International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Varadarajan R et al. Int J Reprod Contracept Obstet Gynecol. 2022 Jul;11(7):1921-1924
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20221670

Original Research Article

Evaluation of cases of puberty menorrhagia requiring in-patient care

Reethu Varadarajan, Sanjana Yoganarasimha*

Department of Obstetrics and Gynecology, Kempegowda Institute of Medical Sciences, Bengaluru, Karnataka, India

Received: 17 May 2022
Accepted: 07 June 2022

***Correspondence:**
Dr. Sanjana Yoganarasimha,
E-mail: drsanjanasimha@gmail.com

ABSTRACT

Background: Heavy menstrual bleeding is defined as excessive menstrual blood loss that interferes with a woman's physical, social, emotional or material quality of life. Puberty menorrhagia is excessive bleeding occurring between menarche and 19 years. Abnormal bleeding amounts to 50% of gynaecological visits in adolescent girls. The leading cause of puberty menorrhagia is hypothalamic pituitary, ovarian axis immaturity followed by bleeding disorders, endocrine disorders. Excessive blood loss leading to anaemia has a negative impact over the development and quality of life of the adolescent, requiring immediate attention to these cases. The objective was to evaluate the incidence, etiology and management of puberty menorrhagia requiring in-patient care.
Methods: A retrospective observational study was done on adolescents admitted for management of puberty menorrhagia in Kempegowda Institute of Medical Sciences over a period lasting from January 2017 to October 2021 from hospital records.
Results: Amongst the 35 admitted, 42% belonged to the age group 10-14 years. 62.8% presented with symptoms lasting less than 6 months. 20% presented with haemoglobin less than 4 gm, 51.4% with haemoglobin between 4 gm to 6 gm, 28.6% with 6 gm to 8 gm. 57.2% patients had anovulatory cycles, 25.7% were PCOS, 11.4% had hypothyroidism and 5.7% had fibroid uterus. 42% ultrasonographies showed PCOS, 5.7% had fibroid uterus. The approach to managing these patients were with a combination of hormone therapy, hematinics, blood transfusion and anti fibrinolytics like tranexemic acid. 20% received tranexemic acid and hematinics. 31.42% received blood, hematinics and tranexemic acid, 11.42% received hematinics, tranexemic acid and thyroxine, 17.14% received blood, hematinics, tranexemic acid and progesterone, 8.57% received hematinics, tranexemic acid and COCs, 11.42% received hematinics, tranexemic acid and progesterone.
Conclusions: In conclusion, the leading cause of puberty menorrhagia was anovulatory cycles, followed by PCOS and then by endocrine dysfunction. Medical management was successful in all cases.

Keywords: Puberty menorrhagia, Puberty, Abnormal uterine bleeding

INTRODUCTION

Heavy menstrual bleeding defines prolonged or heavy cyclic menstruation. Objectively, menses lasting longer than 7 days or exceeding 80 ml of blood loss are determining values.[1] The term puberty refers to the whole period of time during which secondary sexual characteristics develop, menstruation begins in females and psychosexual outlook of a human being changes.[2]

Puberty marks the normal physiologic transition from childhood to sexual and reproductive maturity. With puberty, primary sexual characteristics of the hypothalamus, pituitary and ovaries initially undergo an intricate maturation process that leads to the complex development of secondary sexual characteristics involving the breast, sexual hair and genitalia, in addition to a limited acceleration in body growth. There are five main physical features of puberty in female: breast growth, pubic hair growth, axillary hair growth, increase in height and onset

of menstruation (menarche). Puberty menorrhagia is defined as excessive bleeding in amount (>80 ml) or in duration (>7 days) between menarche and 19 years of age.[3]

In adolescence, AUB results from anovulation and coagulation defects at disproportionately higher rates compared with older reproductive-aged women. Benign or malignant neoplastic growths are less frequent. Pregnancy, sexually transmitted diseases and sexual abuse are also considered in this population. Abnormal uterine bleeding accounts to around 50% of the gynaecological visits in adolescents.

METHODS

The present retrospective record based study was conducted in the Department Of Obstetrics And Gynaecology, Kempegowda Institute of Medical Sciences and Research Centre, Bengaluru from 1 January 2017 to 31 October 2021. Data of all adolescent girls with history of excessive bleeding per vagina of age between menarche and 19 years admitted for its management, fulfilling all the inclusion criteria and none of the exclusion criteria were included in the study. The permission to use the data for research purpose was taken from the medical records department. All the care was taken to keep the personal information of the adolescents confidential. Thirty five adolescent girls were included in the present study.

Inclusion criteria

Adolescent girls from the age of menarche and 19 years; patients with history of excessive bleeding during menstruation; adolescent girls whose information were available for the study were included.

Exclusion criteria

Married girls coming with excessive bleeding; girls of age more than 20 years; adolescents whose information were not available were excluded from the study.

Data regarding their socioeconomic status, age at menarche, duration since menarche, menstrual pattern, investigations performed and the management modality was obtained from the hospital records. Duration and the severity of symptoms and anaemia was assessed.

Menstrual history was recorded which included the regularity of cycles in the past, duration of flow, amount of blood loss. Blood loss was considered excessive if it exceeded 7 days with a haemoglobin of 10 g/dl.

Past history included weight gain, bleeding disorder, thyroid disorders. Personal history included type of diet, BMI treatment history included drug intake. Family history was taken in detail for TB, bleeding disorders.

Patients were examined for pallor, lymphadenopathy, gum bleeding, purpura, acne and other features of hyperandrogenism. Abdominal examination for hepatosplenomegaly and other mass.

Baseline investigations were done which included USG abdomen and pelvis, morphology of uterus and ovaries. The management protocol depended on the underlying cause. In hemodynamically stable patients with anovulatory bleeding antifibrinolytics and NSAIDs were used. In cases not responding to non hormonal therapy, progestins and OCPs were prescribed. Anaemia was corrected with blood and hematinics.

RESULTS

A total of 35 girls were enrolled in the study. It was seen that 15 (42%) belonged to the age group of 10-14 years. 13 (37%) to the age group of 15-17 years (Table 1). 18 (51%) belonged to the lower middle class, whereas 10 (28%) belonged to the upper lower class and 7 (20%) to the lower class. The duration of symptoms mostly lasted for 6 months in 22 (62.8%), 6 months to 1 year in 7 (20%) and for more than a year in 6 (17.2%).

Table 1: Demographic details and study findings.

Parameters	Variables	N	Percentage (%)
Age (years)	10-14	15	42.8
	15-17	13	37.14
	18-19	7	20
Socio economic status	Lower middle class	18	51.4
	Upper lower class	10	28.6
	Lower class	7	20
Duration of symptoms	Less than 6 months	22	62.8
	6 months to 1 year	7	20
	More than 1 year	6	17.2
Mean haemoglobin distribution on admission (gm/dl)	Less than 4	7	20
	4 to 6	18	51.4
	6 to 8	10	28.6

Continued.

Parameters	Variables	N	Percentage (%)
Etiology	Anovulatory cycles	20	57.2
	PCOS	9	25.7
	Hypothyroidism	4	11.4
	Fibroid uterus	2	5.7
USG findings	Normal study	18	51.42
	PCOS	15	42.8

The mean haemoglobin distribution on admission was as follows: 7 (20%) presented with less than 4 gm/dl, 18 (51%) were between 4 to 6 gm/dl and 10 (28%) was between 6 to 8 gm/dl.

With regards to etiology, 20 (57%) had anovulatory cycles, 9 (25%) had PCOS, 4 (11%) had hypothyroidism, 2 (5.7%) had fibroid uterus.

The ultrasonography findings revealed PCOS in 15 (42%), fibroid uterus in 2 (5%).

31% were managed with blood, hematinics and antifibrinolytics.

Around 36% of the girls needed hormonal therapy for control of bleeding.

11% of the girls were diagnosed to have hypothyroidism and were stared on thyroxine.

DISCUSSION

Adolescence is the phase of life between childhood and adulthood, from ages 10 to 19. It is a unique stage of human development and an important time for laying the foundations of good health. Menarche is a hallmark event in an adolescent's life and marks a transformation from childhood to puberty. Puberty menorrhagia is defined as excessive bleeding in amount >80 ml or in duration >7 days between menarche and 19 years of age. 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.[4]

During prepubertal years LH is secreted at night episodically. With age, day LH peak increases. The timing of these LH pulses is crucial in establishing normal ovulatory cycles. Increase in basal LH as well as immature timing of pulses results in anovulatory cycles. The LH and FSH release during these cycles are sufficient to induce follicular development and oestrogen production but to induce follicular maturation and ovulation it is insufficient. Hence, endometrial growth is stimulated by the unopposed oestrogen. There is irregular shedding once the endometrium outgrows its blood supply and support.[5]

In normal menstruation, the ratio of PGF2:PGE2 is 2:1 so that it is the vasoconstrictor and platelet aggregation that predominates. In anovulatory DUB the lack of progesterone results in decreased PGF2:PGE2 ratio and relative increase in vasodilator PGE2 accounting for increased menstrual blood loss.[3]

In our study, 42% of girls were 10-14 years, 37% were around the age 15-17 years, comparable to Khosla et al 2010 who reported that 55% of their study participants belonged to mid adolescence and the study done by Joshi et al 2012 also reported that 92% of their participants were in the mid adolescence.[6,7]

In our study 62% girls came with symptoms lasting <6 months and 20% with 6 months to 1 year, suggesting that ones who needed admission had enough blood loss in a significantly less duration who required admission for the management of anaemia or active bleeding.

The mean haemoglobin distribution at the time of admission shows 51% with 4 gm/dl to 6 gm/dl Hb. Around 20% of them with less than 4 gm. Similar results had been shown in the study conducted by Sameena et al.[8] They needed packed cell transfusion with parenteral iron therapy for management of anaemia.

In our study 57% of the girl's menorrhagia was attributed to anovulatory cycles, 25% to PCOS. In PCOD, ovaries had multiple follicular cysts less than 10 mm in size and increased stroma. It was associated with chronic anovulation which may result from an increased pulsatility of GnRH. This resulted in elevated LH levels and increased ovarian androgen production.[9]

Similar findings were reported by the studies done by Gillani et al 2012 who reported an incidence of PCOD to be 8.6%, Joshi et al reported it to be 14%.[7,10]

We attributed 11% menorrhagia to hypothyroidism. Menorrhagia seen with hypothyroidism responded to thyroxine. This suggested that thyroid hormone had a direct effect on the spiral arterioles and on hemostasis in menstruation.

While most girls required hematinics for anaemia correction, 48% required blood transfusion along with it.

Around 37% needed hormonal management for the control of bleeding with progestins and combined OCPs.

CONCLUSION

Immaturity of the hypothalamo-pituitary ovarian axis leads to anovulatory cycles, which is the main cause of menorrhagia in adolescents. Haematological, endocrinological disorders need to be ruled out. Bleeding disorders especially, present with menorrhagia in puberty and girls have to be diagnosed and treated for the same.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Hoffman BL, J Whitridge. Williams gynecology. New York: McFraw-Hill Education; 2016.
2. Gillani S, Mohammad S. Puberty menorrhagia: causes and management. J Med Sci (Peshawar). 2012;20(1):15-8.
3. Rao S, Pawar V, Badhwar VR, Fonseca MN. Medical intervention in puberty menorrhagia. Bombay Hospital J. 2004;46(2).
4. Grant AD, Wilbrecht L, Kriegsfeld LJ. Adolescent development of biological rhythms in female rats: estradiol dependence and effects of combined contraceptives. Front Physiol. 2021:12.
5. Edmonds DK. Gynecological disorders of childhood and adolescence. Dewhursts textbook of obstetrics and gynecology. 7 th ed. Blackwell Publishing; 2007: 364-8.
6. Khosla AH, Devi L, Goel P, Saha PK. Puberty menorrhagia requiring inpatient admission. JNMA J Nepal Med Assoc. 2010;49(178):112-6.
7. Shikha J, Chella H, Shrivastava D. Study of Puberty Menorrhagia in Adolescent Girl in a Rural Set-up. J SAFOG. 2012:110-2.
8. Ashraf S, Afzal A, Nigeen W, Nabi N. Study of puberty menorrhagia: causes and management. Int J Med Sci Public Health. 2017;6(11):1594-7.
9. Delemarre HA, Wennink JM, Odink RJ. Gonadotrophin and growth hormone secretion throughout puberty. Acta Paediatrica Scandinavica. 1991;372:26-31.
10. Gillani S, Mohammad S. Puberty menorrhagia: causes and management. J Med Sci (Peshawar). 2012;20(1):15-8.

Cite this article as: Varadarajan R, Yoganarasimha S. Evaluation of cases of puberty menorrhagia requiring in-patient care. Int J Reprod Contracept Obstet Gynecol 2022;11:1921-4.