



EVALUATION OF MENSTRUAL PROBLEMS IN ASSOCIATION WITH BODY MASS INDEX AMONG ADOLESCENT GIRLS

Obstetrics & Gynaecology

Dr . Tippabhotla Sai Rama Apoorva

Postgraduate Alluri Sitarama Raju Academy Of Medical Sciences Eluru, West Godavari District Andhra Pradesh 534005 India

Dr. Vandana Kanumury

Professor And HOD Department Of Obstetrics And Gynaecology, Alluri Sitarama Raju Academy Of Medical Sciences Eluru, West Godavari District

ABSTRACT

Objectives: To study the menstrual problems in adolescent girls. To measure body mass index of adolescent girls. To assess the relationship between menstrual problems with BMI among adolescent girls **Methods:** Type Of Study : Cross Sectional Study Place Of Study : Alluri sitaramaraju academy of medical sciences, Eluru Duration Of Study :2yrs **Results:** Majority of patients (48%) belong to age group of 17 to 19years followed by 37.5% of patients belong to age group of 14 to 16years and 14.5% of patients belong to age group of 10 to 13years with mean age of 16.02 ± 2.48 years. The minimum age observed was 10years and maximum age was 19years. Majority of patients (36%) had BMI of 18.51 to 24.99 kg/m² followed by 33% of patients had BMI of more than 25 kg/m² and 31% of patients had BMI of less than 18.5 kg/m² with mean BMI of 22.17 ± 5.08 kg/m². Minimum BMI observed among the patients was 15.3 kg/m² and maximum BMI was 35.4 kg/m². **Conclusion:** In the recent years it has been observed that there is an increase in incidence of menstrual irregularities among adolescent girls BMI plays a vital role for menstrual cycle regularity. Infrequent cycles and anovulatory disorders like PCOS are more prevalent among overweight adolescents in this study. Hence maintenance of normal BMI among adolescent girls needs to be educated timely in schools.

KEYWORDS

INTRODUCTION

WHO defines adolescence as the time period between 10 and 19 years of life characterized by critical physical and psychological changes leading to adulthood [1].

- Menstruation is one of the most important changes during adolescent years. It occurs once in a month as a regular rhythmic period and remains as a normal physiological phenomenon from menarche to menopause. [1]
- Menstruation is regular discharge of blood and endometrial tissue from uterus and typically follows a 28 day cycle that is determined by rising and falling of sex steroid hormones during follicular and luteal phase. [2]
- Menstruation is characterized by variation in regularity, volume and pattern

Menstrual problems are common in adolescent girls, which may affect their life and outdoor activities. 3 Adolescent girls with abnormal BMI suffer even more

• According to FIGO guidelines

Normal menstrual cycle length -24-38 days Normal duration of flow-<8 days

Normal volume of blood loss -<80ml

MATERIALS AND METHODS

Method

- **Type Of Study:** Cross Sectional Study
- **Place Of Study:** Alluri sitaramaraju academy of medical sciences, Eluru
- **Duration Of Study :** 2yrs
- **Study Population:** Adolescent girls with menstrual problems attending OPD
- **Sample Size:** A total of 200 adolescent girls with menstrual problems

Methodology

- Study is done by taking adolescent with menstrual problems with all ranges of BMI.
- Weight is measured using a standardized weighing scale
- Height is measured using a stadiometer.
- BMI is calculated using formula weight in kilograms divided by height in meter square.
- BMI is calculated.
- Detailed menstrual history is taken from all patients regarding.

RESULTS

1. Age

Age (years)	N	%
10 – 13	29	14.5

14 – 16	75	37.5
17 – 19	96	48.0
Total	200	100.0
Mean $\pm$ SD	16.02 ± 2.48	
Range	10 – 19	

2. BMI

BMI (kg/m ²)	N	%
≤ 18.50	62	31.0
18.51 – 24.99	72	36.0
≥ 25.00	66	33.0
Total	200	100.0
Mean $\pm$ SD	22.17 ± 5.08	
Range	15.3 – 35.4	

DISCUSSION

The word adolescence is derived from latin word adolescere, meaning to grow up. Adolescence is a time period between 10-19yrs. Adolescents constitute around one-fifth of the world's total population. Adolescence is a period of transition between childhood and adulthood and is characterized by a spurt in physical, endocrinal, emotional, and mental growth. Hence along with physiological changes, psychological and socio-behavioral changes also occur.

Adolescence in girls is recognized as special period in their life, hence requires special attention. This transition phase from childhood to adulthood makes them vulnerable to psychological, general reproductive health related, sex related problems

Gynecological problems of adolescents occupy a special space in the spectrum of gynecological disorders of all ages. Various studies on adolescent gynecological problems revealed that menstrual disorders is the commonest one. Menstruation is a natural phenomenon. It is an important indicator of women's health reflecting their reproductive function. Adolescent girls with abnormal BMI suffer even more.

A cross sectional study was done among 200 adolescent girls with menstrual problems attending Obstetrics and gynaecology department OPD, Alluri Sitaramaraju Academy Of Medical Sciences, Eluru during the study period of 2 years satisfying inclusion and exclusion criteria after obtaining informed consent from them. Current study was done to assess the menstrual problems and its correlation with their BMI among adolescent age girls.

Age:

In current study, majority of patients (48%) belong to age group of 17 to 19years followed by 37.5% of patients belong to age group of 14 to 16years and 14.5% of patients belong to age group of 10 to 13years

with mean age of 16.02 ± 2.48 years. The minimum age observed was 10 years and maximum age was 19 years. In a study done by **Dars S et al**¹ showed that the mean age of the patients was 14.96 ± 1.5 years with minimum age of 12 years and maximum age of 18 years.

BMI:

In current study, majority of patients (36%) had BMI of 18.51 to 24.99 kg/m² followed by 33% of patients had BMI of more than 25 kg/m² and 31% of patients had BMI of less than 18.5 kg/m² with mean BMI of 22.17 ± 5.08 kg/m². Minimum BMI observed among the patients was 15.3 kg/m² and maximum BMI was 35.4 kg/m².

In a study done by **Singh M et al**³⁷ showed that 54.3% of patients had BMI of less than 18.5 kg/m², 39.5% of patients had BMI of 18.5 to 23 kg/m² and 6.2% of patients had BMI of more than 23 kg/m².

In a study done by **Dars S et al**¹ showed that 26.9% of patients had BMI of less than 18.5 kg/m², 69.1% of patients had BMI of 18.5 to 23 kg/m² and 4% of patients had BMI of more than 23 kg/m².

Regularity Of Cycle:

In current study, 15.5% of patients had irregular cycles and 84.5% of patients had regular menstrual cycles.

Amount Of Blood Flow:

In current study, 7% of patients had scanty blood flow, 63% of patients had moderate blood flow and 30% of patients had heavy blood flow.

Days Of Flow:

In current study, 76.5% of patients had flow of less than 8 days and remaining 23.5% of patients had flow of more than 8 days

Hirsutism:

In current study, 41.5% of patients had hirsutism and 58.5% of patients had no hirsutism.

In current study, among patients with hirsutism, 26.5% of patients had BMI of less than 18.5 kg/m², 22.9% of patients had BMI of 18.51 to 24.99 kg/m² and 50.6% of patients had BMI of more than 25 kg/m². There was statistically significant higher number of patients with hirsutism was observed among patients with BMI of more than 25 kg/m² (P value 0.000).

TSH:

In a study done by **Jie Cai et al**³⁸ showed that the mean TSH levels among patients with PCOS was 2.29 ± 1.24 mU/L and the mean TSH levels among patients without PCOS was 1.86 ± 0.9 mU/L where there was significant increase in TSH levels in patients with PCOS (P value <0.001).

Summary

It is a cross sectional study was done among 200 adolescent girls with menstrual problems attending Obstetrics and gynaecology department OPD, Alluri Sitaramaraju Academy of Medical Sciences, Eluru during the study period of 2 years satisfying inclusion and exclusion criteria after obtaining informed consent from them. Current study was done to assess the menstrual problems and its correlation with their BMI among adolescent age girls.

Majority of patients (48%) belong to age group of 17 to 19 years followed by 37.5% of patients belong to age group of 14 to 16 years and 14.5% of patients belong to age group of 10 to 13 years with mean age of 16.02 ± 2.48 years. The minimum age observed was 10 years and maximum age was 19 years. Majority of patients (36%) had BMI of 18.51 to 24.99 kg/m² followed by 33% of patients had BMI of more than 25 kg/m² and 31% of patients had BMI of less than 18.5 kg/m² with mean BMI of 22.17 ± 5.08 kg/m². Minimum BMI observed among the patients was 15.3 kg/m² and maximum BMI was 35.4 kg/m².

There was statistically significant higher number patients with dysmenorrhea had BMI of less than 18.5 kg/m² (P value 0.000). There was statistically significant higher number of patients with irregular cycles had BMI of more than 25 kg/m² (P value <0.0001).

There was significant higher number of patients with heavy blood flow among patients with BMI of less than 18.5 kg/m² and more than 25 kg/m² (P value <0.001). There was statistically significant higher number of patients with intermenstrual cycle of more than 35 days had BMI of more than 25 kg/m² (P value 0.000). There was statistically

significant higher number of patients with flow less than 8 days and more than 8 days had BMI of 25 kg/m² (P value <0.0001). There was statistically significant higher number of patients with hirsutism was observed among patients with BMI of more than 25 kg/m² (P value 0.000). There was statistically significant higher number of patients with dysmenorrhea belong to lower middle class (P value 0.039).

There was statistically significant increase in TSH levels among patients with BMI of more than 25 kg/m² (P value <0.0001). The mean TSH levels among patients with PCOS was 4.13 ± 1.18 mIU/L and the mean TSH levels among patients without PCOS was 1.73 ± 1.19 mIU/L. There was no statistically significant increase in TSH among patients with PCOS

CONCLUSION

In the recent years it has been observed that there is an increase in incidence of menstrual irregularities among adolescent girls

- BMI plays a vital role for menstrual cycle regularity.
- Infrequent cycles and anovulatory disorders like PCOS are more prevalent among overweight adolescents in this study.
- Hence maintenance of normal BMI among adolescent girls needs to be educated timely in schools.
- Educating adolescents about healthy food habits and healthy lifestyle is of utmost importance in order to prevent obesity and its associated menstrual problems.
- PCOS is the leading cause of infertility these days, preventing PCOS by educating the adolescents about healthy life style and good nutritional habits decreases the burden of infertility on developing countries like India

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