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Pain Characteristics among Patients with Knee Osteoarthritis in Aden, Yemen

Abdulsalam Abdullah Hadi Mohsen*

Abstract

Knee osteoarthritis in adults is very common and is one of the most common causes of joint pain. The aim of the study was to describe the demographic characteristics and to analyze the clinical finding. It was a retrospective study conducted in Aden during the years 2015 to 2017. Data was obtained from patients' charts and presented as frequencies, percentages, means and standard deviation. Significance was considered at P value < 0.05. The patients were 367, (males 44.4% and females 55.6%). The older patients (≥ 55 years) were (77.1%). About (39.5%) patients were mostly suffered from right knee osteoarthritis, (25.1%) suffered from left knee and (35.4%) patients have both knee osteoarthritis. Knee pain was mild in (61%) patients and in (30%) patients was moderate. Female to male ratio was 1.3:1 and their mean age was 61.0 ± 9.5 years (age ranged between 35 and 83 years). There was a significant correlation between mean ages of both gender (p = 0.001).The mean uric acid was 6.9 ± 1.6 mg/dL and the relationship between means in both gender was significant (p = 0.000). Patients were higher in the age group ≥ 55 years. Most of right knee osteoarthritis were in females (28.6%), while the bilateral osteoarthritis were predominant in males (22.1%) (P = 0.000).The relationship between severity of knee pain and side involvement of the knee joint was highly statically significant (P = 0.000). Further prospective studies are needed.

Key words: Knee joint, Osteoarthritis, Side involvement, Pain.

Introduction:

Osteoarthritis (OA) is a progressive, immune mediated inflammatory disorder involving the entire joint structure including the synovial membrane, cartilage and sub bone and in advance cases deformity of joint develops. OA typically affects all the synovial joints, however; knee is affected most (41%) among all the joints [7].

The worldwide prevalence estimate for symptomatic OA is 9.6% among men and 18% among women [13]. The global prevalence of knee osteoarthritis (KOA) is 3.8% among population between age 50-80 years; incidence being higher in females than in males [5]. In recent times the incidence of OA is increasing and the disease is observed to be developing in earlier age [6]. Such exponential progression of the disease is mainly due to the risk factors like obesity, changes in lifestyle patterns, diet routine and work environment conditions among the adult population [10]. If not detected and managed at earlier stage, OA may severely disable the patient; hence, early detection and prevention of progression should be ideal management [28].

General Objective:

To study and describe osteoarthritis cases among Yemeni patients seen in our private clinic in Aden.

Specific Objectives:

1. To describe the demographic characteristics of the study patients
2. To analyze the clinical findings among patients
3. To compare our findings with other published study results.

Materials and method:

This is a retrospective study of all patients who suffer from knee osteoarthritis and seen at our private clinic, in Aden over the period from January 2015 to December 2017.

During this period, a total of 367 patients were found with this health problem.

The patients' charts were retrieved and obtained information about age, sex, level of serum uric acid, involved knee, and severity of knee pain.

The data was analyzed using SPSS version 17. Data was presented as frequencies and percentages for categorized variables and as means and standard deviation for continuous variable. The relationships between study variables were examined based on T test. Significance was considered at P value < 0.05.

Results:

During the 3 years study period, 367 patients presented with osteoarthritis were seen in our private clinic. There were 163 (44.4%) males and 204 (55.6%) females (Table 1 and Figure 1).

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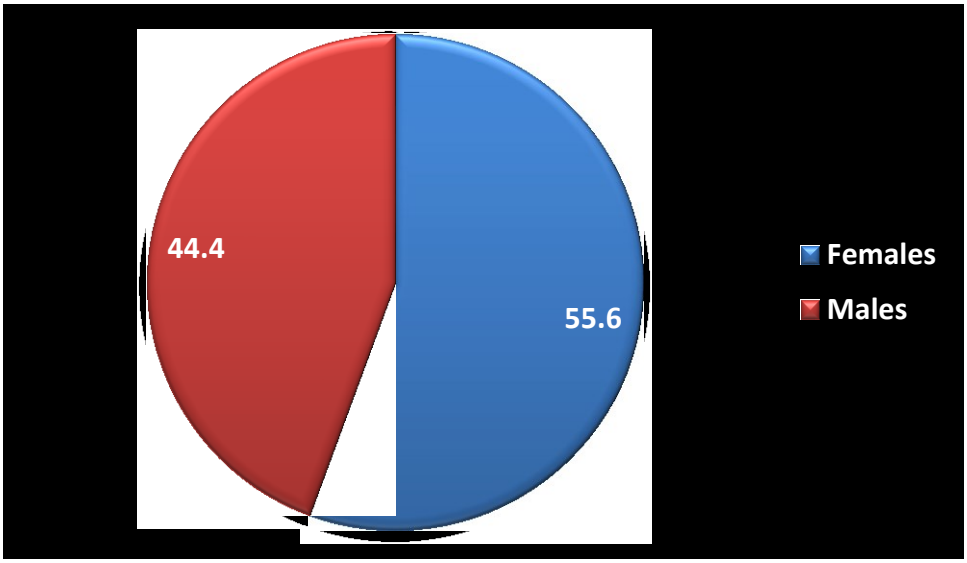

Figure 1: Distribution of patients related to sex

Also, Table 1 illustrates the distribution of patients related to age groups and two clinical variables.

The number of older patients (≥ 55 years) who complained of knee osteoarthritis was 283(77.1%) which was higher than the number of younger patients (< 55 years) which was 84(22.9%).

Among the patients affected by knee osteoarthritis 145(39.5%) were mostly involved by right knee osteoarthritis, 92(25.1%) were involved by left knee osteoarthritis and 130 (35.4%) patients were involved by both knee osteoarthritis (Table 1, Figure 2).

Also, we observed the severity of knee pain was mild in 224 (61%) patients, 110 (30%) patients knee pain was moderate and 33 (9.0%) patients knee pain was severe (Table 1,Figure 3).

Table 1: Characteristics and clinical findings of the study patients (n=367)

Variables	No	(%)
Sex:		
Female	204	(55.6)
Male	163	(44.4)
Age group:		
35-44	20	(5.5)
45-54	64	(17.4)
55-64	129	(35.1)
≥ 65	154	(42.0)
Involvement of the Knee joint:		
Right	145	(39.5)
Left	92	(25.1)
Both	130	(35.4)
Severity of knee pain:		
Mild	224	(61.0)
Moderate	110	(30.0)
Severe	33	(9.0)

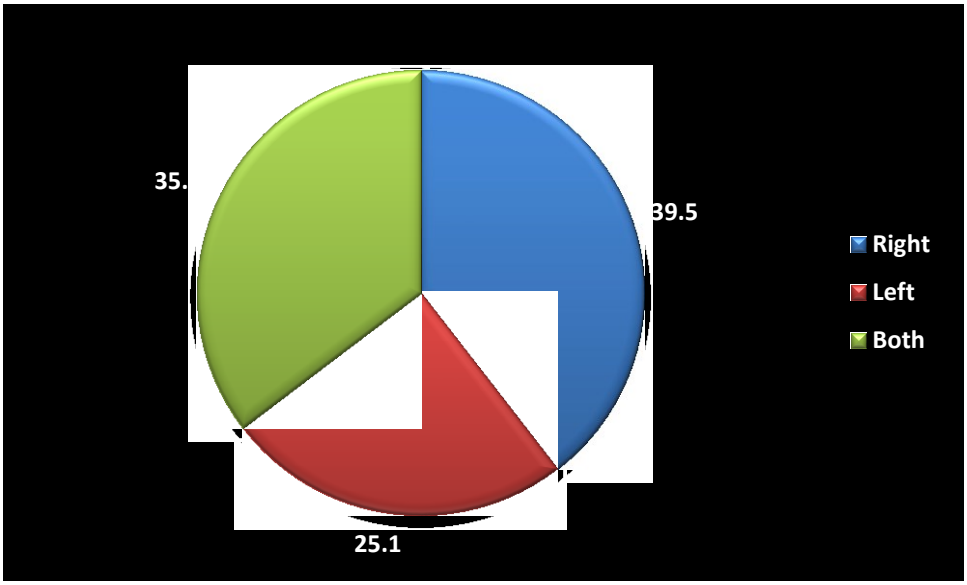

Figure 2: Involvement of the Knee joint pain

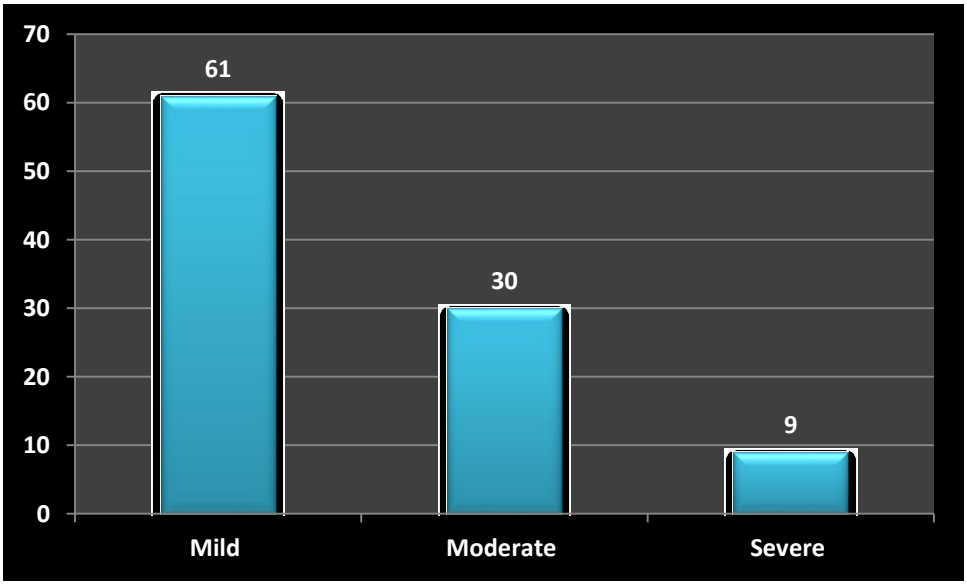

Figure 3: Severity of knee pain:

Table 2 revealed the ratio female to male was 1.3:1 and the mean age of all patients was 61.0 ± 9.5 years and the age ranged between 35 years and 83 years.

The mean age of male patients was 62.9 ± 8.6 years and in female patients was 59.5± 10.0 years. As demonstrated in (Table 2), data showed a significant correlation between mean ages of both gender (p = 0.001). The mean uric acid in patients was 6.9 ± 1.6 mg/dL and the relationship between means in both gender was significant (p = 0.000).

Table 2: Distribution of mean age & mean uric acid related to sex

Characteristic	Ratio	Mean ± SD	p- value
Ratio female to male	1.3 : 1		
Mean age (years):			P = 0.001
Males		62.9 ± 8.6	
Females		59.5 ± 10.0	
Total		61.0 ±9.5	
Mean uric acid level (mg/dL):			
Males		7.4 ± 1.5	P = 0.000
Females		6.5 ± 1.6	
Total		6.9 ± 1.6	

mg/dL= milligrams/deciliter

The distribution of sex in age groups seems to be higher in the age group ≥ 55 years.

In the age group 35 – 44 years there were 19(5.2%) females and only 1(0.3%) males. In the age group 45 – 54 years there was slight increase among female patients 36(9.8%) while in male patients were 28(7.6%). In the age group 55 – 64 years 129(35.1%) and in the group ≥ 65 years they were 154(42.0%). The difference between values shows statistical significant ($p < 0.05$), as shown in Table 3.

Table 3: Distribution of patients age groups related to sex

Age group (years)	Sex				Total	
	Female		Male			
	No	(%)	No	(%)	No	(%)
35 – 44	19	(5.2)	1	(0.3)	20	(5.5)
45 – 54	36	(9.8)	28	(7.6)	64	(17.4)
55 – 64	73	(19.9)	56	(15.2)	129	(35.1)
≥ 65	76	(20.7)	78	(21.3)	154	(42.0)
Total	204	(55.6)	163	(44.4)	367	(100)

P = 0.002

Table 4 illustrated the involvement of knee joint in relation to sex. Most of right knee osteoarthritis were in females 105(28.6%) of the total study patients, while the bilateral osteoarthritis were predominant in males 81(22.1%). The difference between values shows statistical significant dufference (P = 0.000).

Table 4: Relationship between involvement of the knee joint and sex

Involvement of knee joint	Sex				Total	
	Female		Male			
	No	(%)	No	(%)	No	(%)
Right	105	(28.6)	40	(10.9)	145	(39.5)
Left	50	(13.6)	42	(11.4)	92	(25.1)
Both	49	(13.4)	81	(22.1)	130	(35.4)
Total	204	(55.6)	163	(44.4)	367	(100)

P = 0.000

Table 5 shows that in the right knee osteoarthritis only mild pain 145(39.5%) were found and no moderate or severe pain. In the left knee joint we found 66(18%) mild and 26(7.1%) moderate pain. In bilateral knee osteoarthritis, we observed mild pain in 13(3.5%) patients, 84(22.9%) with moderate pain and 33(9.0%) with severe pain. There is statistical significant difference between the severity of knee pain and involvement of the knee joint (P = 0.000).

Table 5: Relationship between severity of knee pain and involvement of the knee joint

Involvement of the Knee joint:	Severity of knee pain						Total	
	Mild		Moderate		Severe		No	(%)
	No	(%)	No	(%)	No	(%)		
Right	145	(39.5)	0	(0.0)	0	(0.0)	145	(39.5)
Left	66	(18.0)	26	(7.1)	0	(0.0)	92	(25.1)
Both	13	(3.5)	84	(22.9)	33	(9.0)	130	(35.4)
Total	224	(61.0)	110	(30.0)	33	(9.0)	367	(100)

P = 0.000

Discussion:

Osteoarthritis is the most prevalent chronic joint disease and a major cause of pain and disability worldwide. The risk of mobility and disability attributable to OA alone is greater than any other medical condition among elderly [14]. The prevalence of OA that issymptomatic varies between 7 and 26% is dependent on the site and definition of OA [19]. The burden of OA has been increasing in the past two decades worldwide [33], and its prevalence is projected to be nearly double in the next decade [18].

In the current study we observed that the number of females was almost more than half 204 (55.6%) of the total number of patients. Although, there are few isolated reports that knee osteoartheritis is found more in males as compared to females; however, the majority of studies have reported that the prevalence of knee osteoarthritis is more in females [1,30]. Similar findings to this study was reported by Hawamdeh et al [16].

Women are at greater risk for developing knee osteoarthritis [11,24] compared with men, particularly those over 50 years of age [24].

Women with osteoarthritis have also been found to have greater levels of knee pain and lower function [8,9,17]. However, a greater prevalence of radiographic knee OA in women [31] could account for sex differences in knee pain and function [8,17]. Few studies have examined the degree to which the symptoms of knee osteoarthritis differ between men and women after accounting for the degree of radiographic severity.

In the present study we found that the number of older patients (≥ 55 years) who complained of knee osteoarthritis was 283(77.1%) which was higher than the number of younger patients (< 55 years) which was 84(22.9%).

Muraki et al [23] mentioned that reaching epidemic proportions has been described as: symptomatic knee osteoarthritis affects 10% of adults over age 55 and maximum leading to be disabled. The incidence of knee OA increases with age and their aging process and it results from degenerative changes in cartilages which have multi-factorial etiology including age, gender, body mass index, decrease range of motion etc.

It has been estimated that 25% or more of older persons have presented knee pain. It is a leading cause of disability and increases the risk of disability due to physical conditions [22].

Symptomatic and radiographic osteoarthritis (OA) of the knee are most common in the older age group people. The knee is the large weight bearing site which affected by joint pain in older adults where it is usually attributed to OA in this age-group [22].

Fernandez-Lopez et al [12] mentioned that more than a half of people aged 50 and over reported that having knee pain and a quarter have severe and disabling knee pain. Developing knee pain can be a significant and persistent reduction in the ability to undertake everyday activities.

Blagojevicy et al [4] reported the high prevalence of knee OA and its impact on physical functioning and the quality of life, that means identifying approaches to prevention should be a public health priority. Approximately 5% people greater than 26 years of age and 17% of people greater than 45 years of age there have symptomatic knee osteoarthritis (OA) and that may cause disability and increase the risk of disability due to abnormal physical conditions.

In this study the mean age of all patients was 61.0 ± 9.5 years and the mean age of male patients was 62.9 ± 8.6 years and female patients was 59.5± 10.0 years. There was highly statistical significant difference between variables (p = 0.001). Similar findings were reported by Al-Rashdan et al [2] from Libya.

In the current study we found the total mean serum uric acid is 6.9 ± 1.6 mg/dL. In male patients, the mean serum uric acid was 7.4 ± 1.5mg/dL and in females 6.5 ± 106mg/dL. There was strong correlation between means (p = 0.000).

Our findings were consistent with the findings reported by Sujit et al [29].

In our current study we found among the patients affected by knee osteoarthritis 145(39.5%) were mostly involved by right knee osteoarthritis, 92(25.1%) were involved by left knee osteoarthritis and 130 (35.4%) patients were involved by both knee osteoarthritis. So, we observed that bilateral knee osteoarthritis pain represented the second one of involved knee joints.

A published study by Al-Rashdan et al [2] from Libya found that the majority of osteoarthritis influenced right knee (about 75%), one quarter of cases was observed in left knee and no bilateral knee osteoarthritis.

Cross sectional studies have shown that bilateral knee pain is a frequent problem in the community [6,20,25]. Each additional joint affected by osteoarthritis results in a decrease in physical function and an increase in overall pain [6,20,25].

A recent study de-demonstrated that bilateral knee pain was an independent risk factor for poor physical function [34]. However, there have been very few studies which have addressed the prevalence or natural history of bilateral disease radiologically.

Whereas joint injury (bony or soft tissue) usually affects one joint alone, there are many reasons why knee osteoarthritis would tend to progress to bilateral disease. Genetic influences and inherent mal-alignment would be expected to lead to bilateral disease [26,32]. A recent gait analysis study found abnormal loading in the unaffected knee of patients with unilateral knee osteoarthritis, implying that patients with a painful joint may accelerate disease in other joints due to changes in gait [21].

Gunther et al [15] reported that bilateral knee osteoarthritis is particularly common in people with advanced disease, with a previous study finding that eighty-seven percent of patients awaiting total knee replacement have radiological evidence of osteoarthritis on the other side.

In a previous study with 2 year follow-up, 34% of patients with unilateral disease subsequently developed disease in the contra-lateral knee, however follow up was relatively short and the study was restricted to females only [27].

In the present study we found that in the right knee osteoarthritis only mild pain 145(39.5%) were found and no moderate or severe pain. In the left knee joint we found 66(18%) mild and 26(7.1%) severe pain.

In bilateral knee osteoarthritis we observed mild pain in 13(3.5%) patients, 84(22.9%) with moderate pain and 33(9.0%) with severe pain. There is statistical difference significant between the severity of knee pain and involvement of the knee joint ($P = 0.000$). Our results are consistent with the published finding by Hawamdeh et al [16] from Jordan.

Conclusion:

Osteoarthritis is more prevalent among women than among men at all ages. These gender differences are most prominent when osteoarthritis affects the knee. Gender differences and effect of bilateral or unilateral or both knees osteoarthritis depend on patients individuals. In our study, there found that more women than men complained of knee pain. Based on the study, it can be concluded that the most knee pain patients were of age ≥ 55 years.

This study has characterized by the feature of predominance of female patients, high levels of mean serum uric acid, most involvement knee joint was the right knee osteoarthritis, predominant of mild knee osteoarthritis pain followed by moderate knee pain, and low pain severity of knee pain.

Further prospective studies including more hospital knee pain attendants are needed.

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خصائص الألم بين المرضى الذين يعانون من التهاب المفاصل في الركبة في عدن، اليمن

عبد السلام عبد الله هادي محسن

الملخص

إلتهاب المفاصل في الركبة لدى البالغين أمر شائع للغاية وهو أحد أكثر أسباب ألم المفاصل شيوعًا. كان الهدف من الدراسة هو وصف الخصائص الديموغرافية وتحليل النتائج السريرية. لقد كانت دراسة بأثر رجعي أجريت في عدن خلال الأعوام من 2015 إلى 2017.

تم الحصول على البيانات من ملفات المرضى وعرضها على شكل تكرار، النسب المئوية ، المتوسط ، والانحراف المعياري. تم اعتبار الإختلاف بين القيم ذو دلالة إحصائية عند قيمة.0.05> P كان عدد المرضى 367 ، (الذكور 44.4 % والإناث 55.6 %). وكان المرضى الأكبر سنا (يعادل واكبر من 55 سنة) نسبتهم (77.1 %). حوالي (39.5%) من مرضى التهاب المفاصل في الركبة اليمنى ، و (25.1%) من الركبة اليسرى و (35.4%) من مرضى التهاب المفاصل في الركبة. كان ألم الركبة خفيفًا عند (61%) من المرضى و (30%) كان الألم معتدل. بلغت نسبة الإناث إلى الذكور 1.3: 1 وكان متوسط أعمارهم 61.0 ± 9.5 سنة (تراوحت أعمارهم بين 35 و 83 سنةً). كان هناك علاقة ايجابية بين متوسط أعمار كل من الجنسين . (p = 0.001) كان متوسط حمض اليوريك 6.9 ± 1.6 ملغ / ديسيلتر والعلاقة بين الموتوسطات في كلا الجنسين كانت ذو دلالة ايجابية .(p = 0.000) وكان عدد المرضى أعلى في الفئة العمرية ≤ 55 سنة . معظم التهاب المفاصل في الركبة اليمنى كان عند الإناث (28.6 %) ، في حين كان التهاب المفاصل الثنائي في الغالب عند الذكور (22.1 %) وكانت العلاقة بين القيم ايجابية . (P = 0.000) وكانت العلاقة بين شدة آلام الركبة والجانب المصاب من الركب ذات دلالة إحصائية عالية .(P = 0.000) ونرى أن هناك حاجة ماسة إلى مزيد من الدراسات .

الكلمات المفتاحية: مفصل الركبة ، هشاشة العظام ، جانب الركبة، ألم