7] Progesterone 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 are generally effective but can be used in combination with estrogen as COCP's. In our study menorrhagia due to PCOS was 20.8%. While study done by Rao and Chowdhury found incidence to be 2.8%, and 3.07% respectively.[4.5] Diagnosis was confirmed by hormonal assay and ultrasonography. COCP's were chosen as first line therapy along with haematinics.

Hypothyroidism is associated with menorrhagia either due to breakthrough bleeding or due to decreased levels of factors VII, VIII, IX and XI.[8] In our study (6.25%) patients were found to be hypothyroid. They responded to thyroid supplementation. Mukherjee et al., in their study of 70 cases of pubertal menorrhagia found the incidence of hypothyroidism to be 7.15%.[9] Adolescents with hypothyroidism have milder symptoms than older patients. The cause of excessive bleeding in them remains the realm of speculation.[9] In the present study 8.3% were found to have endometrial tuberculosis. They were started on antitubercular drugs along with haematinics. Puberty menorrhagia is seen in 4% of young girls.[10] The possibility of pregnancy complications were ruled out in these patients by doing urine for pregnancy test. Although rare, uterine pathology such as fibroids and polyps may lead to abnormal uterine bleeding.[11] In two patients with symptomatic fibroid uterus who underwent myomectomy, one patient had relief from menorrhagia and the other patient needed GnRH agonists to which she responded.

One patient had thrombocytopenia a platelet count of less than 50,000/cumm. She was referred from the medical department with history of Dengue haemorrhagic fever. She was given component therapy and she recovered and never had recurrence of menorrhagia. She was advised iron supplementation thereafter.

Conclusions

Abnormal menstrual bleeding in adolescents can be caused by a number of conditions. In our study the incidence of PCOS was high. Assessment of each case with thorough history, physical examination and relevant laboratory investigations are crucial in reaching the diagnosis. Once a proper diagnosis is made counseling, reassurance and follow up are required.

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Table1. Age at menarche

Age at menarche	Number of patients	Percentage
<10 years	8	16.66%
10-2years	14	29.16%
12-14 years	26	54.16%

Table 2. BMI in patients

BMI	Number of patients	Percentage
<18.5	12	25%
18.5-25	18	37.5%
>25	18	37.5%

Table 3. Haemoglobin levels

Hb	Number of patients	Percentage
<5gm%	6	12.5%
5-7gm%	14	29.16%
7-10gm%	13	27.08%
>10gm%	15	31.25%

Table 4. Duration of menorrhagia

Since menarche	4
<6mths of menarche	19
6-12 months of menarche	9
>12 months of menarche	6

Table 5. Etiological factors

Etiological factor	Number of patients
Polyp	0
Adenomyosis	0
Leiomyoma	2
Malignancy	0
Coagulation abnormalities	1
Ovulatory dysfunction	38
Endometrial	4
Iatrogenic	0
Not classified	3

Table 6. Management of pubertal menorrhagia

Type of management	Number of patients
Haematinics	10
Iron+ mefenamic acid	6
Iron+ mefenamic acid+ tranexamic acid	5
Iron+ progestins	4
Iron+ COCPS	8
IRON +LT4	3
Iron +AKT	4
SURGICAL	2