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RESEARCH ARTICLE

Frequency and severity of premenstrual syndrome in women diagnosed with brucellosis

İhsan Şafak[1], **Burcu Gültekin Altınok**[2]

[1]Department of Obstetrics and Gynecology, Şırnak İdil State Hospital, Şırnak, Türkiye
[2]Department of Psychiatry, Şırnak İdil State Hospital, Şırnak, Türkiye

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ABSTRACT

Aim: Brucellosis is a zoonotic infectious disease caused by Brucella with 4 different subtypes, transmitted to humans mainly through undercooked meat, milk, and dairy products, leading to the involvement of many organs in the body. The purpose of this study is to investigate the frequency and severity of premenstrual syndrome in patients with brucellosis.

Methods: The research was conducted at İdil State Hospital in Şırnak between 15.02.2024 and 15.03.2024. The premenstrual syndrome scale and sociodemographic data form were applied to female patients aged 18-50 years who presented to Idil State Hospital between 01.01.2022 and 01.01.2024 and were diagnosed with brucellosis.

Results: The mean premenstrual syndrome score of women with brucellosis was 164.87 with a standard deviation of 31.58. In the control group of women who had not been exposed to brucellosis, the mean premenstrual syndrome score was 98.39 with a standard deviation of 40.31. The comparison between the two groups was significant at $p<0.05$, indicating a significantly higher frequency and severity of premenstrual syndrome in women who had experienced Brucellosis compared to those who had not.

Conclusion: Our study investigated the relationship between the frequency and severity of premenstrual syndrome and brucella infection and found that Brucella infection significantly increased the frequency and severity of premenstrual syndrome.

Keywords: brucellosis, pain, premenstrual syndrome, zoonoses

Corresponding author: İhsan Şafak **E-mail:** ihsansafak93@hotmail.com
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INTRODUCTION

Brucellosis is an infectious disease caused by the Brucella pathogen. In humans, brucellosis is a zoonotic disease that can be caused by four different Brucella species: B.suis, B.melitensis, B.abortus, and B.canis, and as few as 10 to 100 organisms can cause the disease in humans (1).

Brucella pathogens are facultative intracellular gram-negative coccobacilli, with sheep and goats being the most common animal reservoirs for species causing disease in humans. The bacteria often pass into the milk of infected animals and can infect humans through the consumption of contaminated milk or occupational exposure. Brucella bacteria can survive in dairy products for days or even weeks, but they can be killed by boiling, pasteurization, or lactic acid fermentation (2,3).

Brucellosis is more common in the young population, with 60% of cases occurring in individuals aged 13-40 years, 16% in those aged 40-60 years, and 2.5% in those aged 60 years and over. Brucellosis is more common in men than in women, and occupational exposure to animals is thought to be the presumed cause of this difference (1,4).

Premenstrual syndrome (PMS) is a clinical condition characterized by somatic and psychological symptoms that occur during the luteal phase of the menstrual cycle and disappear a few days after menstruation begins, causing significant distress and functional impairment. PMS symptoms include changes in appetite, weight gain, abdominal pain, back pain, lower back pain, headache, breast swelling and tenderness, nausea, constipation, anxiety, irritability, anger, fatigue, restlessness, mood swings, and crying (5,6).

Brucellosis can present with various symptoms; one study observed that patients diagnosed with recurrent high fever during menstruation. Brucellosis is known to disrupt the menstrual cycle in women and lead to conditions such as amenorrhea and metrorrhagia. It should also be noted that Brucella pathogens often affect the genitourinary system and can cause symptoms similar to dysmenorrhea (7-9).

In this study, we aimed to investigate the frequency and severity of expected PMS symptoms in female patients diagnosed with brucellosis.

MATERIAL AND METHOD

The research was conducted at İdil State Hospital in Şırnak between 15.02.2024 and 15.03.2024. The contact information of female patients aged 18-50 who presented to İdil State Hospital between 01.01.2022 and 01.01.2024 and were diagnosed with brucellosis was accessed through the system. Patients willing to participate in the study and signing the informed consent form were included in the study. Individuals in the same age group with no known diseases or history of brucellosis who agreed to participate formed the control group.

Data collection tools

A sociodemographic data form and the premenstrual syndrome scale were applied to eligible patients.

Sociodemographic data scale

The sociodemographic data scale included questions about patients' name, surname, age, additional diseases, additional medication use, and psychiatric diagnosis and treatments.

Premenstrual syndrome scale

This is a scale developed by Gençdoğan in 2006 aiming to measure the severity of premenstrual symptoms according to DSM III and DSM IV-R. The scale, widely used in Türkiye, includes 44 items that individuals mark considering their "state in the week before menstruation." The Premenstrual Syndrome Scale, in five-point Likert type, consists of 9 sub-dimensions (depressive mood, anxiety, fatigue, irritability, depressive thoughts, pain, appetite changes, sleep changes, bloating). The lowest score that can be obtained from the scale is 44, and the highest score is 220. The sub-dimension scores are obtained by summing up the items in these dimensions, and the total Premenstrual Syndrome Scale score is also obtained by summing up the sub-dimension scores. Those with a Premenstrual Syndrome Scale total score

of more than 50% are classified as PMS positive. A high Premenstrual Syndrome Scale score indicates more severe premenstrual symptoms. The Cronbach's Alpha (α) of the original scale is .75, and it was calculated as α = .95 for this study (10).

Statistical analysis

SPSS version 22.0 was used for the statistical analysis of the data. Arithmetic mean +- standard deviation was calculated for numerical data. Independent samples t-test was used as the statistical method, and p<0.05 was considered significant.

RESULTS

The premenstrual syndrome scale survey was applied to 38 female patients diagnosed with brucellosis in our study and 38 female patients were selected as the control group who had not experienced brucellosis. The results obtained are shown in Table 1.

Table 1. Comparison of Premenstrual Syndrome Scale data between women with brucellosis and the control group

Groups	N	X	SS	t	sd	p
Brucellosis Case (n=38)	38	164.87	31.58	8.002	69.988	0.000
Brucellosis Control (n=38)	38	98.39	40.31			

N: Number of participants, X: mean, SD: Standard deviation, sd: Degrees of freedom, Confidence interval 95%

Examination of the data revealed that the mean Premenstrual Syndrome Scale score of women who had brucellosis was 164.87 with a standard deviation of 31.58. In the control group of women who had brucellosis, the mean Premenstrual Syndrome Scale score was 98.39 with a standard deviation of 40.31, and the comparison between the two groups was significant at p<0.05, indicating a significantly higher frequency and severity of premenstrual syndrome in women who had brucellosis compared to those who had not.

Table 2. Comparison of women with brucellosis and women without brucellosis according to demographic data

	Brucellosis Case (n=38)	Brucellosis Control (n=38)	P
Age			
18/26	15	16	0.215
27/35	15	14	0.211
36/49	8	8	0.246
BMI			
18/24	25	26	0.226
25/29	10	8	0.238
29>	3	4	0.211
Marital Status			
Married	35	3	0.166
Single	3	8	0.094

When the data in Table 2 are examined, it is observed that the age range, Body Mass Index (BMI), and marital status of women who have had brucellosis are compared with those who have not had brucellosis based on age range, BMI, and marital status, and no significant difference was found between the two groups. (p>0.05).

DISCUSSION

Brucellosis is a zoonotic disease affecting approximately 50,000 people annually. It is frequently observed in our country, especially in the Eastern Anatolia and Southeastern Anatolia regions, due to undercooked meat, milk, and dairy products (11). It has been shown that brucellosis affects many systems in humans. Upon reviewing the literature, it was found that there are numerous studies related to brucellosis, but no study examining the relationship between brucellosis and the frequency and severity of premenstrual syndrome. There are studies in the literature aiming to show the relationships of various infectious agents with PMS. In a study by Alvarado-Esquivel et al., the relationship between Toxoplasma gondii infection and PMS was investigated, but no significant result was obtained (12).

In a study by Doyle et al., the relationship between sexually transmitted diseases and premenstrual syndrome was investigated. Among sexually transmitted diseases, Human Papillomavirus, Chlamydia trachomatis, Neisseria gonorrhoeae, Gardnerella vaginalis, Candida albicans, and Trichomonas vaginalis infections were examined for their relationship with premenstrual syndrome. In the study, it was found that Chlamydia trachomatis was significantly associated with premenstrual syndrome. No relationship was found between premenstrual syndrome and other sexually transmitted diseases examined in the study (13).

A study by Testa et al. showed that psychiatric manifestations such as psychosis, depression, anxiety, manic episodes, behavioral and vegetative symptoms, cognitive deficits, and consciousness impairment can occur in brucellosis (14).

In a study by Sheata et al., brucellosis emerged as an infectious agent that primarily produces acute psychic symptoms and mimics psychiatric disorders. Additionally, in a rare form of brucellosis known as neurobrucellosis, various psychiatric manifestations have been observed to accompany the disease (15).

In our study, the frequency and severity of premenstrual syndrome were found to be significantly higher in patients with brucellosis.

In our study, the relationship between the frequency and severity of premenstrual syndrome and Brucella infection was investigated, and it was found that Brucella infection significantly increased the frequency and severity of premenstrual syndrome. Our study was conducted with a limited number of patients. More comprehensive studies are needed to elucidate the relationship between brucella infection and premenstrual syndrome.

Ethical approval

This study has been approved by the Ethics Committee of Mardin Artuklu University Non-Interventional Clinical Research Unit (approval date 13/02/2024, number 2024/2-41). Written informed consent was obtained from the participants.

Author contribution

Surgical and Medical Practices: İŞ; Concept: İŞ; Design: İŞ; Data Collection or Processing: İŞ; Analysis or Interpretation: İŞ; Literature Search: İŞ, BGA; Writing: İŞ, BGA. All authors reviewed the results and approved the final version of the article..

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Conflict of interest

The authors declare that there is no conflict of interest.

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