

Prevalence of Fibromyalgia among a Sample of Infertile Women: A Cross Sectional Study from Baghdad, Iraq.

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Abstract

Background: Fibromyalgia is a functional disorder of growing importance characterized by chronic widespread musculoskeletal pain. It frequently affects women of child bearing age. Infertility is failure to achieve pregnancy within a 12 month period for sexually active individuals under 35 years of age and failure to conceive within a 6 months period for those over 35 years, which can have a major psychosocial impact on the affected person's life.

Objectives: To estimate the prevalence of fibromyalgia among a sample of infertile women; and to study its relationship with age, length of marriage, duration and type of infertility.

Patients and Methods: A cross-sectional study was conducted in Kamal Al-Samarraee Infertility Center & Infertility Clinic in Baghdad Teaching Hospital on 202 infertile women. Fibromyalgia was diagnosed according to 2012 Canadian Guidelines.

Results: Fibromyalgia was reported in 48 women (23.8%). There was a significant association between fibromyalgia and age ($P=0.023$), longer duration of marriage ($P=0.001$) and longer duration of infertility ($P=0.04$), but no significant association with type of infertility whether primary or secondary ($P=0.32$).

Conclusions: The prevalence of fibromyalgia among infertile women was higher than reported in the general population and its occurrence was significantly associated with age, longer duration of marriage and infertility.

Keywords: Fibromyalgia, Infertility, Infertile women.

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Introduction:

Fibromyalgia syndrome (FMS) is a chronic widespread musculoskeletal pain for which no alternative cause can be identified (1), frequently affecting women of fertile age (2). It is a debilitating and frustrating syndrome (3). It has a prevalence of 2-8% in the general population with a striking female preponderance, mostly women between the ages of 20 and 55 years. The prevalence of FMS in Iraq is 1.5% among children and adolescent population (4). Fibromyalgia appears to coexist sometimes with other rheumatologic disorders such as rheumatoid arthritis (5), osteoarthritis (5), systemic lupus erythematosus (6), joint hypermobility syndrome (7) and Behcet disease (8) and is increased in head trauma (5), ischemic heart disease (9), chronic obstructive pulmonary disease (10) and sleep apnea (5) in men, while hypothyroidism (5), hyperprolactinemia (5) and breast cancer (11) are reported to increase the risk in

women. According to the 1990 American College of Rheumatology (ACR) criteria, if a patient had more than 11 of 18 tender points for three or more month, the patient would be diagnosed with FMS (12). A newer criteria was clarified by Wolfe et al. (2010) as widespread pain index (WPI) of >7 and a symptom severity scale (SS) >5 or WPI 3-6 and SS >9 (13). According to 2012 Canadian Guidelines for Diagnosis and Management of Fibromyalgia the patient is diagnosed to have FMS when having diffuse body pain for more than three months associated with the four characteristic features of FMS including: fatigue, disturbed sleep, cognitive and mood changes (anxiety and depression), plus any one other associated symptoms affecting the central nervous system, gastrointestinal tract, cardiovascular, respiratory, genitourinary tract, or others like oral ulcers, Raynaud's phenomenon, hair loss or chemical sensitivity (14). Approximately 50% of patients complain of wide spread pain associated with marked stiffness. Headache, sore throat, and eye or pelvic pain may be present. Other features are debilitating fatigue, joint swelling, disturbed sleep pattern, paresthesia of hands and feet, anxiety, panic attacks, and depression. The presence of tender points may aid in establishing the diagnosis. Disparate stressors can trigger the development of the condition. Twin studies have

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recently supported a link between posttraumatic stress disorder (PTSD) and chronic wide spread pain (CWP) (1). Infertility is failure to achieve a pregnancy within a 12 month period for patients under 35 years of age and failure to conceive within a 6 month period for the patients over 35 years (15). It is considered primary when there's an inability to conceive a first child or carry a pregnancy after one year of regular sexual relationships without contraception, and secondary when there is an inability to conceive or carry a pregnancy after one live birth while desiring another pregnancy (16). It is often referred to as a life crisis that brings multiple psychological and social effects, and is considered a biopsychosocial crisis (17-21). Infertile individuals and couples face psychological, physical, financial and social consequences. The World Health Organization (WHO) on 2009 ranked infertility in women as the 5th highest serious global disability. Infertility affects 10% of women between the ages of 15 and 44 in the United States and other developed countries and is higher in underdeveloped countries (22). There is scant evidence that FMS may interfere with a woman's ability to get pregnant. There is also contradicting evidence that suggests that pregnancy causes easing of the symptoms of FMS (23, 24). The psychological impact of infertility on patients can be as emotionally devastating as a diagnosis of AIDS or cancer. Females may report lower self-esteem and more negative emotions than their male partners (25). It is reported that 20-60% of infertility patients suffered from depressive or anxious symptoms (26). Depression was reported to be common among infertile women in a study from Basra – Iraq (27). The prevalence of psychiatric conditions among patients affected by FMS is higher than among subjects complaining of other rheumatic diseases (28). Depression is more frequently associated with FMS than with other musculoskeletal diseases (29, 30). It can worsen FMS symptoms and vice versa. Antidepressants represent a cornerstone of FMS therapy (31-33).

Patients and methods:

Study design, setting, and time: A cross-sectional study was conducted on 202 infertile women of child bearing age attending Kamal Al-Samarae Infertility Center and Infertility Clinic in Baghdad Teaching Hospital from October 2015 till March 2016. **Inclusion criteria:** Women with primary and secondary infertility were included in this study. Fibromyalgia was diagnosed by a Rheumatologist according to 1990 ACR criteria (12) and 2012 Canadian Guidelines. (14) **Exclusion criteria:** Pregnant women and women with chronic diseases that could cause wide-spread body pain like diabetes mellitus, hypothyroidism or other rheumatic diseases were excluded. **Sampling technique:** Women who attended one of the two centers during the time of data collection were asked to participate in the study.

Those who agreed were then recruited to the study and a face to face interview was performed with each individual participant. Women who refused to participate were excluded from the study. **Data collection tools:** Data were collected by using a questionnaire including personal information including age, residence, educational status and menstrual and obstetric history, duration of marriage, and duration and type of infertility (whether primary or secondary). Clinical assessment including history of symptoms of fibromyalgia, anxiety and depression symptoms and clinical examination for tender points was performed. Laboratory studies were collected including complete blood count (CBC), erythrocyte sedimentation rate (ESR), liver function tests (LFT), renal function tests (RFT), serum calcium, alkaline phosphatase (ALP), antinuclear antibody (ANA) and thyroid function test (TFT). **Statistical analysis:** Chi square test was used to assess the significance of the association between FMS and other categorical variables, Fisher's exact test was used as an alternative when Chi square was inapplicable. Level of significance, set at ≤ 0.05 , to be considered as significant.

Results:

A total of 202 infertile women were enrolled in this study, with a median age of 30 years. Primary infertility was reported in 138 women (68.3%), the median duration of infertility was 4 years, (61.9%) had infertility for 1 - 5 years, (27.7%) for 6 – 10 years while (10.4%) of the women had infertility for more than 10 years. Fibromyalgia syndrome (FMS) was diagnosed in 48 women (23.8%). The Associated features and somatic changes inquired about were fatigue, sleep disturbance, cognition changes, and mood changes, and they were reported in (23.8%), (22.8%), (22.8%), and (23.3%), respectively. GIT changes were the most frequent somatic changes reported among the studied group (21.9%), followed by CNS changes (16.8%), GUT (13.9%), Hair loss (11.9%), ENT (10.4%), CVS (8.4%) and the least frequent was skin changes in (4%). There was no statistically significant association between these features and type of infertility ($P > 0.05$). (Table 1). There was a statistically significant association between FMS and older age, ($P = 0.023$) and longer duration of marriage ($P = 0.001$) (Table 2), and the longer duration of infertility, ($P = 0.04$) but not with the type of infertility ($p > 0.05$) (Table 3). A binary logistic regression analysis for the variables that appeared to be significantly associated with the FMS at the univariate analysis (age, duration of marriage and duration of infertility) revealed that longer duration of marriage was still significantly associated with FMS after adjustment for other variables, ($P = 0.04$), (Table 4).

Table 1: Relationship between type of infertility and somatic changes

Variable	Type of infertility				P value
	Primary		Secondary		
	No.	%	No.	%	
CNS	21	61.8	13	38.2	0.37
CVS	9	52.9	8	47.1	0.15
GIT	28	63.6	16	36.4	0.45
GUT	15	53.6	13	46.4	0.07
ENT	14	66.7	7	33.3	0.86
Skin	7	87.5	1	12.5	0.23
Hair loss	17	70.8	7	29.2	0.78

Table 2: Relationship between fibromyalgia syndrome with the age and duration of marriage

Variable	Category	FMS (n = 48)		No FMS (n = 154)		P value
		No.	%	No.	%	
		Age (year)	≤ 20	8	40.0	
	21 - 30	20	22.2	70	77.8	
	31 - 40	15	18.1	68	81.9	
	> 40	5	55.6	4	44.4	
Duration of marriage (year)	1 - 5	18	18.2	81	81.8	0.001
	6 - 10	13	18.8	56	81.2	
	> 10	17	50.0	17	50.0	

Table 3: Relationship between fibromyalgia syndrome and infertility characteristics

Variable	Category	FMS (n = 48)		No FMS (n = 154)		P value
		No.	%	No.	%	
		Type of infertility	Primary	30	21.7	
	Secondary	18	28.1	46	71.9	
Duration of infertility (year)	1 - 5	27	21.4	99	78.6	0.040
	6 - 10	12	21.1	45	78.9	
	> 10	9	47.4	10	52.6	

Table 4: Results of binary logistic regression for the relationship of FMS with duration of marriage, duration of infertility and the age of women

Variable*	B	Odds ratio	95% C.I. for odds ratio	P value
Longer duration of marriage	0.12	0.89	0.79 – 1.0	0.04
Longer duration of infertility	0.00	1.00	0.89 – 1.13	0.96
Older age	0.04	1.04	0.98 – 1.10	0.21

* These variables were significantly related with FMS on univariate analysis.

Discussion

The study tried to estimate the prevalence of FMS among a group of Iraqi infertile women and to assess any possible relationship between these two conditions. A total of 202 infertile Iraqi women were enrolled in the study with a median age of 30 years which agrees with previous studies and goes with the clinical picture of infertility in relation to age. The study found that primary infertility was more

frequent than secondary infertility, 68.3% vs. 31.7%, respectively. These findings consistent with that reported by Baron et al. in 2014. (34) This study reported FMS in (23.8%) of the women and this rate was higher than that reported in previous studies in different countries. This higher rate of FMS among the studied group might point to and support the inter-correlation between FMS and infertility. The study found no significant difference in the prevalence of FMS across the types of infertility but a significant association was found between FMS and the longer duration of infertility and longer duration of marriage, these findings supported the growing evidence of the correlation between FMS and infertility. An earlier study referred that comorbid FMS could significantly account for reduced fertility in women who self-report a history of FMS (35). About 20% of those who live with this chronic pain also suffer from an anxiety disorder or depression. Fibromyalgia and its connection to these illnesses should not be ignored. For example, in a study conducted in Iraq by Khudhair et al on FMS in patients with vitiligo, all the tested features were either significantly or obviously more frequent among patients with vitiligo compared to controls. The risk of having cognitive dysfunction, nonrestorative sleep or mood disorders was increased by 48%, 75% and 91%, respectively, among patients compared to controls. (36)

Conclusion:

The prevalence of fibromyalgia among infertile Iraqi women was high and it was higher than that reported in the general population. It was significantly associated with older age, longer duration of marriage and longer duration of infertility but it was not related to the type of infertility.

Authors' contributions:

All authors made substantial contributions to the conception or design of the work; or the acquisition, analysis or interpretation of data. All authors were involved in drafting the article or revising it critically for important intellectual content, and all authors give final approval of the version to be submitted and any revised version.

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انتشار متلازمة الألم الليفي العضلي لدى النساء العقيمت

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الخلاصة

خلفية البحث: ألم الليف العضلي هو المصطلح الحالي للألم العضلي الهيكلي المنتشر المزمن والذي ليس له سبب بديل يمكن تحديده. وهو كثيرا ما يصيب النساء بعمر الخصب. ألم الليف العضلي هو متلازمة مضعفة ومحبطة تنجم دائما عن أحداث نفسية أو جسدية مجهدة. العقم هو فشل انجاز الحمل خلال فترة 12 شهرا للمرضى الذين اعمارهم اقل من 35 سنة، و فشل الحمل خلال فترة 6 أشهر لمن أعمارهم أكثر من 35 سنة. للعقم وقع نفسي كبير على حياة الأشخاص العقيمين.

اهداف الدراسة: تهدف الدراسة الى تقييم معدل انتشار متلازمة ألم الليف العضلي بين عينة من النساء العقيمت، والى دراسة علاقة ذلك مع العمر وفترة الزواج وفترة العقم ونوع العقم.

المرضى والطرائق: ان نمط الدراسة هو دراسة عينة احصائية مقطعية، اجريت في مركز كمال السامرائي للخصوبة وعلاج العقم وعيادة العقم في مستشفى بغداد التعليمي على 202 امرأة تعاني من العقم. سجلت المعلومات الشخصية والصفات الاجتماعية الديموغرافية والتاريخ التوليدي ونوع العقم سواء كان أولي أو ثانوي لكل مريضة وتم تشخيص متلازمة ألم الليف العضلي حسب معايير الدليل الموجز الكندية لسنة 2012 لتشخيص متلازمة ألم الليف العضلي.

النتائج: سجلت متلازمة ألم الليف العضلي لدى 48 امرأة (23.8%). كانت هناك علاقة احصائية معتد بها لمتلازمة ألم الليف العضلي مع العمر (قيمة الاحتمالية = 0.023)، ومع فترة الزواج الأطول (قيمة الاحتمالية = 0.001)، وفترة العقم (قيمة الاحتمالية = 0.04)، ولكن لم تكن هناك علاقة مع نوع العقم سواء كان أولي أو ثانوي (قيمة الاحتمالية = 0.32).

الاستنتاجات: كان انتشار متلازمة ألم الليف العضلي بين النساء العقيمت اكثر من المسجل بين عامة السكان، وكان لحدوثها علاقة احصائية معتد بها مع العمر ومدة الزواج الأطول ومدة العقم الأطول. وهذا يشير الى ضرورة التشخيص المبكر لمتلازمة ألم الليف العضلي بين النساء العقيمت من اجل علاج أفضل.

الكلمات المفتاحية: ألم الليف العضلي، العقم، نساء عقيمت.