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THE CHARACTERISTIC SYMPTOMS OF PREMENSTRUAL SYNDROME AND THE PERCEPTION OF IMPACT ON THE PRACTICE OF PHYSICAL EXERCISES

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ABSTRACT
Women go through hormonal changes that can result in symptoms that interfere in daily life. Thus this research aims to know the symptoms present in the premenstrual period, which may come to characterize the so-called pre-menstrual syndrome, and really see if these symptoms may or may not, have an impact on physical exercise. impact = 3) for symptoms, 28% felt the practice moderately affected, 24% reported being somewhat affected and 12% extremely affected. Only 4% of participants (n = 1) reported that premenstrual symptoms anything affect your physical exercise (degree of impact = 0). In the present study can be seen that, if not all women, but most of them presents any symptoms in the premenstrual phase, which may be physical, psychological or behavioral.

KEYWORDS: Menstrual cycle, physical exercise, pre-menstrual syndrome.

1.0 INTRODUCTION

The beginning of the menstrual cycle is due to the occurrence of menarche, which means the first menstruation and translates an important event in the maturation of the hypothalamic-pituitary-ovary axis, initiating the hormonal cyclical processes and the ovulatory menstrual cycles.[1] The first menstruation occurs for the first time around the age of twelve and can be delayed until the age of sixteen, depending in part on the genetic predisposition of each individual.[2]

The menstrual cycle can be divided into three main phases: follicular phase, also called the proliferative phase, ovulatory phase and luteal or secretory phase, described below:

1) At the beginning of the follicular phase, receptors for Follicle-Stimulating Hormone (FSH) and Luteinizing Hormone (LH) are sensitized in the cells of the teak and granulosa, present in the ovary, and the gonadodropins stimulate the synthesis of estradiol.[3] Estradiol is the main estrogen in the ovary and is the result of the conversion of testosterone, in the granulosa cells, to 17 □□□□estradiol. This hormone dominates the follicular phase, with the endometrial lining of the uterus having significant effects due to the regular increase in the levels of this hormone. Thus, the uterus is prepared for possible acceptance of the fertilized egg and also the inhibition of FSH and LH secretion by the anterior pituitary, through negative feedback.[3] Estradiol stimulates the growth of the endometrium and glands and develops changes in the cervical mucus, making it watery and elastic. The secretion of hormones from the anterior pituitary gland, FSH and LH, is stimulated by high concentrations of the hypothalamic hormone, GnRH, which is delivered directly to the anterior lobe of the pituitary gland, which stimulates a pulsatile secretion of the pituitary hormones. FSH and LH start to act on the ovaries, stimulating follicular development and ovulation, as well as the synthesis of steroid hormones.[3]

2) The ovulatory phase occurs on the fifteenth day of a 28-day menstrual cycle. Despite the length of the cycle, ovulation occurs 14 days before menstruation. Although these events generally occur between the thirteenth and the fifteenth day, stress and several other factors can cause ovulation to be delayed and, consequently, the action of some hormones.[4] This phase occurs after a large increase in estradiol secretion at the end of the follicular phase, with a process of positive feedback on the secretion of FSH and LH, called the peak of FSH and LH.[3] There may then be ovulation of the mature egg. By making it more watery and increasing in quantity, the cervical mucus becomes more penetrable to the sperm. Estradiol levels decrease after this event, but will increase again in the luteal phase.

3) The luteal or secretory phase occurs from the fifteenth to the twenty-eighth day, ending with the onset of menstruation. In this phase there is a predominance of the action of progesterone. One of its actions is negative feedback on the pituitary gland, in which FSH and LH inhibition will occur again. In this phase, the development of the corpus luteum also occurs, thus synthesizing estradiol and progesterone. With the

increase in progesterone, in this phase, there is stimulation of the secretory activity of the endometrium and an increase in its vascularization, preparing the endometrium to receive the fertilized egg. Because it becomes less abundant and thicker, cervical mucus is not suitable for sperm to fertilize the egg. At the end of the luteal phase, if fertilization has not occurred, the corpus luteum regresses, losing the luteal source of estradiol and progesterone, and the blood levels of hormones abruptly decrease.[3]

With the regression of the corpus luteum and loss of estradiol and progesterone occurs the elimination of the endometrium and blood (menstruation or menstrual blood), thus having menstruation itself, which has an average duration of five days, corresponding from the first to the fifth day of the next menstrual cycle. The duration of menstrual flow is 3-5 days, but flows from 1 to 8 days can occur in normal women and can be influenced by many factors, including the thickness of the endometrium, medications and diseases.[5]

The oscillation of hormones, characteristic of the menstrual cycle, causes several women to have symptoms in the premenstrual period and may interfere with their daily life.

Premenstrual syndrome is characterized by a combination of physical, psychological and behavioral symptoms that negatively interfere with a woman's interpersonal relationships[1], symptoms that increase in intensity 4-10 days before menstruation and disappear with the beginning of it.[6]

It is an endocrine-gynecological pathology of uncertain cause and not from the woman's imagination.[1]

There is a discrepancy in the prevalence data for the syndrome in the literature because there is no consensus for its definition. In a study carried out in Brazil, Nogueira and Silva (2000)[7] in a gynecological outpatient clinic, which characterized PMS as the presence of at least one severe symptom, found a proportion of 43.3% of female patients with the syndrome. In another study, Silva et al (2006)[8], obtained a prevalence of 25.2% of women, from a city in Rio Grande do Sul, with PMS, having as criterion the presence of at least five symptoms. In both, the criteria were different, but it can be understood that the more stringent these criteria are, to characterize PMS, the lower the prevalence. Thus, there is no consensus in determining a criterion for the diagnosis of PMS, with a difference in the prevalence of the syndrome.

There are several factors that try to explain the characteristic symptoms of PMS, being something very subjective, varying from woman to woman. Due to this great variability, a single cause for PMS cannot be established, but Dickerson, Mazyck and Hunter (2003)[9] suggest that the altered regulation of neurohormones and neurotransmitters, such as serotonin, is involved with the occurrence of symptoms. For Halbe (2000) [10] the oscillation in the levels of estrogen and progesterone, in the menstrual cycle, acts on the serotonergic function and, in more sensitive women, the manifestations of PMS occur. According to Freitas et al., (2001) [1] PMS may be more related to sociocultural factors than genetic and seems to be the consequence of a complex and poorly understood interaction between ovarian steroid hormones, central neurotransmitters, prostaglandins, peripheral autonomic system and endocrine.

As PMS has different etiologies, not well known or proven, and because it does not have objective markers that can quantify the intensity of symptoms, it is difficult to establish a diagnosis of PMS.[6] Several criteria and protocols have been used to diagnose PMS. The best way to obtain the diagnosis is through the registration of symptoms, prospectively, for at least two cycles, carried out in the form of a diary.[1] There are also a variety of calendars and questionnaires for documenting changes in the premenstrual period, but due to their length they are not very ideal. According to Gaion, Vieira and Silva (2008)[11] due to these differences in methodological procedures, whether in biological form or in the form of a record for making a diagnosis, this has directly affected the prevalence of PMS. Jones, Wentz and Burnett (1990)[6] state that a complete assessment of each patient's clinical, family and social background is necessary. According to Halbe (2000) [10] the diagnosis will be made by anamnesis, physical examination and complementary exams, the most important of which is the documentation of the occurrence of symptoms throughout the menstrual cycle, made in the form of a graph, this being the most appropriate way for the diagnosis. The same author points out that the diagnosis of PMS can only be made in the presence of spontaneous menstrual cycles. Thus, the use of contraceptive pills and other drugs should be investigated, as these can make it difficult to observe symptoms as the menstrual cycle develops.

For the treatment of PMS, it is of great importance, first, to raise awareness and guidance about the syndrome. Many of the existing treatments, more than 300 options in the literature, lack evidence and further studies for their approval. The uncertainty of the pathophysiology of PMS is reflected in the variability of clinical treatment.[6] According to Halbe (2000) [10]treatment is divided into general measures, discussion of the meaning of the syndrome and administration of medications. As general measures we have: diet, physical conditioning, balance between sleep and work.

There are a number of therapies that have proven not to work, including supplementation with progestin, vitamin B6 and the use of danazol.[1] However, the use of fluoxetine, an inhibitor of serotonin reuptake, has proved to be very effective in the treatment of the syndrome[10]

What can be concluded about the treatment of PMS, based on the literature, is that there are some interventions that can be effective, but need further studies, namely: individualization of treatment, since symptoms vary from woman to woman and are indicated according to each patient's condition. Treatment should be based on the types of symptoms and the severity of the syndrome.[1]

There should be a balanced diet, with low consumption of fats, avoiding foods that are very salty and very sweet due to water retention, causing discomfort. For these cases, diuretics have been indicated, but these have a limited role in the treatment. Avoid stimulating drinks such as teas, coffee and cola drinks, as they increase irritability, tension and insomnia, in addition to alcoholic beverages, which can worsen psychological symptoms.[1] According to Halbe (2000) [10]studies have shown that eating a meal rich in carbohydrates and low in proteins, at night, during the luteal phase, improves depression, tension, irritability, fatigue and anxiety, due to increased synthesis of serotonin. According to the same author, the use of oral contraceptives, such as pills, tends to have significantly lower premenstrual syndrome scores.

Dietary changes like these are probably harmless, and, when successful, prevent more serious treatment.[6]

What can also be proposed for treatment is the use of evening primrose oil, a nutritional supplement, consisting of gamma-linoleic acid, which has had satisfactory results in improving symptoms such as depression, anxiety and mastalgia, in uncontrolled studies, but in a single study. controlled study, only depression was reduced compared to placebo.[6]

Some authors believe that the syndrome is related to stress, although this association is controversial, recommend cognitive treatment, which can help the patient to develop appropriate ways to deal with the problems of daily life.[10] Reducing stress as much as possible and following a regular exercise program are key factors in treatment. Aerobic exercise can raise the levels of endorphins and thereby improve mood.[1]

There are many symptoms of PMS in addition to its variability, with more than 100 associated physical, psychological and behavioral symptoms cited.[1]

Cheniaux Jr, Laks, Chalub (1994) [12] state that in the premenstrual period, positive changes can occur, such as increased interest and sexual pleasure, explosions of energy, more attractive breasts, greater production of creative ideas, better social performance and occupational, feeling of well-being, among others.

According to Halbe (2000) [10]the most common somatic symptoms presented in the syndrome are: breast pain and growth, pelvic pain, headache, weight gain, skin disorders. In psychological symptoms, irritability, depression, anxiety, inability to concentrate, tension, insomnia, discouragement and mood swings and crying are present.

In a survey of 112 futsal athletes, Gaion, Vieira and Silva (2008) [11]found that the symptoms associated with impact on the athletes' sports performance were depression, irritability, mastalgia, difficulty concentrating, low back pain and tiredness.

Mendonça (1989)[13] comments on possible causes of some physical symptoms, such as water retention and breast hyperplasia, alterations in prolactin, aldosterone secretion, progesterone and estrogen. As for behavioral changes, the same author comments on the relationship with ovarian steroids, endorphins and noroadrenaline. Lima and Camus (1996) [14]report that some of these symptoms presented in the premenstrual period can be explained by changes in the level of estrogen and progesterone, where the lack of estrogen can be associated with the onset of depression, decreasing psychomotor activity, and when the levels of this hormone are high they can be associated with states of agitation, anxiety and irritability. For Halbe (2000) (10) currently, it is known that progesterone is the syndrome-inducing hormone in sensitive women.

Relationship of Physical Exercise and Characteristic Symptoms of Premenstrual Syndrome

Physical exercise is defined as that planned, structured, repetitive and directed physical activity, that is, to improve the maintenance of one or more components of physical fitness and quality of life.[15]

Women are increasingly active and participative in relation to the practice of physical exercises, even with their physiological changes resulting from the menstrual cycle and the symptoms that affect them during the premenstrual period, the well-being brought by the practice is fundamental in their lives.

According to Halbe (2000) [10] there is a tendency for women who practice physical exercises to have less premenstrual symptoms than inactive women. According to the same author, both aerobic and anaerobic exercise can reduce these symptoms. But aerobic exercise shows a clear beneficial effect on premenstrual depression.

According to Leitão et al., (2000) [16]physical exercise performed correctly associated with adequate food intake does not interfere with hormonal function and the different phases of the menstrual cycle do not seem to interfere with performance. However, the same authors claim that some studies also suggest the relief of premenstrual symptoms in women who exercise regularly.

Robergs and Roberts (2002)[17] report that the different phases of the menstrual cycle are important because

there are differences in the concentrations of hormones that affect the mobilization of the substrate for exercise.

For Mellion (1997)[4] the menstrual cycle phase can affect female performance, as the concentrations of estrogens and progestins are modified and can alter the dynamics of vascular volume, temperature, ventilation and substrate metabolism.

According to Stella et al. (2004)[18] physical exercise has shown an important contribution to improve the profile of the state of mood in the short and long term. Some psychophysiological hypotheses suggest that the analgesic and relaxing effect obtained by physical exercise, due to the release of □-endorphin and acute dopaine to exercise, attribute greater positive stability in the mood state. Thus, due to the action of these opioids (substances analogous to opium derivatives, which exert analgesic effects), released into the bloodstream soon after the end of the session, the feeling of relaxation and well-being are widely perceived by the brain, maintaining the state in a balanced mood for at least 2 hours after exercising.[19] It can be said that this body's response to exercise is of great benefit to women with premenstrual symptoms such as lability of mood, tension, general pain and even tiredness.

For Halbe (2000)[10] in addition to the neuroendocrine influence, clear in moderate or intense exercises, there can also be psychological benefits, and with the practice of regular exercises, they can provide these women with relief from excessive responsibilities at home, at work and in the family and serve as a way to deal with stress. This, for some authors already mentioned, is a possible factor related to premenstrual syndrome.

In a study carried out by Vieira, Rocha and Porcu (2008)[20] the physical exercise performed, based on water aerobics, proved to be an important therapeutic aid in the treatment of depression over the benefits of the emotional (psychological) state or mood state profile. Due to the modification of other mood factors underlying the symptoms of the disease, such as reduced tension, anger, fatigue, confusion and increased vigor, an improvement in depression levels was attributed. The authors concluded that the practice of physical exercises should be encouraged with patients with depression and that they should have the opportunity to practice physical exercises supervised for a longer time, so that the results of this practice can be more efficient.

The characteristic symptoms of PMS can have an impact on the performance of daily activities of some women, for example, in the practice of physical exercises. Thus, the present study with women who practice physical exercises, in a specific gym in Curitiba, aims at knowing the symptoms present in the premenstrual period of these women, subjectively, not aiming to prove the diagnosis of PMS, but rather to report how much they can affect physical exercise.

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