Assessment of menstrual cycle pattern in young females medical students

KEYWORDS

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ABSTRACT

Background: Overweight and obesity is a rapidly growing threat to the health of populations and an increasing number of countries worldwide. The menstrual cycle is an important indicator of women's reproductive health and of her endocrine function. Due to increasing prevalence of obesity along with increasing stress of medical studies menstrual irregularities are becoming common in young girl students of medical colleges. Menstrual irregularities, hirsutism & obesity are the hallmark features & important criteria for diagnostic and prognostic association with polycystic ovary syndrome (PCOS). So the purpose of the study is to study menstrual cycle pattern in obese & non obese medical students by taking their detailed menstrual history as a screening test. **Material and Method:** A detailed menstrual history will be taken from 60 medical students aged between 18-25 yrs. waist circumference was measured with their detail menstrual history. A pre-tested and structured questionnaire was used to collect the data on menstrual characteristics. The data were collected in person from the subjects .The data analysis was done using the Statistical Package for Social Sciences version 10 (SPSS Inc, Chicago, IL, USA). **Results :** In our study mean age is 18.3 yrs 48 % (n=28) were obese 43% of obese students having irregular cycles and 41% more bleeding days.48% having breast tenderness, 16% with mood changes, 55% taking hormonal medications ,42% hirsutism , 25% acanthesis nigricans. **Conclusion:** Evaluation of menstrual cycle should be regarded as one of the vital component while assessing overall health status of the female. An obese female having abnormal menstrual pattern needs further screening & regular follow up for early diagnosis of risks associated with obesity. These students need recommendations to reduce obesity to prevent or to delay future risks of obesity.

Introduction

Overweight and obesity is a rapidly growing threat to the health of populations and an increasing number of countries worldwide (World Health Organization, 1997).Complications associated with obesity include non-insulin-dependent diabetes mellitus, cardiovascular diseases, cancers, gastrointestinal diseases and arthritis & irregular menstrual cycles.

The menstrual cycle is an important indicator of women's reproductive health and of her endocrine function[1, 2]. The characteristic features of the menstrual cycle vary across different age groups, differential life styles and among different socioeconomic groups.[3-8]

Weight gain and obesity is becoming more prevalent in young women. Due to increasing prevalence of obesity along with increasing stress of medical studies menstrual irregularities are becoming common in young girl students of medical colleges. Menstrual irregularities, hirsutism & obesity are the hallmark features & important criteria for diagnostic and prognostic association with polycystic ovary syndrome (PCOS).

Considering the prevalence of overweight and obesity, it is important to investigate it effects on women's reproductive health. Women with PCOS are more likely to develop endometrial cancer & infertility. In addition there is an increased risk of hypertension and gestational diabetes during pregnancy. So the purpose of the study is to study menstrual cycle pattern in obese & non obese medical students by taking their detailed menstrual history as a screening test.

Material and Method

A detailed menstrual history was taken from 60 medical students aged between 18-25 yrs. Waist circumference was measured as the minimum value between the iliac crest and the lateral costal margin. A pre-tested and structured questionnaire was used to collect the data on menstrual characteristics. The data were collected in person from the subjects

The subjects were asked if they had experienced "irregular periods" and complete skipping of a cycle in the last one-year period preceding the date of the survey. Non specific interval, no cycle at least once is called irregular period. Data on menstrual characteristics (premenstrual and at the time of menstruation) and other gynecological problems was collected on the basis of the experience reported by the subjects during the three months preceding the date of interview.

Premenstrual problems are defined as symptoms experienced just a few days before the menstruation started. These included abdominal pain, back pain, vomiting, headache, flatulence, diarrhea, and feeling of heaviness, tenseness, emotional irritability, and acne and breast tenderness.

60 adolescent girls, selected for the study were divided into two groups obese group was defined according to waist circumference with >80 cm. Waist circumference is the simplest and most common way to measure "abdominal obesity" the extra fat found around the middle that is an important factor in health, even independent of BMI. It is easy to measure, inexpensive, strongly correlated with body fat in adults as measured by the most accurate methods. Studies show waist circumference predicts development of cardiovascular risk factors as it is indicated as a measure of central obesity and so waist circumference is included in clinical guidelines for the treatment of obesity.

Prior permission of ethical committee was obtained from the selected educational institutions and the nature and the purpose of the study was explained to the participating subjects before conducting the study. The data analysis was done using the Statistical Package for Social Sciences version 10 (SPSS Inc, Chicago, IL, USA).

Result:

Table 1: Percentage of different answers by medical students about their menstrual history

Regularity	WC <80	WC >80
Regular	6.66	11.66
Irregular	35	46.66
Menstrual cycle	WC <80	WC >80
<21	1.66	1.66
>30	1.66	1.66

Irregular	40	53.33
Days of bleeding	WC <80	WC >80
2	5	0
3	1.66	0
4	3.33	13.33
7	35	41.66
Painful	WC <80	WC >80
YES	30	48.33
NO	11.66	10
Breast tenderness	WC <80	WC >80
YES	6.66	13.33
NO	31.66	48.33
Mood changes	WC <80	WC >80
YES	3.33	3.33
NO	38.33	55
Hirsuitism	WC <80	WC >80
YES	33.33	45
NO	6.66	15
Acanthosis Nigricans	WC <80	WC >80
YES	3.33	25
NO	40	31.66

Discussion:

In our study mean age is 18.3 yrs 48 % (n=28) were obese 43% of obese students having irregular cycles and 41% more bleeding days .48%having breast tenderness, 16% with mood changes , 55% takormonal medications ,42% hirsutism , 25% acanthesis nigricans .

Adolescence is the time of life between puberty and psychophysical maturity when crucial endocrinological, metabolic, somatic and psychological changes occur in girls. During this process, sequential phases mark the maturation of the complex endocrinological system that comprises the hypothalamus, pituitary gland, and ovary, and their interactions[9, 10]. Healthy reproductive function is the expected endpoint of this process.

Menstrual cycle is a hallmark of female reproductive life and menarche, the first menstrual period, is an index of female puberty. Most of the females experience it in the age group of 10 to 16 years of age. In this study mean age of menarche was found 12.7 years. Menarche varies from population to population depending upon nutritional, geographical and environmental conditions11 as well as genetic factors[1]. It also varies in different races.

The timing of this process is individual-specific, within a broad range of normality. The most frequent menstrual disorders are polymenorrhea, oligomenorrhea and dysmenorrheal4-7. In our study several studies have shown that obese women are more likely to experience menstrual cycle irregularity than non-obese women.

It has been suggested that centrally distributed body fat may be more strongly associated with menstrual abnormalities11. A one study of a weight control organization showed that the risk of oligomenorrhea was significantly higher in women with upper body fat predominance defined by waist circumference16, 17. Increased testosterone and decreased sex hormone-binding globulin (SHBG) have been associated with obesity both in central and peripheral adiposity12. Higher levels of testosterone have been associated with polycystic ovary syndrome which is related to ovulatory dysfunction and menstrual irregularity testosterone and SHBG may play an important role in the development of menstrual irregularity with heavy bleeding and painful cycles in obese women[12-15].

We found 43.66 % obese girls with polymenorrhoea there is occasional irregularity in menstrual cycle it may be due to an immature hypothalamo-pituitary- ovarian axis. This is common in first 2 to 3 years after menarche. Changing trends of lifestyle, changing dietary habits and tough competition are responsible for psychological or physical stress in this age group leading hormonal imbalance and this could be one of the causes of temporary menstrual disturbances[14, 18]. These disturbances can be corrected by simple lifestyle modifications.

In our study 48.33 % of obese girls had dysmenorrhea one study had reported similar observation19, 69.4% Malaysian adolescents had dysmenorrhea. Dysmenorrhea in adolescent and young adults is usually primary and is associated with normal ovulatory cycles. Students may remain absent for school or college teaching because of dysmenorrhea and that can lead to poor academic performance. Hirsutism and acanthesis nigrican are the signs of insulin resistance which are also important predictors of future cardiovascular diseases like diabetes.[9]

Evaluation of menstrual cycle should be regarded as one of the vital component while assessing overall health status of the female. Hormonal status of the female and can predict future risks. An obese female having abnormal menstrual pattern needs further screening & regular follow up for early diagnosis of risks associated with obesity. These students need recommendations to reduce obesity to prevent or to delay future risks of obesity

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