Prevalence of Premenstrual Symptoms and Symptom Severity among Female Medical Students - An Institutional Study

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ABSTRACT

BACKGROUND

Premenstrual symptoms are generally seen 7 - 10 days before the menstruation period and are collectively called as premenstrual syndrome. Dysmenorrhea is the most common premenstrual symptom that affects the lifestyle and activity of young women. This study was aimed at estimating the prevalence of premenstrual symptoms and its severity in female medical student population of Government Medical college, Patiala, Punjab.

METHODS

500 female medical students aged between 18 - 28 years were included in the study. Female students were asked to fill preformed questionnaire to elicit gynaecological information as well as the 4-point grading scale menstrual distress questionnaires. Symptoms were divided into two groups: physical symptoms and behavioural / psychological symptoms.

RESULTS

Only 30.24 % of the students reported one or more symptoms; of these, 22.76 % were having mild, 5.6 % moderate and 1.87 % severe degree of symptoms. From physical and behavioural / psychological symptoms, it was noticed that behavioural / psychological symptoms predominate. Among physical symptoms, breast tenderness is experienced most followed by bloating, and weight gain during premenstrual phase. Among psychological / behavioural symptoms, irritability predominates followed by restlessness & mood swings.

CONCLUSIONS

Diagnosis is best achieved through daily rating symptoms over at least one menstrual cycle; clinicians can ask patients to choose their worst symptoms and chart the severity daily, or can select a validated scale such as the Daily Record of Severity of Problems. Disappearance of symptoms after menstruation is the key to diagnosis.

KEYWORDS

Premenstrual Syndrome, Depressive Disorder, Prevalence, Dysmenorrhea

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BACKGROUND

Whatever may be the socioeconomic status, race or cultural background of a women, each one us is affected by premenstrual syndrome; its extent may vary from very mild to severe. Symptoms seem to aggravate as menstruation edge nearer and subside at the start of menstruation. Premenstrual symptoms are experienced during luteal phase of each menstrual cycle from 7 to 14 days before the start of menstruation.[1] Despite of various researches for finding the etiological basis of premenstrual syndrome, like hormonal, neurological, prostaglandins, diet, age, various drugs, lifestyle, the exact reason is still not known.[2] According to previous literature, 80 % of women in their reproductive age go through premenstrual emotional, physical and behavioral changes, 40 % of women experience premenstrual sign and symptoms that affect their routine activity to some extent and 3 - 5 % have worst experience of severe mental diseased state known as premenstrual dysphoric disorder.[3]

These symptoms have been divided into three categories: emotional, physical, and behavioral. Physical symptoms of this disorder include severe headaches, paleness, hypotension, nausea, vomiting, breast tenderness, abdominal bloating, peripheral edema and general fatigue; while psychological or behavioral disorders include irritability, mood swings, food cravings, social withdrawal, anxiety, and depression. Women with severe symptoms usually report impairment in their interpersonal or workplace functioning.[4] Premenstrual symptoms are more troublesome in the adolescent years and decline with advancing age. During adolescent phase, premenstrual symptoms hasten the process of puberty, interpersonal relationships, social, behavioral and educational performance. Many pubertal girls have to take leave due to dysmenorrhea which effect their studies and performance in examinations. This can lead to poor self-esteem, a sense of dissatisfaction, inadequacy and unhealthy life style.[5] Various studies claimed that there is fluctuation in gonadal hormone levels that trigger the symptoms, and thus interventions which abolish ovarian cyclicity, including long-acting analogues of gonadotropin-releasing hormone (GnRH) or oestradiol (administered as patches or implants), can effectively reduce the symptoms, also some oral contraceptives. The effectiveness of serotonin reuptake inhibitors, taken throughout the cycle or during luteal phases only, is also well established.[6]

A problem with the premenstrual syndrome diagnosis is that many women with clinically significant premenstrual symptoms do not meet full diagnostic criteria; they might not have a prominent mood symptom or the five different symptoms. The American College of Obstetrics and Gynecology (ACOG) has attempted to rectify this situation by defining moderate to severe premenstrual syndrome; the criteria are the presence of at least one psychological or physical symptom that causes significant impairment and is confirmed by means of prospective ratings.[7] Findings of prospective and retrospective studies suggest that 5 – 8 % of women with hormonal cycles have moderate to severe symptoms. However, some studies suggest that up to 20 % of all women of fertile age have premenstrual complaints that could be regarded as clinically relevant.[8] The present study, therefore, is aimed to study the prevalence of premenstrual syndrome among medical students. It thus adds to literature on the available prevalence studies on premenstrual syndrome and can be useful for planning of health care systems for young girls with premenstrual dysphoric disorder.

METHODS

This study was carried out on female medical students of Government Medical College and Rajindra Hospital, Patiala, Punjab, from November 2015 to December 2015. A total 500 female subjects (undergraduate students, interns & post graduate students) of age 18 - 28 years were taken for this study. Our study consists of a structured, questionnaire containing complete menstrual history (date of last menstrual period, cycle length, duration of menstruation, flow, whether periods are regular or irregular, any history of dysmenorrhea). Questionnaire which was focused on symptoms occurring 7 - 10 days prior to start of menstruation. The symptoms included in the questionnaire were divided in to two major categories i.e. physical symptoms and behavioural / psychological symptoms. Both these major categories of symptoms were given severity score of not present, mild, moderate, or severe degree.

- Not Present - when the symptoms are not there
- Mild - when the symptoms do not interfere with personal / social and professional life;
- Moderate - when interfere with personal / social and professional life but the person is still able to function and interact;
- Severe - when the person is unable to interact personally / socially or professionally withdraws from social and professional activities.

Inclusion Criteria

1. Unmarried females.
2. Aged between 18 - 28 years.
3. Females with cycle length of 26 - 36 days.
4. Females with duration of cycle range between 3 - 6 days.
5. The subjects should have experienced on a regular basis both physical and behavioural changes during luteal phase, peak before menses, decrease or cease after the onset of menstruation, with a symptom-free period before ovulation every month.

Exclusion Criteria

1. Any history of hypertension.
2. Any history of anaemia.
3. Any history of gynaecological problem.
4. Any history of irregular periods.
5. Any history of present or past drug abuse.
6. Any history of hormonal therapy.
7. Any history of detectable organic illness.
8. Any history of psychological problem.

Data Collection and Analysis

All the questionnaire sheets were collected and analysed in a blinded fashion for protection of personal data. Incompletely filled questionnaires were eliminated. The data was expressed as percentage of participants reporting one or more symptoms.

RESULTS

Sl. No.	Symptoms	1 Mild	2 Moderate	3 Severe	4 Total Prevalence (1+2+3)
1	Breast Tenderness	92 (18.4 %)	30 (6 %)	3 (0.6 %)	125 (25 %)
2	Bloating	79 (15.8 %)	21 (4.2 %)	3 (0.6 %)	103 (20.6 %)
3	Weight gain	65 (13 %)	18 (3.6 %)	2 (0.4 %)	85 (17 %)

Table 1. Percentage of Cases According to Physical Symptoms as per 4 Point Grading Scale

Sl. No.	Symptoms	1 Mild	2 Moderate	3 Severe	4 Total Prevalence (1+2+3)
1	Depression	105(21 %)	25(5 %)	9(1.8 %)	139(27.8 %)
2	Mood swings	169(33.8 %)	35(5 %)	20(4 %)	224(42.8 %)
3	Irritability	207(41.4 %)	53(10.6 %)	16(3.2 %)	276(55.2 %)
4	Restlessness	196(39.2 %)	50(10 %)	19(3.8 %)	265(53 %)
5	Tension	126(25.27 %)	32(6.4 %)	11(2.2 %)	169(33.87 %)
6	Anxiety	119(23.8 %)	19(3.8 %)	9(1.8 %)	147(29.4 %)
7	Loneliness	56(11.2 %)	13(2.6 %)	6(1.2 %)	75(15 %)
8	Crying	38(7.6 %)	12(2.4 %)	5(1 %)	55(11 %)

Table 2. Percentage of Cases Showing Psychological / Behavioural Symptoms as per 4 Point Grading Scale

Total 500 female medical students aged between 18 - 28 years were included in the study. Only 30.24 % of the students reported one or more symptoms, of these, 22.76 % were having mild, 5.6 % moderate and 1.87 % severe degree of symptoms. From physical and behavioral / psychological symptoms, it was noticed that behavioral / psychological symptoms predominate. Among physical symptoms, breast tenderness is experienced most followed by bloating, weight gain during premenstrual phase. Among psychological / behavioral symptoms, irritability predominates followed by restlessness & mood swings.

DISCUSSION

The study reveals that majority of the participants believed premenstrual syndrome to be a normal part of menstruation. This prevalent belief about premenstrual syndrome being 'normal' is supported by the finding that maximum number of the participants who suffer from at least one premenstrual syndrome symptom and fall under the mild premenstrual syndrome category. The perception of premenstrual syndrome being 'normal' was comparatively less in those having premenstrual syndrome and even lesser in the premenstrual dysphoric disorder group. It is possible that girls with many symptoms, more frequent and severe symptoms will perceive the problem to be much greater than those who do not. In our study, those participants having one or more symptoms, the prevalence of psychological symptoms was much more than the physical symptoms. The highest reported symptoms were irritability (55.2 %), with restlessness (53 %) and mood swings (42.8 %), on the second and third rank, respectively. Irritability has been reported as most common symptom by previous study done by Nisar et al.[9] Among physical symptoms, breast tenderness (25 %) scored high on a 4-point scale followed by bloating (20.6 %) and then weight gain (17 %). Similar results were shown in other studies done by Gerbie[10] et al. These symptoms have been linked to alterations in fluid / electrolyte handling. It appeared to be due to salt & water retention in late luteal phase by changes in the levels of oestrogen & progesterone shown in study done by Sundstrom.[11]

Interaction of renin angiotension aldosterone system with gonadal steroids are also responsible for salt and water retention. One should educate the patients on these associations and how lifestyle changes can improve their condition. Identifying distress and functional impairment caused by dysmenorrhoea, menorrhagia and physical symptoms of premenstrual syndrome / premenstrual dysphoric disorder is of utmost importance. Family physicians are crucial in spreading awareness on these menstrual problems, diagnosing and educating patients on premenstrual syndrome, premenstrual dysphoric disorder and how they might affect their day-to-day lives. They can recommend keeping a premenstrual syndrome diary for diagnosis, weight reduction in obese patients, reducing stress and junk food consumption and a regular exercise regimen. The prevalence of severe premenstrual syndrome and premenstrual dysphoric disorder in this study is not in agreement with the study by Steiner et al.[12] who reported 21.3 % and 8.3 %, respectively, and also differs from study by Chayachinda et al.[13] who reported 25.1 % of premenstrual dysphoric disorder among Thai nurses. Smith et al.[14] suggested that premenstrual complaints are elicited by the drop in progesterone concentrations in the late luteal phase, and link this to changes in central nervous system neurotransmitters such as γ-aminobutyric acid (GABA).

This theory is, however, challenged by the fact that many women have symptoms that start at ovulation and during the early luteal phase i.e., before the fall in progesterone has started. The rationale behind the hormonal treatment of premenstrual syndrome is thus not simply to correct a hormonal abnormality, but to interrupt the normal hypothalamus-pituitary-gonadal cyclicity that is triggering the symptoms. This can be achieved by administering a long-acting gonadotropin-releasing hormone (GnRH) agonist. There is persuasive evidence that these preparations are extremely effective. They are, however, relatively invasive since they result in a "medical menopause", which is accompanied by typical menopausal symptoms, particularly flushing, as well as a risk of osteoporosis if the therapy is prolonged. These side-effects are entirely due to the oestrogen deficiency, can be prevented by oestrogen replacement, combined with a gestagen to prevent oestrogen-induced endometrial

hyperplasia.[6] The study has certain limitations. It included a highly selective sample which is comprising medical college students only. The reporting of premenstrual symptoms was based on retrospective recall of the participants adding a recall bias in data collection. In addition to the limitations of present study, the severity of level of pain was self-judged and therefore biasing in reporting would be there, as perception of pain may vary as per subject, so standardization for pain assessment method would be more desired.

CONCLUSIONS

Management of PMS is complex. Diagnosis is best achieved through daily rating symptoms over at least one menstrual cycle; clinicians can ask patients to choose their worst symptoms and chart the severity daily, or can select a validated scale such as the Daily Record of Severity of Problems. Disappearance of symptoms after menstruation is the key to diagnosis. PMS does not seem to be due to abnormal concentrations of sex steroids, but the symptoms are triggered by fluctuations of such hormones, the difference between patients and controls probably being that patients are more sensitive to such fluctuations. Behavioral / psychological symptoms predominate. Among physical symptoms, breast tenderness is experienced most followed by bloating and weight gain during premenstrual phase. Among psychological / behavioral symptoms, irritability predominates followed by restlessness and mood swings. The majority of females said that stress exacerbates their PMS, and stress is a prevalent condition in our society. It is important that a healthy culture is promoted which is stress-free in order to avoid the symptoms of PMS, which tend to disturb normal routines and reduce productivity.

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