ORIGINAL ARTICLE

Prevalence, Severity and Factors Related to Mastalgia among Women Referring to Health Centers Affiliated with Shiraz University of Medical Sciences

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Abstract

Background: Mastalgia is a common problem among women. Severe mastalgia can have a negative impact on sexual, physical and sleep activities and behaviors. Regarding the absence of a study on the prevalence and severity of mastalgia in southern Iran, the current study was conducted.

Methods: This is an analytical cross-sectional study. The participants were women who referred to health centers affiliated to Shiraz University of Medical Sciences in Shiraz. The inclusion criteria were willingness to participate in the study, not being pregnant and breastfeed. The severity of breast pain was calculated with visual analog scale. The data of 845 questionnaires were analyzed with SPSS software.

Results: The participants' age ranged from 15-50 years; the mean age was 32.84±9.49 years. Among 845 participants, 33% (279) of them had experienced mastalgia in the past three months. Among those who had experienced mastalgia, 81% (226) had cyclical mastalgai and 19% (53) had non-cyclical mastalgia. The mean of pain score was 4.32±2.38 and 12.9% of the participants (36) had pain scores of 8 to 10. The impact of mastalgia on daily and sexual activities and sleep behaviors was reported 9.31% (26), 12.66% (29) and 13.97% (36), respectively.

Conclusion: Results of this study showed that the spread of mastalgia in women referred to health centers affiliated to Shiraz University of Medical Sciences is lower than that reported in western studies and has lesser effects on their daily, sexual and sleep activities and behaviors. We suggest further studies about mastalgia in others locations in Iran.

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Keywords: Mastalgia, Breast pain, Cyclical mastalgia, Iran

Introduction

Breast pain or mastalgia is a common problem in western countries. Approximately, 70% of the women experience it during their life. Mild breast pain is a common experience (45%) during pre-menstrual period; however, about 25% of women report moderate to severe pain for five or more days during each menstrual cycle.[1-3] Severe mastalgia can have a negative impact on the women's quality of life. It has been linked to disruption in sexual (48%), social (12%), and physical (37%) activities and behaviors.[4]

Mastalgia usually affects both breasts but can be unilateral or localized in some breast parts. The pain can sometimes extend to arms or axillaries.[1,5] Women who experience mastalgia, sometimes refer to health

centers, due to fear of breast cancer.[6]

Two main kinds of mastalgia are cyclical and non-cyclical, which depends on its relationship with the menstrual cycle. Cyclical mastalgia is the most common type and begins in the luteal phase of the menstrual cycle. Symptoms include breast pain, tenderness and heaviness.[7,8] Cyclical mastalgia may last for more than 7 days in 11% of women.[9] The etiology of cyclical mastalgia is unknown. However, it may be associated with high levels of estrogen, low level of progestron, or imbalance in estrogen-progestron ratio during the menstruation period.[10,11]

Interestingly, in Asia the prevalence of mastalgia is low and it has been reported at 5%.[12] The prevalence of mastalgia in 1000 women between 15-45 years old in northern Iran was reported at 23.8%; and it was more prevalent in married, employed, and women aged 30 years and older.[13] The main complaint of 34% of women, who referred to a breast clinic in Tehran, was mastalgia which was associated with age, marital and educational status.[14]

Half of the world's population is women and their health is of a particular concern since it can seriously affect the health of family and society. Mastalgia, as a common complaint of women, can interfere with activity, relationships, and quality of life. Thus recognition of its spread and association with demographic variables seems important in different societies. The purpose of this study was to investigate the prevalence of mastalgia and its related factors among women who referred to health centers affiliated to Shiraz University of Medical Sciences.

Methods

This is an analytical cross-sectional study. Enrollment began in April 2014 until September 2014.

Setting and Participants

The present study was conducted in the health centers affiliated to Shiraz University of Medical Sciences in Shiraz, but not in rural area. The participants were all women who referred to the above-mentioned centers with reasons such as vaccination of their child. The sampling procedures were performed in the morning (about 8-13 am). The inclusion criteria were willingness to participate in the study, not being pregnant, not breastfeeding, and having an Iranian nationality. The exclusion criteria were pre-puberty, history of cancer or mastectomy.

Measures

Two trained interviewers were sent to health centers to introduce the study aims and procedures to the women. Then, the study questionnaires were completed by the women who consented to participate in the study.

The questionnaire was in two parts; the first part asked about the subjects' demographic data. The second part was about information related to the subjects' menstruation data; presence of mastalgia, severity, type, location, and duration of mastalgia; and its effects on daily and sexual activities as well as sleep.

The severity of breast pain was calculated with visual analog scale (VAS). It is a continuous scale comprised of a horizontal line, 10 centimeters (100 mm) in length; 0 meant 'No pain' and 10 meant 'Worst possible pain'.[15] Also, the participants were asked to describe their pain using the words mild, uncomfortable, distressing, horrible, and excruciating.

Mastalgia was classified as cyclical or non-cyclical by this question: "Is your breast pain associated with your menstruation cycle?" or "Dose your breast pain relieve by the onset of menstrual period?"

Sample Size and Analysis

The required sample size was estimated according to a previous study[13] based on 23.8% prevalence, considering α=0.05, d=3%. Statistical analysis revealed that 778 subjects were needed. Due to the possibility of attrition, the final sample size was 1000 subjects. This study was approved by the Research Vice-chancellor of Shiraz University of Medical Sciences (code: 91-01-21-5291). Results of descriptive statistics were expressed as Mean Value±Standard deviations for continuous variables, and as frequencies and percentages for categorical variables. The relationship between variables was determined using logistic regression. In all analyses, a P value of less than 0.05 was considered to be statistically significant.

Results

Of the 1000 questionnaires, 155 were excluded and 845 were analyzed. Excluded cases were women who did not answer some main questions like the amount of pain or those who withdrew their participations during the interview. The participants' age ranged from 15-50 years; the mean age was 32.84±9.49 years. Among the qualified participants 69.5% (591 persons) were housewives, 0.5% (4 persons) workers, 12.3% (104 persons) employees, 17.3% (146 persons) were university students. Economic status was self rated by the participants; in 70% (592 persons) it was reported moderate, in 16.92% (143 persons) weak, and in14.08% (110 persons) was considered good. Of those, 77.8% (657 persons) were married, and 43.25% (365 persons) did not have high school diploma. As to menstruation, 63.1% (533 persons) had regular menstruation and 30% (255 persons) suffered irregular menstruation or

oligomenorrhea; furthermore, 6.5% (55 persons) were menopause or hysterectomy cases.

The mean age of the menarche was 13.21±4.65. The means of height and weight were 160.94±6.3 and 65.13±11.47, respectively. The mean BMI was 25.11±4.59.

Among 845 participants, 33% (279 persons) had experienced mastalgia in the past three months and 67% (566 persons) had not experienced mastalgia. Of 33%, 26.7% (226 persons) and 6.3% (53 persons) had experienced cyclical and non-cyclical mastalgia, respectively.

Among those who had experienced mastalgia, 81% (226 persons) had cyclical mastalgai and 19% (53 persons) had non-cyclical mastalgia (Table 1). The mean duration of mastalgia in menstrual cycles (days) was 6.07±6.38, and the minimum and maximum were 1 and 30 days, respectively. This variable had a median value of 4 and mode value of 3.

The mean of VAS was 4.32±2.38, and 12.9% of the participants (36 persons) had pain scores of 8 to 10. In the oral report of breast pain, 54.8% (153 persons) reported mild pain, 24.4% (68 persons) uncomfortable, 12.9% (36 persons) distressing, 3.2% (9 persons) horrible, and 4.3% (12 persons) excruciating. Ninety five participants (34.2%) of those who had experienced mastalgia had performed sonography and mammography. The other characteristics of mastalgia such as location, being bilateral, and its effects on daily and sexual activities are shown in Table 2.

There were no significant differences between the participants who had experienced cyclical and non-cyclical mastalgia, with respect to the mean age, age of menarche and body mass index (BMI). However, the severity of pain showed a significant difference between cyclical and non-cyclical mastalgia. The Chi-square test revealed a significant difference between the types of mastalgia and variables like job, education level, marital status, parity, and type of contraceptive. However, there was no relationship between the type of mastalgia and variables like abortion, and regularity, duration and amount of menstruation. There was a significant difference between the two groups with respect to the location of pain. There were no relationship between the types of mastalgia and sexual activity (P=0.065), sleep (P=0.737), and daily activities (P=0.232) (Table 3).

The logistic regression revealed that cyclical mastalgia had no relationship to marital status, education level and occupation of the participants. Also, regularity, duration and amount of menstruation, nuliparity, abortion, and hormonal contraceptive were not related to cyclical mastalgia. Women who were younger than 25 years of age in comparison to women older than 40 years of age, as well as women with BMI less than 20 in comparison to obese women had more tendency to experience cyclic mastalgia (Table 3).

Discussion

In the current study, prevalence of cyclical mastalgia was 26.74%. In western countries, it is reported to be higher than that of the current study. In Ader and colleagues' studies in USA, the prevalence of cyclical mastalgia was

Table 1: Frequencies and percentages of characteristics of mastalgia

Variables	Yes N (%)	No N (%)
Effect on daily activities (279)	26 (9.31%)	253 (90.68%)
Effect on sexual activities (229)	29 (12.66%)	200 (87.33%)
Effect on sleep (279)	39 (13.97%)	240 (86.02%)
Having another Pains: backache; headache (277)	103 (37.2%)	174 (62.8%)
Synchronous with another pains (103)	37 (35.9%)	60 (64.1%)
Expression (279)		
Unilateral	74 (26.52%)	
Bilateral	179 (64.15%)	
Unilateral and bilateral (sometimes)	26 (9.31%)	
Location		
All area in right	1 (0.4%)	
All area in left	2 (0.7%)	
All area bilateral	78 (28.2%)	
Local area in right	14 (5.1%)	
Local area in left	54 (19.5%)	
Local area in both side	128 (46.2%)	
Duration (279)		
In current year	91 (32.61%)	
2-5 years	76 (27.24%)	
More than 5 years	112 (40.14%)	
Duration in menstrual cycle (277)		
≤5 days	180 (65%)	
6-10 days	71 (25.6%)	
>10 days	26 (9.4%)	

Table 2: Comparison of the variables in cyclical and non-cyclical mastalgia

Variables	Cyclical mastalgia	Noncyclical mastalgia	P value
Age (mean±SD)	33.52±8.85	34.30±8.60	0.56
BMI (mean±SD)	25.93±4.76	26.89±4.54	0.182
Mastalgia intensity	4.06±2.20	5.41±2.81	0.002
Job			
Housewife	156 (69%)	44 (83%)	
Occupied	70 (31%)	9 (17%)	0.042
Education			
Below high school diploma	98 (43.4%)	31 (58.5%)	0.047
Above high school diploma	128 (56.6%)	22 (41.5%)	
Menstrual condition			
Regular	141 (62.4%)	31 (58.5%)	0.599
Irregular	85 (37.6%)	22 (41.5%)	
Menstrual duration			
3-5 days	80 (35.4%)	19 (35.8%)	0.954
>5 days	146 (64.6%)	34 (64.2%)	
Menstrual amount			
Adequate	23 (10.2%)	8 (15.1%)	0.305
Not adequate	203 (89.8%)	45 (84.9%)	
Parity			
Zero	86 (38.1)	8 (15.1%)	0.001
≥1	140 (61.9%)	45 (84.9%)	
Contraception			
Hormonal	18 (8%)	11 (20.8%)	0.006
Nonhormonal	208 (92%)	42 (79.2%)	
Marital status			
Single	57 (25.2%)	5 (9.4%)	0.013
Married	169 (74.8%)	48 (90.6%)	
Location			
Unilateral	46 (20.4%)	28 (52.8%)	<0.001
Bilateral	158 (70.2%)	20 (37.7%)	
Unilateral and bilateral(sometimes)	21 (9.3%)	5 (9.4%)	

Table 3: The results of logistic regression of the variable related to cyclical mastalgia in all participants

Variables	P value	Odds Ratio	95.0% Confidence Interval	
			Lower	Upper
Job	0.769	0.933	0.587	1.483
Marriage situation	0.290	0.745	0.432	1.285
Education	0.481	1.153	0.775	1.716
BMI	0.002	3.212	1.559	6.619
Menstrual condition	0.698	0.934	0.664	1.316
Menstrual duration	0.607	1.092	0.781	1.525
Menstrual amount	0.297	1.308	0.790	2.167
Parity	0.080	0.627	0.372	1.057
Abortion	0.330	1.218	0.819	1.812
Contraception	0.126	1.562	0.882	2.765
Younger than 25 years old	0.043	1.672	1.015	2.753

reported 79% and in Leinster and colleagues' study in Britannia it was reported 68%.[9,16,17] Result of nonwestern studies showed lower prevalence of mastalgia in Asia. In a study in India, 12.75% of urban women had experienced benign disorders in their breast and mastalgia (36.11%) was the most common type.[18] In another study in Hong Kong, the prevalence of severe mastalgia in 1000 women was reported 6.6%.[19]

The result of our study is similar to Sharami and colleagues' research which showed the prevalence of mastalgia in northern part of Iran 23.8%.[13] In Ader and Brown's study, women who had experienced cyclical mastalgia were not different from non-mastalgic women with respect to age, age of menarche, race, educational level, and parity.[9] In the current study, only women younger than 25 and those who had low BMI were more susceptible to cyclical mastalgia. In younger women, mastalgia could be related to natural breast development. According to medical literature, mastalgia is more prevalent in the third decade of women's life.[5,20]

Also, the result of the current study was consistent

with those of other studies, showing that the prevalence of non-cyclical mastalgia is lower than cyclical mastalgia. In the current study, the mean of mastalgia score was 4.32±2.38; this is similar to Ader and Brown's study (Mean=4.63±2.3).[9] In our study, in most participants (65%) duration of mastalgia was 5 days or less and 54.8% of the participants reported weak mastalgia. However, in Carmichael and colleagues' study 93% of the participants reported more than 5 days of mastalgia and only 12% experienced weak mastalgia.[21] Moreover, in Ader's and Brown's study 30% of the subjects experienced mastalgia more than 5 days.[9] However, in a recent study done on general population, 51% of the participants had experienced mastalgia and its severity was similar to that in clinical population.[22]

In the present study, only 7.5% of participants reported strong and very strong mastalgia. In Carmichael and colleagues' study, 11% of participants reported excruciating and horrible mastalgia which is in line with results of the current study.[21]

In the current study, the effect of mastalgia in sexual, daily activities, and sleep was less than 14%, which is consistent with the study conducted in Asia. However, in some western studies these effects were reported more than 45%.[9,16] In the current study, most mastalgic participants had reported bilateral and local mastalgia. With regard to the observed 80% cyclic mastalgia, more bilateral mastalgia was anticipated and consistent with western studies,[1,23] as also shown in Vaziri and colleagues' study in Shiraz, Iran.[24] But, in a study in Asia only 35% of women had experienced bilateral mastalgia and most of them had experienced left, unilateral mastalgia.[19] Results of Maddox and colleagues' study, in line with our study, showed women with non-cyclic mastalgia could report it bilateral.[25]

Results of Krishnaswamy's study in India showed that women experiencing cyclic mastalgia were younger than those experiencing non-cyclic mastalgia.[18] This result is in line with some studies in western countries.[1,5] However, the result of the current study does not agree with the above-mentioned studies; in the current study there were no significant differences between the mean age of the women who had experienced cyclic mastalgia and those experiencing non-cyclicmastalgia. Women who had experienced non-cyclicmastalgia compared to those with cyclical mastalgia, were more multi parous, married, housewives, low education level, and oral contraceptive pills users.

In line with Chowdhury's study,[20] in our study, the severity of non-cyclic mastalgia was greater than cyclic one. The common reason for existence of non-cyclic mastalgia is fibroadenoma, breast cyst, and trauma that can create more pain compared to hormonal reasons.[26] However, this study did not investigate the reasons for non-cyclic mastalgia.

Our study had some limitations. We did not select the participants via a randomized method. Also, we did not identify dietary regimens of the participants. So, the relationship between mastalgia and dietary habits remained unclear.

Conclusion

Results of this study showed that the spread of mastalgia in women referred to health centers affiliated to Shiraz University of Medical Sciences was lower than western studies and had lesser effects on their daily activities. We suggestfurther studies on mastalgia in other locations of Iran.

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Conflict of Interest: None declared.

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