International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Patil VN et al. Int J Reprod Contracept Obstet Gynecol. 2022 Aug;11(8):2137-2141
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20221925

Original Research Article

Menstruation and related disorders in Indian adolescent girls: an observational study

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Received: 28 March 2022
Revised: 28 June 2022
Accepted: 29 June 2022

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ABSTRACT

Background: Menstrual disorders are a common presentation and leading reasons for the physician office visits by adolescents. With this preview, we have made an attempt to evaluate the current changes in the age of menarche, menstruation patterns, the incidence of common menstrual disorders and their etiologies. Aims and objectives of the current study was to evaluate the menstrual disorders, their etiology and treatment modalities in adolescents in tertiary health care setup.
Methods: An observational study was carried out on female patients in adolescent age group attending OPD of obstetrics and gynecology, Grant Government Medical College, Mumbai, India. The selected women were explained about the protocol, purpose of the study and were requested to complete the questionnaires to elicit information relating to demographic features, menarche age, and menstrual characteristics. Results were tabulated and analyzed.
Results: A total number of 100 cases were included in this study, among them majority were in 16-19 years age group (64%), 79% of the study population belong to the lower class. It was observed that 55% study subject had dysmenorrhoea, 65% had irregular menses, 52% oligomenorrhoea, 13% polymenorrhoea, 28% had menorrhagia, 2% amenorrhea, 10% with PCOS and 2% with endometriosis, 4% with hypothyroidism, 4% with hyperprolactinemia. Most of the study subject responded well to analgesics and hormonal therapy.
Conclusions: Menstrual irregularity needs to be evaluated with utmost sensitivity and treated promptly. Lack of sufficient knowledge, awareness regarding menstruation among adolescent girls and social embarrassment should be tackled with education.

Keywords: Adolescence, Menstruation, Menstrual disorders

INTRODUCTION

Adolescence (from Latin adolescere 'to mature') is a unique stage of human development and an important time for laying the foundations of good health. Adolescents experience rapid physical, cognitive and psychosocial growth. As per WHO, adolescence includes the age group of 10-19 years. Adolescents constitute over 21.4% of the population in India.[1]

Adolescence marks the transition between childhood and adulthood. The biological determinant of adolescence is universal, however there is variation in the duration, defining characteristics of this period across time, demography, culture and socio-economic conditions. Over the time, we have come across many changes in the pattern of this phase like the time of onset of puberty, urbanization, changing attitude towards sexuality, behavior, sanitation and hygiene.

Menstruation is the most important aspect of women's reproductive health. Menarche an important marker of puberty and an important event in the life of adolescent girl. Studies suggested that menarche tends to appear earlier in life as the sanitary, nutritional and economic conditions of a society improve.[2,3] It has different patterns within the few years after the menarche, which might not be well understood by many adolescent girls. For most females, it occurs between the age of 10 and 16 years; however, it shows a significant range of variation.[4] The normal range for ovulatory cycles is between 21 and 35 days. While most periods last from 3 to 5 days with duration of menstrual flow normally ranging from 2 to 7 days. During this process, there are sequential phases that mark the maturation of the complex endocrinological system comprising of the hypothalamus, pituitary gland, and ovary, and their interactions. Healthy reproductive function is the expected endpoint of this process.[5-7] For the first few years after menarche, irregular and longer cycles are common.[2-4,8-10] The most frequent menstrual disorders are polymenorrhea, oligomenorrhea and dysmenorrheal.[11-14] Menstrual abnormalities is more common during early years of menstruation, becomes less frequent as they grow older, 3-5 years after menarche.[15-19] Menstrual disorders are the most common reason for the adolescent girls to see physicians such as amenorrhea, menorrhagia, premenstrual syndrome, dysmenorrhea, abnormal vaginal bleeding, ovarian masses, polycystic ovarian syndrome, endometriosis, coagulation disorder and sexually transmitted disease.[20] It occupies a special space in the spectrum of gynecological disorders of all ages. This is because of the physical nature of the problems which are so unique, special and specific for the age group and also because of the associated and psychological factors which are very important in the growth and psychological remodeling of someone in the transition between childhood and womanhood. Yet adolescent gynecology is a sub specialized area of gynecology which has still not been explored optimally.

METHODS

An observational study was carried on the female patients in the adolescents age group attending the outpatient department in the department of obstetrics and gynaecology, Grant Government Medical College, Mumbai, India from January 2021 to December 2021.

Inclusion criteria

All adolescents' females with normal genotype in the age group of 10-19 years consenting for the study were included in the study.

Exclusion criteria

Adolescent female with age more than 19 years, females with pregnancy or pregnancy related complications, females not consenting for the study or with medico-legal cases were excluded from the study.

Procedure

The selected women were explained about the protocol and the purpose of the study and were requested to complete the questionnaires to elicit information relating to demographic features, menarche age, and menstrual characteristics. All the data collected was kept strictly confidential and used for the purpose of this study as described below. Written informed consent (in English/Hindi/Marathi) was taken from the subjects and/or their attendants before there recruitment of the subjects in the study. Each patient's hospital record was analyzed with regard to demographic profile, duration and severity of symptoms, menstrual history, history of bleeding disorders, clinical examination, treatment and all investigations Statistical analysis of data was done by using proportion and percentage in Microsoft excel. All the data collected from patient was compiled in a Microsoft office Excel sheet (windows 10, version 2017) and will be analyzed using the statistical package for social sciences (SPSS) for windows software (version 20.0, SPSS Inc, Chicago).

RESULTS

A total number of 100 cases were included in the study period who met the inclusion and exclusion criteria and the results were tabulated in the form of graphs, tables, charts and their statistical significance was studied. A total number of 100 cases were included in the study period who met the inclusion and exclusion criteria and the results were tabulated in the form of graphs, tables, charts and their statistical significance was studied. Among them 64% (majority) were in 16-19 years age group, 28% belong to the 13-15 age group and 8% in the 10-12 age group.

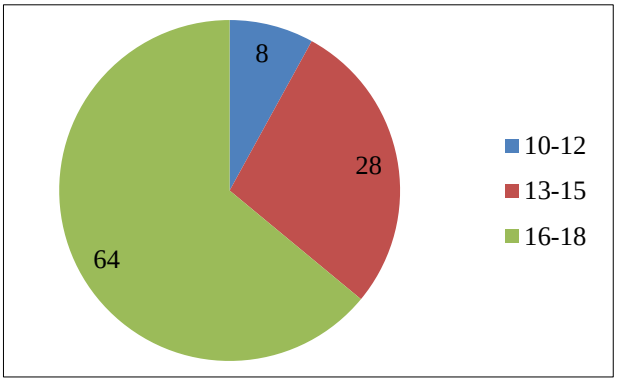

Figure 1: Study subject distribution according to the age.

Only 14% among the adolescents have attended the secondary school and 28% of the study cases have attended high secondary school. 79% of the study population belong to the lower class, 19% to the middle

and 2% to the upper socio-economic status. It was observed that majority of adolescent girls had normal BMI, 7% girls were underweighted, 14% girls were overweight, 11% girls were under obesity class I category and 2% girls were under obesity class II category.

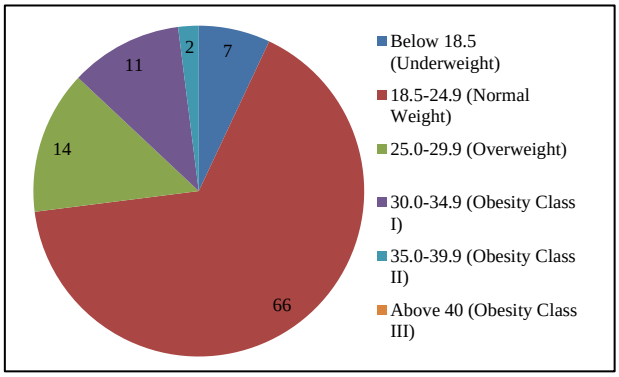

Figure 2: Distribution according to the BMI.

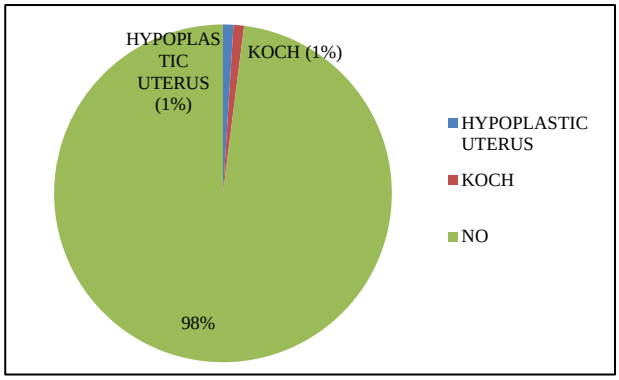

Figure 3: Distribution of study subjects with amenorrhoea.

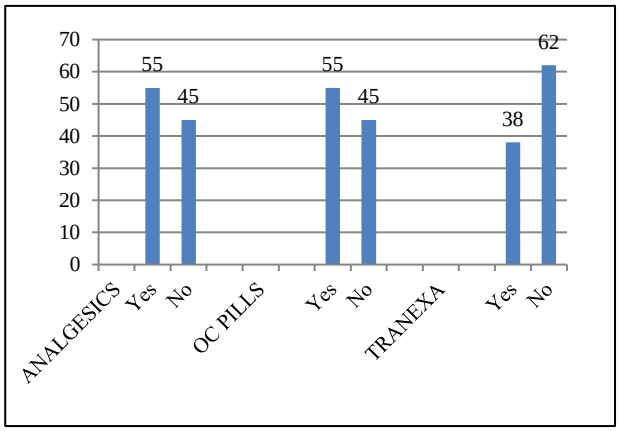

Figure 4: Distribution of the study subjects according to the treatment received.

Majority (37%) of the study subjects attained their menarche at the age of 12. Majority of the subjects had flow duration of 5-6 days; 62%, 13% of the subjects had flow duration of 3-4 days followed by 25% with flow duration of 7-8 days. It was observed that 52% of girls had menstrual cycle of more than 35 days. It was observed that 55% study subject had dysmenorrhoea, 65% had irregular menses, 52% oligomenorrhoea, 13% polymenorrhoea, 28% had menorrhagia, 2% amenorrhea 10% with PCOS and 2% with endometriosis. In our study, white discharge was reported in 24 adolescent girls which was physiological and appropriate counseling regarding menstrual hygiene was done. In this study it was observed that majority of girls with dysmenorrhoea were in the late adolescent age group.

Table 1: Distribution of the study subjects according to the menstrual disorders.

Menstrual disorders	N	%
Dysmenorrhea	55	55
Oligomenorrhoea	52	52
Polymenorroea	13	13
Menorrhagia	28	28
PCOS	10	10
White discharge	24	24
Endometriosis	02	02
Primary amenorrhoea	00	00
Secondary amenorrhoea	02	02
ITP	01	01
Hyperprolactinemia	04	04
Hypothyroidism	04	04

In our study, it was observed that one study subject with menorrhagia had Idiopathic thrombocytopenic purpura. In our study it was found that 4% of the study subjects with irregular menses had raised prolactin levels and 4% with raised thyroid stimulating hormones. Amenorrhoea was reported in cases with hypoplastic uterus and tuberculosis. For the treatment, analgesics (55%) were given, OC pills/hormonal pills for menstrual regulation in 55% of the cases and tranexamic acid in 38% of cases with heavy menstrual bleeding.

DISCUSSION

Adolescents comprises of nearly one-fifth (22%) of the India's total population. The country also has the world's largest adolescent girl population (20%).[21] Our study included adolescent girls in the age group of 10-19 years, a total of 100 cases were studied, majority of the study subjects were in the age group of 16-19, the mean age of the study subjects was 15.9 years. The mean age in Ramya et al study was 16.5 years in Joshi et al hospital-based study, most of the girls were in the age group 17 to 19 years. In our study majority of the study subjects were studying in high secondary school (28%) and secondary school (14%). Majority of study subjects belonged to lower class, followed by middle class (19%) and upper class (2%). In the present study, it was observed that majority of girls had attained menarche at the age of 11-15 years. 37% of the study subject attained their menarche at 12 years of age with mean value of 12.55 years. In Joshi et al hospital-based study in Assam, maximum (75%) of the girls had attained their menarche

at 12.6 years of age. Durga et al it was found that the mean age of menarche was 13.5 years. In our study majority (66%) of the girls were observed to have normal BMI, 7% of the study subjects were found to be underweight, 11% belonged to obesity class I and 2% belonged to obesity class II. In Joshi et al hospital-based study, 70.59% had normal range of BMI, 23.5% were underweight and 5.8% were overweight. In another study, Shahid et al cross-sectional study, it was observed that 20% adolescent girls were underweight, 77% were in normal range of BMI and about 3% of the adolescent fell in obese category. Dysmenorrhea is the most common (66.8%) gynecological problem associated with adolescent females. Several other studies reported its prevalence range from 25% to 90% among women and adolescent girls. In our study it was observed that 55% of the adolescent girls had mild to moderate dysmenorrhoea. The prevalence of dysmenorrhea in other reports from India were as follows: in Sharma et al dysmenorrhoea was observed in 67.2% adolescent girls, 67% in Sharma et al 67% in Mckay study. In our study it was observed that majority of study subject with dysmenorrhoea were reported from late adolescent age group. Abundant menstrual blood loss was also a common problem among the adolescents in this study. The most common cause of heavy menstrual bleeding in adolescents is dysfunctional uterine bleeding related to anovulation; therefore, it was expected to be higher in the adolescence period. When we surveyed general menstruation patterns, we found that frequency of irregular menstruation was higher in late adolescence, but contrary to our expectations, no significant association was found between age and frequency of irregular menstrual cycles.

Following are the findings reported on dysmenorrhoea in various studies, Sharma et al (67.2%), Gupta et al (67%) and Mckay et al (67%). In our study it was observed that 65% of the adolescent girls had irregular menses, majority (52%) had oligomenorrhoea, 13% had polymenorrhoea, 31% menorrhagia, 10% PCOS, 4% hypothyroidism, 4% hyper prolactinemia, 2% amenorrhea, 1% idiopathic thrombocytopenic purpura. In this study, 24% of study subjects had vaginal discharge. 1% with STI was the common complaint in the adolescent girls. Most of them had physiological leucorrhoea which responded to counseling and maintenance of personal hygiene. In Goswami et al study 58% had menstrual disorders, oligomenorrhoea was observed in 40%, menorrhagia in 24%, menorrhagia in 24%, primary and secondary amenorrhoea in 29%, dysmenorrhoea in 7%, white discharge in 19%. In Goswami study it was observed that menstrual disorder were reported in 60% adolescent girls, menorrhagia in 55% (causes being, DUB in 96%, hypothyroidism in 4%), dysmenorrhoea in 17.7%, hypothyroidism in 4%, oligomenorrhoea in 2.22%, primary amenorrhoea in 6.66%, secondary amenorrhoea in 17.7%. In Rathod et al study among 655 adolescent girls, 82.35% reported anovulatory DUB, 11.76% coagulation disorder, 5.88% hypothyroidism. In Joshi et al study reported 55.8% with menstrual disorders, 1.7% with primary amenorrhoea, 44.4% DUB, 29.7% PCOD, 3.7% ITP, 7.4% with abdominal Koch, 11.1% hypothyroidism, 6.6% with vaginal discharge. Patil et al study reported 49.8% with menstrual disorders, 55% with menorrhagia, 17.7% with dysmenorrhea, 6.6% with primary amenorrhoea, 17.7% with secondary amenorrhoea, 2.22% with oligomenorrhoea, anovulatory DUB in 75.6%, hypothyroidism in 19.5%, ITP in 4.8%. In our study it was observed that 2% study subject had amenorrhoea, amounting to hypoplastic uterus and Koch. In Ashraf et al. study, 69.2% of patients with menorrhagia were due to anovulation. Roychowdhury et al reported 61.5%, Chaudhary et al reported 71% and Neinstein reported 95% of cases of puberty menorrhagia as being due to anovulation. The incidence of anovulatory dysfunctional uterine bleeding in adolescent menorrhagia varies from 69.5% to 74% in Indian literature.

Limitations

Limitations of current study were since the study was conducted in the selected region; therefore, generalizing must be done with care. The findings may not be representative of the menstrual characteristics in whole India. Moreover, the sample size, the study and the results were related to an urban area, so it might not be a good representative for rural areas.

CONCLUSION

Menstrual irregularity in adolescent needs to be evaluated with utmost sensitivity and treated promptly. Adolescent gynecology is an important sub-speciality of gynecology. At present, adolescent gynecology remains a neglected area by researchers, clinicians, society and should be addressed by setting up specialized “adolescent gynecological clinics”. Setting up of a separate ‘adolescent gynaecological clinics’ is the need of the hour. Sensitization and counseling in schools along with comprehensive school education program on menarche and menstrual problems may help girls to cope better and seek proper medical assistance. Awareness through print and social media is the easiest way to bring attention to the importance of the teenage girl to the society.

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

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Cite this article as: Patil VN, Nannaware DT. Menstruation and related disorders in Indian adolescent girls: an observational study. Int J Reprod Contracept Obstet Gynecol 2022;11:2137-41.