

Diagnostic criteria and management in premenstrual syndrome

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SUMMARY

Premenstrual syndrome (PMS) is defined as cyclically occurring somatic or psychopathological disorders associated with the existence of the corpus luteum and influence of ovarian steroid hormone metabolites on neurotransmitter levels and activity. Only about 5% of women do not experience any ailments in the last week before menstruation. The remaining women present with various psychological, physical and emotional symptoms. PMS therapy should offer complete treatment, including complementary therapy. It must be underlined, however, that the efficacy of such management is not always supported by scientific evidence.

The paper presents an analysis of PMS diagnostic criteria based on available literature. Moreover, the ACOG criteria and available treatment methods are shown.

Key words: PMS, premenstrual syndrome; symptoms; ACOG diagnostic criteria; therapy

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INTRODUCTION

Premenstrual syndrome (PMS) is defined as cyclically occurring somatic or psychopathological disorders associated with the existence of the corpus luteum and influence of ovarian steroid hormone metabolites on neurotransmitter levels and activity. This condition can be considered physiological, but the severity of symptoms may be troublesome. Women in the child-bearing age experience at least several of 150 symptoms of premenstrual syndrome each cycle. There have been a lot of attempts to determine the frequency of PMS, both in cross-sectional studies and based on selected clinical cases. The results vary significantly depending upon employed methods (prospective/retrospective study) and PMS diagnostic criteria. Current data indicate that 15–20% of women are at a high risk of PMS. The most frequent and the most common symptom of PMS is hypersensitivity (hyperactivity). The number and severity of premenstrual emotional symptoms decline with age and usage of hormonal contraception. They are also positively correlated with individual susceptibility, Hispanic origin or relatively also with the white race [1–3].

Premenstrual syndrome is identified based on strictly specified criteria. The diagnosis is based not only on the typical type of symptoms, but also their regular occurrence before menstruation. The ailments subside not later than on day 4 of the menstrual cycle. The symptoms are usually mild and do not cause withdrawal from everyday activity. However, they can cause transient exhaustion. PMS is usually accompanied by decreased mood [1–4].

The diagnostic process involves medical history, physical examination and daily prospective observation and notation of symptoms. A global assessment of symptoms reported by patients, previous diseases, gynecological con-

ditions, psychosocial and psychosexual problems as well as overuse of stimulants or alcohol as well as stressful situations, is of critical significance for determining previous or current menstrual disorders, psychiatric conditions or somatic diseases. It is significant to conduct assessment during the follicular phase. A change in the mental condition during the follicular phase suggests the necessity to carry out full psychiatric evaluation [4–8]. Based on a thorough medical interview, e.g. collected using a questionnaire (Premenstrual Assessment Form, PAF), all troublesome premenstrual symptoms can be identified. Many symptoms, e.g. headache/migraine, fatigue, abdominal pain, flatulence or premenstrual spotting, can result from other diseases. Depression, anxiety or personality disorders are not cyclical in nature with a stable asymptomatic phase before ovulation [1,5–8]. Another stage of diagnosis is a thorough physical examination, which can be the basis for further assessment, in either laboratory or imaging tests [1,2,4–8].

Difficulties in the clinical assessment of PMS prompt the creation of self-assessment scales that can help view experienced symptoms and their severity in an objective way, predict their progression and plan management [9].

PMS DIAGNOSTIC CRITERIA

In the International Classification of Diseases, edition 10 (ICD-10), the World Health Organization classifies premenstrual syndrome to the section of gynecological disorders as disorders of the female reproductive organs.

The ICD-10 presents the PMS diagnostic process in two aspects: association with the menstrual cycle as well as cyclical nature and specified time.

The American College of Obstetricians and Gynecologists (ACOG) states that PMS can be diagnosed if at least one of six emotional and one of four physical symptoms are manifested. These symptoms must occur 5 days before menstruation in three consecutive menstrual cycles and subside up to day 4 after the first day of menstruation; none of the symptoms can recur up to at least day 13 of the menstrual cycle. The symptoms cannot occur before the pre-ovulation phase, pharmacotherapy cannot be used and patients cannot receive hormonal treatment, overuse alcohol or drugs, which should be prospectively confirmed during 2 cycles.

Physical symptoms of PMS that according to ACOG enable its diagnosis include: breast ten-

derness, abdominal distension, headache and swollen extremities. Emotional symptoms include: depression, anger, irritability, confusion, embarrassment, anxiety, fear, withdrawal from social life and alienation [5–9, 10].

MANAGEMENT

In therapy, one should consider physical exercise, diet, weight loss and stress reduction. Patients with psychotic symptoms of PMS should be consulted by a psychiatrist. It is recommended to keep a record of the severity of symptoms during treatment in order to assess effects of therapy or modify it. In most cases, PMS treatment can be initiated by a family physician. In more severe and complicated situations, the patient should be referred to a gynecologist or psychiatrist. PMS therapy should offer complete treatment, including complementary therapy. It must be underlined, however, that the efficacy of such management is not always supported by scientific evidence [5–7,9].

The following management algorithms can be applied in PMS treatment.

- First-line treatment: physical exercise, cognitive behavioral therapy, acupuncture, dietary supplementation, hormonal contraception – either cyclical or continuous, or low-dose selective serotonin reuptake inhibitors (SSRIs) – either continuous treatment or only in the luteal phase (day 15–28 of the cycle);
- Second-line treatment: estradiol + progestogens (day 15–28 of the cycle) or intrauterine device with progestogens, higher doses of SSRIs – either continuous treatment or only in the luteal phase (day 15–28 of the cycle);
- Third-line treatment: GnRH analogues + add-back therapy (continuous therapy with estrogens and progestogens or tibolone);
- Fourth-line treatment: hysterectomy with bilateral salpingo-oophorectomy + hormonal treatment (with/without testosterone) [5–7,9].

Hormonal therapy

Progesterone/progestogens – natural progesterone was the most commonly used for PMS treatment. The rationale behind the use of progesterone and progestogens is associated with the theory concerning their deficiency in PMS patients. However, a number of research studies have failed to demonstrate benefits of using progesterone compared with placebo,

irrespective of the route of administration (intravaginally in the form of globules or orally in the micronized form) [5–7,9].

The usage of the newest contraceptive pills, containing drospirenone, can represent an effective way of PMS treatment and should always be considered in the first-line therapy. Clinical evidence concerning the usage of oral contraception supports the continuous rather than cyclical therapy. The continuous therapy, resulting in the lack of menstruation for a longer period of time, seems to be more reasonable and medically justified. However, the evidence supporting such an assumption is very limited. It requires confirmation in larger clinical trials. One of such studies has clearly shown that clinical symptoms decreased considerably during a continuous contraceptive therapy lasting 168 days compared with the standard 21/7 therapy [1,2,5–7,9]. Apart from the influence of contraceptives on premenstrual symptoms, they exert a number of other positive effects, such as: osteoporosis prevention, lowering the risk of endometrial or ovarian cancer, reducing anemia, endometriosis or abdominal pain, and many others. Unfortunately, adverse effects associated with breast tenderness and edema due to water retention seem negative [1,2,5–7,9].

Percutaneous estradiol delivery in the form of patches or implants, with cyclically delivered progestogen is an effective treatment method that eliminates both physical and emotional symptoms of severe PMS. However, based on still insufficient evidence from clinical trials and considering potential severe adverse effects, high-dose estrogen therapy is not recommended for PMS treatment [1,2,5–7,9,11,12]. Patients receiving high doses of estradiol must bear in mind the potential negative influence on the mammary glands and endometrial tissue as well as the risk of venous thrombosis and pulmonary embolism.

Treatment with low doses of danazol is effective, but androgenic side effects currently make this drug rarely used for PMS treatment. Danazol limited to be used only during the luteal phase is well-known for treatment of cyclical mastalgia. Severe side effects resulting from androgenic activity of the drug have restricted its usage [1,2,5–7,9].

Early GnRH analogue treatment is not recommended either. As in the case of long-term therapy, it should be reserved only for patients with the most severe symptoms. This should be a second- or even third-line therapy, whereas

the sole treatment should not exceed 6 months. A low-dose therapy with GnRH analogues is not recommended. Long-term treatment necessitates bone density measurements on a yearly basis, and its significant decline results in therapy discontinuation. An add-back therapy is recommended. During GnRH analogue treatment, it is advised to undertake physical exercise, follow appropriate diet and reduce/cease smoking [1,2,5–7,9, 11–13].

GnRH agonists exert their action through specific receptors in gonadotropes. Only pulsatile administration of appropriately small GnRH doses in a proper rhythm causes normal, increasing production and secretion of gonadotropins. The binding of receptors by slow, continuous administration of a GnRH agonists initially elicits a short-term surge of endogenous gonadotropins (LH and FSH) from the pituitary (*the flare-up effect*) with a simultaneous upregulation of GnRH receptors. However, after some time, the number of GnRH receptors decreases (*downregulation*), paradoxically suppressing production and secretion of endogenous gonadotropins (so-called *pituitary desensitization*). Pituitary suppression induces a decline in endogenous LH and FSH levels. GnRH agonists are used in the form of intramuscular and subcutaneous injections or in nasal sprays [1,2,5–7,9].

Alternative therapies

Of the studies analyzed, the most promising results seem to be associated with acupuncture, supplementation of calcium, vitamin D, magnesium and vitamin B6 as well as Ginkgo biloba and Vitex agnus-castus intake.

Acupuncture and acupressure reduce symptoms of premenstrual syndrome, but methodological limitations do not allow proper conclusions to be drawn from the studies conducted thus far [1,2,5–7,9].

Research also shows benefits of cognitive behavioral therapy in women with PMS. The therapy helps understand the mechanisms that induce psychopathological symptoms as well as select and practice remedial strategies. The efficacy of fluoxetine, cognitive behavioral psychotherapy and a combination of both methods was compared, and superior functioning was observed in patients after psychotherapy [1,2,5–7,9].

According to researchers, herbal remedies require attention. A comparative study has revealed that Vitex agnus-castus was as effective

ve as fluoxetine in relieving somatic ailments, but showed lower efficacy in reducing psychopathological symptoms. Ginkgo biloba extract effectively counters fluid retention in certain individuals, probably due to improvement in microcirculation. St. John's wort, with its properties to slightly raise serotonin levels, can have antidepressant effects. However, it should be used cautiously due to its possible interaction with other drugs. Licorice root probably reduces somatic symptoms of PMS. It contains substances resembling corticosteroids. A reduction of PMS symptoms can be achieved with mixes of herbs with broad-spectrum effects: sedative, regenerating and analgesic [1,2,5-7,9].

Physical exercise and relaxation can sometimes have positive effects on mood and relieve somatic symptoms and disorders. Relaxation in periods when symptoms become more severe can improve occupational and social functioning of patients [1,2,5-7,9,14-16].

Moreover, it is recommended to increase dietary intake of fruit and vegetables, particularly leguminous plants. It is also recommended to follow a high-fiber diet, decrease caffeine, alcohol, refined sugar and sweetener consumption as well as reduce intake of salt, foods rich in saturated acids and red meat. Maintaining stable blood glucose levels thanks to consumption of complex carbohydrates can reduce premenstrual eating urge and deliver tryptophan needed for serotonin synthesis. Effects of vitamin B6, calcium and magnesium supplementation were comparable to placebo.

Surgical treatment

Surgical treatment seems to be the only definitive and effective method to treat PMS. It should be offered once all other treatment methods

have been exhausted, only in carefully selected cases. Surgery can be considered alternative treatment in patients with severe PMS symptoms that do not react to other forms of therapy. The efficacy in eliminating psychopathological and somatic symptoms is considerable, but permanent sterility is ethically controversial and carries legal consequences in Poland. Operative treatment consists in partial or total hysterectomy and bilateral salpingo-oophorectomy, which results in complete cessation of menstrual cycles [1,2,5-7,9,15].

Psychiatric medications

Research investigating the use of SSRIs (selective serotonin reuptake inhibitors) and SNRIs (serotonin-norepinephrine reuptake inhibitors) has shown their efficacy in PMS treatment. These drugs remove both emotional and physical symptoms of PMS. As regards mild as well as severe PMS, these medications should be considered in the first-line therapy. In the case of continuous administration, doses should be gradually decreased and the drugs slowly discontinued so as to avoid sudden development of adverse clinical signs of withdrawal. Such gradation is not needed when these drugs are used in slight doses in the luteal phase. Patients using SSRIs for PMS should be aware of their adverse effects, such as nausea, sleeplessness and lower libido [1,2,5-7,9,15,17].

CONCLUSION

The ACOG premenstrual syndrome diagnostic criteria can facilitate diagnosis and implementation of proper treatment. PMS therapy should offer complete treatment, including complementary therapy.

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