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Assessment of endocrine abnormalities in adolescents school going girls with menstrual disorders from Bihar Region

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Abstract

Often it is referred to cause physical discomfort and psychological upset. The modern scientific era has contributed a better understanding to its physiological importance, it is viewed with a scientific perspective nevertheless, differences in attitudes still persists among different population and culture groups. Hormonal imbalance is one of the most common causes for menstrual cramps. The prostaglandins, which are hormone like substances, trigger off contractions in the uterine muscles, which also leads to pain. The higher the level of prostaglandin, the more severe the menstrual cramps are likely to be occurred. Hence the present study was planned to evaluate the Endocrine Abnormalities in Adolescents school going girls with Menstrual Disorders.

The present study was planned in the Department of Obstetrics and Gynaecology, Darbhanga Medical College and Hospital from Jan 2018 to July 2018.Total 100 school going Adolescent girls aged from age 10 years to 19 years were enrolled in the present study. These were divided in the two study groups as Group A and Group B. Group A consists of case and Group B consists of control girls.

The available literature indicates, majority of these student population experiences menstrual related symptoms and disorders of various degrees. Lifestyle modification and nutritional counselling for female students could alleviate menstrual problems. It will not only improve the girls current health, sense of well-being and overall quality of life but may also lower her risks for future disease and ill health after proper advice about diet and exercise. Management of these disorders can be done through accurate diagnosis, proper diet, exercise and lifestyle changes along with the services of health care professionals. Hence it is imperative to examine the prevalence, severity, and most common symptoms of menstrual disorders among student populations to promote their quality of life, health and wellbeing of a women during reproductive age.

Keywords: endocrine abnormalities, adolescents, school going girls, menstrual disorders, etc

Introduction

Menstrual disorders are common during adolescence and perimenopause, causing anxiety for patients and their families. The cause could be variable-harmonal, genetic, clotting disorder or pelvic diseases. Physical and psychological factors also contribute to the problem. Median age of menarche (beginning of menstrual period is) 12 years however, this age is declining over the past few years to 10yrs preceded by thelarche (breast development) by 2 years. Normal menstrual cycle length can vary from 21 to 35 days with 3 to 7 days of bleeding with 20 to 80 ml bleed considered normal. Deviation from this would be labelled a disorder. There are a number of different menstrual disorders, from the short minor menstrual problem to the more prolonged menstruation problems to serious illnesses. This list of menstrual disorders will help you identify different menstrual cycle disorders of varying degrees.

Dysmenorrhea is the name for painful menstrual cramps. There are two types of dysmenorrheal, primary dysmenorrheal and secondary dysmenorrheal. Primary dysmenorrheal is period pain. Primary dysmenorrhea is the most common gynecologic problem in menstruating women. It is defined as cramping pain in the lower abdomen occurring at the onset of menstruation in the absence of identifiable pelvic disease. It must be distinguished from secondary dysmenorrhea, which refers to painful menses resulting from pelvic pathology such as endometriosis. Prevalence rates are up to 90%. Several risk factors are associated with more severe episodes of dysmenorrhea: earlier age at menarche, long menstrual periods, smoking, obesity and alcohol consumption. Attempting to lose weight is also associated with increased menstrual pain. Physical activity is not associated with pain characteristics. The widely held view that menstrual pain diminishes after childbearing are inconsistent is not supported by studies. Secondary dysmenorrheal is pain that occurs as a result of excess prostaglandins, excessive uterine contractions or any other disease.

Amenorrhea is the absence of menstrual periods. There are two types of amenorrhea, primary amenorrhea and secondary amenorrhea. Primary amenorrhea is the condition where a woman has never had a period. Secondary amenorrhea is the absence of menstrual periods for at least six months. Secondary amenorrhea is often due to pregnancy.

Menorrhagia is excessive or prolonged menstrual bleeding. Menorrhagia is also known as hyper menorrhea. Menorrhagia does not refer to normal heavy menstrual bleeding. It only refers to very heavy bleeding or bleeding that lasts longer than seven days. Menorrhagia can also be accompanied by menstrual bleeding that includes large blood clots. It is most frequently caused by a hormonal imbalance or uterine fibroids.

Endometrial cancer is cancer of the lining of the uterus. Usually, endometrial cancer is accompanied by unusual bleeding from the vagina. It is a serious illness, but can usually be treated successfully if it is caught early enough. It is most common is women over 50 years old or in women who have had high levels of estrogen.

Fibroids are growths in the muscular wall of the uterus. They come in varying sizes and can be tiny or large. Some women do not have any symptoms with fibroids. Other women can experience heavy bleeding and longer periods than usual. Fibroids can also cause pain in the lower pelvic area, pain during sexual intercourse, a constant need to urinate, pressure in the bowel and constipation. Women who are aged over 35 or who have had multiple pregnancies are at a greater risk of fibroids.

Pelvic inflammatory disease (or PID) is an infection that occurs in some part of the female reproductive organs. One of the symptoms of PID is a foul-smelling discharge from the vagina. It may also be accompanied by irregular menstrual periods or pain during sex. The most common cause for PID is by coming into contact with a sexually transmitted disease. PID is a serious illness that may damage the fallopian tubes and prevent future pregnancies.

Premenstrual syndrome is the name of the symptoms that may occur from seven to fourteen days before the period, sometimes continuing for some time after the period begins. Many women feel like degree of premenstrual syndrome. However, some women can have very severe pain or emotional problems during this stage of the menstruation cycle.

In order to diagnose menstrual problems doctors may need to conduct a series of examinations. These examinations may include a pelvic exam, a blood test and an ultrasound. Menstrual problems that have only occurred the one time or have not occurred for a long period of time may go undiagnosed until a later stage or until they become prolonged menstruation problems [2].

According to the World Health Organization, adolescence is defined as the age between 10 and 19 years and is a transitional stage between childhood and adulthood, during which significant physical and mental changes occur. Enormous physical and psychological changes in young women can be seen in adolescence. In this age group serious gynaecological pathology is rare, but menstrual disturbances are common and may add further disruption to this difficult phase for adolescents and their families [3]. Menstruation is a periodic and cyclical shedding of progestational endometrium accompanied by loss of blood, which is a normal physiological process in women of reproductive age that begins during adolescence and may be associated with various symptoms.

Often it is referred to cause physical discomfort and psychological upset. The modern scientific era has contributed a better understanding to its physiological importance, it is viewed with a scientific perspective nevertheless, differences in attitudes still persists among different population and culture groups [4]. Hormonal imbalance is one of the most common causes for menstrual cramps. The prostaglandins, which are hormone like substances, trigger off contractions in the uterine muscles, which also leads to pain. The higher the level of prostaglandin, the more severe the menstrual cramps are likely to be occurred [5]. Hence the present study was planned to evaluate the Endocrine Abnormalities in Adolescents school going girls with Menstrual Disorders.

Methodology

The present study was planned in the Department of Obstetrics and Gynaecology, Darbhanga Medical College and Hospital from Jan 2018 to July 2018.Total 100 school going Adolescent girls aged from age 10 years to 19 years were enrolled in the present study. These were divided in the two study groups as Group A and Group B. Group A consists of case and Group B consists of control girls.

All participants were informed about the nature, purpose, and procedures of the study, and informed written consent was obtained from the students and their legal guardians. The procedures followed were in accordance with the ethical standards of the local institutional standards.

Following was the inclusion and exclusion criteria for the present study.

Inclusion criteria: Adolescent girls aged 10–19 years with the menstrual disorders, namely primary amenorrhea, secondary amenorrhea, oligomenorrhea, polymenorrhea, hypomenorrhea, menorrhagia, metropathia and irregular bleeding

Exclusion criteria: Age>19years. Taking medications [OCP > 3years, steroids etc] that may interfere with hypothalamus-pituitary-ovary axis. Any medical or surgical disease.

Results & Discussion

Menstruation is a unique female phenomenon, It defines the start and end of reproductive potential [6] furthermore it is considered as indicator of women's health, so adolescent girls need to have an understanding of menstruation pattern and the factors that may attribute in menstrual disorders or changes like age, weather, activities and body mass index to increase their understanding of menstrual criteria, appropriate management for it and clarify the ignorance of menstruation issues [7].

In line with this Kavitha [8] showed Premenstrual symptoms impact on daily life activities of the adolescent girls which it's a major causes of inability to concentrate on their work or studies, class or school absenteeism, inability to perform in their academic activities like physical training. So menstrual disturbance can be considered as one of the major health problems of female students and requires attention, so it is necessary to assessment abnormal menstrual patterns through adolescence and giving health education order to relieve to enhance adolescent student girls quality daily life activities during menstrual periods, lower the risks for future diseases. [9] Added the assessment of menstrual cycle is conceder as an additional vital sign.

Table 1: Prevalence of thyroid dysfunction in the study groups

Groups	Group A	Group B	Total
Type of Group	Cases	Controls	
Thyroid status			
A) Normal	40	43	83
B) Hypothyroidism	8	7	15
Primary	3	4	7
Subclinical	3	3	6
Secondary	1	0	1
C) Hyperthyroidism	2	0	2
Primary	2	0	2
Subclinical	1	0	1
Secondary	0	0	0
Total	50	50	100

Table 2: Prevalence of hyperandrogenism in the study population

Groups	Group A	Group B	Total
Type of Group	**Cases**	**Controls**	
Biochemical hyperandrogenism			
Present	5	1	6
Absent	45	49	94
Total	50	50	100
Clinical hyperandrogenism			
Absent	45	50	95
Present	5	0	5
Total	50	50	100

Table 3: hormonal abnormalities in Cases Group

Menstrual abnormalities	No. of cases	Thyroid dysfunction	Hyperprolactinemia	Biochemical hyperandrogenism
Primary amenorrhea	9	2	0	0
Secondary amenorrhea	4	1	0	0
Polymenorrhea	1	0	0	0
Oligomenorrhea	31	2	1	3
Hypomenorrhea	0	0	0	0
Menorrhagia	5	2	0	1
Metrorrhagia	0	0	0	0
Intermenstrual bleeding	0	0	0	0
Total	50	7	1	4

In a recent study by Van Hoof fetal, 5the presence of oligomenorrhea at 15 years of age was found to be a better predictor of menstrual irregularity at 18 years, more than elevated levels of testosterone, androstenedione, LH, clinical manifestations of hyperandrogenism or an ultrasound image compatible with micro polycystic ovaries, regardless of patient BMI. According to Ehrmannetal [10]. Menstrual irregularity may be considered to be physiological during the first years after menarche only if there are no associated signs of hyperandrogenism. On the other hand, Avvadetal [11]. Stated that the presence of hirsutism can be simply the expression of increased skin sensitivity to normal levels of circulating androgens and does not necessarily indicate an abnormal ovulatory mechanism in these patients. The literature shows that the levels of free testosterone, LH, and the LH/FSH ratio in adolescents with menstrual irregularity with no clinical signs of hyperandrogenism are similar to those of patients with PCOS and higher than those of adolescents with regular menstrual cycles [12]. Some studies with a long-term follow up of adolescents with irregular menstrual cycles have demonstrated that higher LH levels associated with hyperandrogenism tended to be persistent [13], suggesting a greater risk to develop the syndrome during adult age.

Shah *et al* [14] carried out a cross-sectional study to find out the prevalence of primary dysmenorrhea in young nursing students. Students were asked about their menstrual history, menstrual pain and associated symptoms like nausea/vomiting, headache, dizziness or diarrhea through written questionnaire. Severity of pain and other associated symptoms were noted on 3 point scale as mild, moderate or severe. Abdomen and ultrasonographic examination was carried out for those having dysmenorrhea by gynecologist. The authors reported that mean age of menarche was 13 and 13.5 years with and without primary dysmenorrhea respectively. The prevalence of primary dysmenorrhea in their study was 45%, they also reported that 18% of students had mild, 40% had moderate and 42% had severe dysmenorrhea. The presence of other symptoms such as nausea/vomiting, headache, dizziness/ giddiness, diarrhea was found in the study population. The authors concluded that the prevalence of dysmenorrhea was high in their study population and such high prevalence makes dysmenorrhea a significant public health problem among young students that demands some attention from policy makers.

Karout *et al* [15] conducted a survey among Lebanese nursing students to determine the prevalence and pattern of menstrual symptoms. The data was collected using self-administered, structured, anonymous questionnaire covering 21 items. The questionnaire covered information on

demographics such as age, marital status, residence and presence of pregnancy and breastfeeding (to rule out the cause of amenorrhea if present) with close-ended questions. The participants were also asked about the characteristics of their menstruation: age of menarche; regularity/irregularity of menstruation in interval and duration; presence of amenorrhea (secondary); amount of blood loss (number of pads used); pain during menstruation and degree and location of pain; activity during menstruation; symptoms of PMS, whether the symptoms disappear after menstruation and the affect of PMS on activities of life.

Despite existing knowledge about the impact of dysmenorrhea and menstrual cycle abnormalities in the daily lives of many adolescent women, it is noteworthy that this particular age group is still often neglected. Traditionally, education about menstruation and puberty was a part of the maternal role. Physicians are generally expected sources of trustworthy information about menses, but they are often uncomfortable with discussing the topic of menstruation and sexuality in general.

Healthcare providers have an immense importance for these adolescent girls who are going through pubertal transition because have an opportunity to discuss reproductive health issues with mothers and their daughters, to make an early diagnosis, and to choose an appropriate treatment, thus minimizing the negative outcomes caused by these disorders in the lives of adolescents.

Many of the menstrual dysfunction problems can be effectively handled by the well-trained general clinician. Specific, complex situations should be referred to the appropriate specialist (gynaecologist or endocrinologist), preferably someone skilled with adolescents′ issues.

Conclusion

The available literature indicates, majority of these student population experiences menstrual related symptoms and disorders of various degrees. Lifestyle modification and nutritional counselling for female students could alleviate menstrual problems. It will not only improve the girls current health, sense of well-being and overall quality of life but may also lower her risks for future disease and ill health after proper advice about diet and exercise. Management of these disorders can be done through accurate diagnosis, proper diet, exercise and lifestyle changes along with the services of health care professionals. Hence it is imperative to examine the prevalence, severity, and most common symptoms of menstrual disorders among student populations to promote their quality of life, health and wellbeing of a women during reproductive age.

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