

Joint Mobility among Patients with Trochanteric Bursitis in Erbil-Iraq

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Abstract

Background: Trochanteric bursitis is the inflammation of greater trochanter bursa, which is located lateral to the greater trochanter of the femur. The underlying causes of trochanteric bursitis are multifactorial. Joint mobility considered as one of the possible causes; Joint laxity is a condition in which the range of motion in the joints are greater than normal, which are more in women than men with higher prevalence in young ages.

Aim of the study: to assess joint mobility among people with trochanteric bursitis.

Patients and Methods: A cross sectional study was conducted in Rheumatology Outpatient clinic in Rizgary Teaching Hospital in Iraqi Kurdistan region between February and December 2021. A sample of 100 Iraqi patients with trochanteric bursitis, and another 100 healthy controls matched in age and sex were studied. Beighton score were performed on patients and controls to assess joint mobility.

Results: Joint hypermobility was reported in 24(12%) patients with trochanteric bursitis compared to 29(14.5%) in healthy controls ($p=0.423$, OR 0.773; 95%CI 0.412-1.452), no significant differences were detected between the two groups. Joint hypermobility was more in females using cutoff score ≥ 4 of Beighton score; forty-six among fifty-three hypermobile participants were female, the p-value was 0.001 which was statistically significant.

Conclusion: There is no positive correlation between joint hypermobility and the presence of trochanteric bursitis.

Keywords: Joint hypermobility, Trochanteric bursitis, Body mass index, Beighton score.

Introduction

Trochanteric bursitis is the inflammation of greater trochanter bursa, which is located lateral to the greater trochanter of the femur, adjacent to the tensor fascia lata and iliotibial band superficially, enclosed to vastus lateralis, gluteus medius and minimus insertions. Bursae are prospect sacs filled

with fluid act as a cushion between soft tissues and bone prominences ¹.

In 1923 Stegemann used the term trochanteric bursitis was used to explain the recurrent chronic pain in the lateral aspect of the hip joints ², nowadays the term "greater trochanteric pain syndrome" (GTPS) used to report pain and tenderness in lateral aspect of hips ³.

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Trochanteric bursitis has been seen in 10-25% of the population, and the incidence of newly diagnosed cases has been estimated to be 2-6 per 1000 in a year⁴. Trochanteric bursitis has been estimated to be more among patients with low back pain⁵, GTPS can occur in adults of any age, appeared to be much more common in females 80% than males⁶. It present with chronic, persistent pain at the lateral aspect of the hip joint, the pain increased during walking, running, or sleeping on the affected side, with eliciting pain on the abduction of the diseased side against resistant on clinical examination⁷, in addition to the clinical examination the Ultrasound and MRI can be used for the diagnosis of trochanteric bursitis; mainly assist to differentiate it from other causes of hip joint pain via visualizing distention or fluid collection in one of the bursae of the attached tendon to the greater trochanter⁸. The underlying causes of trochanteric bursitis are multifactorial. Generalized joint hypermobility (GJH) is considered as one of the causes⁹.

The first description of the relationship between joint hypermobility and rheumatological symptoms emerge from Sutro in 1947, who described number of young adult patients with knee joint swelling with hypermobile knee and ankle joints¹⁰.

Beighton score is a valid and reliable tool used worldwide to screen for joint hypermobility¹¹, which was a revision of the system recommended by Carter and Wilkinson¹², the measurement of hypermobility currently used in most epidemiological studies of GJH was described by Beighton¹³.

One of the common complaints of symptomatic GJH is musculoskeletal pain, which may affect daily activities¹⁴, in addition to that the sport-related injuries to knees, ankles, and shoulder joints are more reported in hypermobile individuals¹⁵. The chondromalacia patellae incidence is higher in hypermobile patients in comparison to healthy individuals without lax joint¹⁶, moreover studies showed that there was a relation between joint hypermobility and asthma¹⁷.

The aim of this study was to investigate the prevalence of joint hypermobility in patients with trochanteric bursitis and to evaluate the possible

correlation between joint hypermobility and trochanteric bursitis.

Individuals and Methods

A cross sectional study was conducted in Rheumatology Outpatient clinic in Rizgary Teaching Hospital in Iraqi Kurdistan region, from February to December 2021. One hundred (100) patients with trochanteric bursitis; and another 100 healthy controls matched in age, sex and baseline characteristics were studied. all were randomly selected during the period of the study.

One hundred (100) patients with trochanteric bursitis were diagnosed by a thorough history and complete physical examination by one of us. The diagnosis confirmed by ultrasound examination in 69 patients.

We used paper clinical research form through interview and questionnaires for data collection. We asked the patients about age, sex, Participants from both groups were assessed clinically for body weight, height, and Body Mass Index (BMI). The BMI calculation was performed using a metric formula. The participants asked for pain at the site of the greater trochanter either unilateral or bilateral, the duration and severity of pain. The pain severity assessed by using the Numerical Pain Rating Scale. All were assessed for pain in other joints, back pain, flat feet, and true leg length was measured in centimeters.

Furthermore, all studied individuals were assessed blindly for joint mobility, at four peripheral sites bilaterally and forward flexion of the trunk, the assessment was done by another observer blindly without knowledge of individual group using the Beighton score, a cutoff score ≥ 4 is taken as a positive marker of joint hypermobility¹³.

Inclusion criteria:

Males and females were included in the study, the participants aged between 20 to 60 years old.

Exclusion criteria: participants with history of trauma to the hip joints, pregnant women, patients with connective tissue disease including Marfan and Ehlers-Danlos syndrome (EDS) were excluded from the study.

Ethical Consideration:

A verbal and written consent statement was taken from all individuals in both groups. Ethical approval was obtained from the Ethics and Scientific Committees of Kurdistan Board for Medical Specialties for scientific assessment with approval 403 at (8th/Feb/2021). The study also secured data confidentiality.

Statistical analysis:

The Statistical Package for Social Sciences (SPSS, version 25) application was used to analyze the outcome data. The variables were coded and analyzed for baseline socio-demographic characteristics, the severity of pain and method of diagnosis. Continuous variables were presented as mean values with standard deviation (SD) when normally distributed and categorical data were presented as percentage proportion. The Chi square test of association was used to compare the proportion of patients and healthy control groups with joint hypermobility. Fisher’s exact test was used when the expected frequency (value) was less than five or more than 20% of the cells of the table.

The P value of ≤ 0.05 was considered as

statistically significant. Odds ratio was used to indirectly estimate the association between joint hypermobility and trochanteric patients.

Results

Out of 204 individuals evaluated, four were excluded one patient diagnosed as Marfan syndrome, and three patients had connective tissue disease. Two-hundred 200 individuals were enrolled in the study; one hundred (100) were patients with trochanteric bursitis and one hundred (100) were healthy individuals. Their mean age was (41 ± 13) years in patients’ group, and (39 ± 12) in healthy controls, with their real age data ranging from 20 to 60 years old. females in patients and healthy controls (78%, 60% respectively) while males were 22%,40% respectively). forty-six (46) out of two hundred (200) participants were smokers (18 in patients and 28 in the control group). The Body mass index was $(29 \pm 5$ SD) in the patients which was slightly higher in comparison to healthy controls $(27 \pm 5$ SD); p-value was 0.092 the deference was insignificant. Moreover, more than (68%, 81%) have no comorbidities in patients and healthy controls respectively, as shown in table 1.

Table 1: Baseline Socio demographic Characteristics of Study

Categories		Patients N. (100) N.%	Controls N. (100) N.%	P value
Age		41±13(100)	39±12	0.02
	Male	22(22.0%)	40 (40.0%)	0.05*
	Female	78(78.0%)	60 (60.0)	
Smoker	Yes	18(18.0) %	28(28.0%)	0.031
	No	82(82%)	72(72.0 %)	
Job	Employee	31(31.0%)	39(39.0%)	0.093
	non-employee	17(17.0%)	27(27.0 %)	
	Housewife	52(52.0%)	34 (34.0%)	
(Body mass index) BMI		29±5 (100%)	27±5 (100%)	0.092
Comorbidities	No	68 (68.0%)	81 (81.0%)	0.02
	HTN	19 (19.0%)	5 (5.0%)	
	DM	10 (10.0%)	4 (4.0%)	
	HTN+DM	3 (3.0%)	5 (5.0%)	
	Others	0 (0.0%)	5 (5.0%)	

Table 2: baseline characteristics of pain, severity of pain, methods of diagnosis of trochanteric bursitis, leg length discrepancy.

		Patients	Controls	P value
		N=100 N %	N=100 N %	
pain at site of trochanteric bursitis	Yes	100 (100.0%)	0 (0.0%)	0.00 *
	No	0 (0.0%)	100 (100.0%)	
Duration of pain	less than 2 weeks	38(38.0%)	0(0.0%)	0.00
	More than 2 weeks	62(62%)	0(0.0%)	
severity of pain	None	0 (0.0%)	100 (100.0%)	0.00*
	Mild	9 (9.0%)	0 (0.0%)	
	Moderate	46 (46.0%)	0 (0.0%)	
	Severe	45 (45.0%)	0 (0.0%)	
clinical DX	Yes	100 (100.0%)	0 (0.0%)	0.00
	No	0 (0.0%)	100 (100.0%)	
U/S Diagnosis	Yes	69 (69.0%)	0 (0%)	0.00
	Not done	31 (31.0%)	100 (100.0%)	
back pain	Yes	74 (74.0%)	65 (65.0%)	0.167
	No	26 (26.0%)	35 (35.0%)	
sleep disturbance	Yes	48 (48.0%)	39 (39.0%)	0.199
	No	52 (52.0%)	61 (61.0%)	
flat feet	Yes	24 (24.0%)	37 (37.0%)	0.046
	No	76 (76.0%)	63 (63.0%)	
leg length discrepancy	Yes	24 (24.0%)	19 (19.0%)	0.389
	No	76 (76.0%)	81 (81.0%)	

*Fisher exact test

Sixty-two (62) out of 100 patients with GTPS had pain for more than 2 weeks, all patients with trochanteric bursitis were diagnosed clinically, in addition to that confirmation by ultrasound findings were done in 69 patients out of 100. Sleep disturbance in both groups were (48% and 39%) respectively, also

flat feet were 24% in patients' group in compared to 37% in healthy individuals, furthermore leg length discrepancy observed in one-fourth of the patient's group while it was 19% in normal individuals. As shown in table two (2)

Table 3: Associations of joint mobility with Genders

		Total N=200 %	Joint Hypermobility N=53	Normal joint mobility N=147	P value
Gender	Males	62 (31.0%)	7 (11.3%)	55 (88.7%)	0.001
	Females	138(69.0%)	46 (33.3%)	92 (66.7%)	

Among 62 (31.0%) males only seven (11.3%) were hypermobile, and among 138(69.0%) females only forty-six (33.3%) were hypermobile, p-value was

0.001 which was statistically significant. as shown in table 3.

Joint mobility was normal in 76 (38%) of patients with trochanteric bursitis and 71 (35.5%) of healthy controls. JHM was observed in 24(12%) patients with trochanteric bursitis while it was 29(14.5%) in control group (p-value; 0.423, OR (0.773: 95%CI 0.412-1.452).

Beighton score, a cutoff score ≥ 4 is taken as a positive marker of joint hypermobility. We found that there was no significant association between joint hypermobility and trochanteric bursitis. As shown in figure 1.

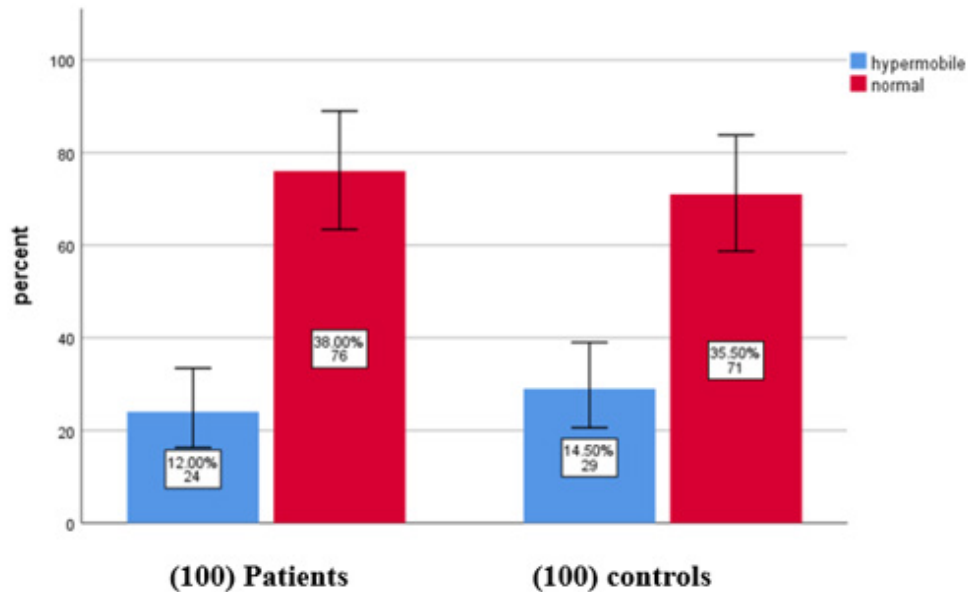


Figure 1. Prevalence of joint hypermobility among 100 patients with trochanteric bursitis and 100 healthy controls.

Discussion

Joint mobility among normal individuals varies widely from race to race¹⁸. Age and sex variations were also reported^{13,19,20}. Diminished joint mobility becomes pronounced with ageing, Females have a greater degree of joint laxity than males of the same age²¹. It was reported that Iraqis have more joint laxity than Caucasians²².

Trochanteric bursitis is a relatively common reported inflamed bursa in the body²³. nevertheless, the possible association between joint mobility and GTPS has not been reported in a controlled study. We found it relevant to estimate the prevalence of joint mobility in patients diagnosed with GTPS, although there is a study of association of Joint hypermobility with GTPS in Danish by Reimer et al²³.

In the current study joint mobility in both female and males were 53 out of 200 participants, among 62 (31.0%) males only seven (11.3%) were hypermobile, and among 138(69.0%) females forty-six (33.3%) were hypermobile (as shown in table 3),

the possible explanation could be the fact that most of the participants in both groups were females (as shown in table 1).

This study showed that there was no association between trochanteric bursitis and joint mobility. As the results revealed that the number of participants with joint hypermobility among trochanteric bursitis group 12% which was lower than the number of GHM among healthy controls 14.5% (as shown in figure 1). This result disagreed with a study conducted by Reimer et al as the prevalence of joint hypermobility was higher among patients with GTPS²³.

In this study the prevalence of joint hypermobility in males were (11.3%) and in females were (33.3%) (table 3), while in a study conducted by Al-Rawi et al joint hypermobility was reported in 25.4% of males and 38.5% of females²². This could be explained by the much older age group among our participants; mean age was 41 ± 13 and 39 ± 12 in patients and healthy controls respectively (as shown in table1), compared to the other author participants mean age (20 to 24 years old). As it is well known that younger

age individuals' joints are more mobile than old age individuals²¹. our study similar to a study by Reimer et al, as their participants ages were 63 and 53 years for male and females respectively. It is well known that joint mobility varies with age and sex²⁴.

This study agreed with another study²⁵, showing that the prevalence of trochanteric bursitis related to gender; more than 70% of patients with GTPS were females (as shown in table 1), while age and BMI were not found to be significantly associated with GTPS status.

Conclusion

We concluded that there is no positive correlation between joint hypermobility and the presence of trochanteric bursitis.

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Conflict of Interest: In conducting this study, we hereby declare that there are no conflicts of interest

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