

Etiological Profile of Musculoskeletal Disorders of Lower Extremities

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ABSTRACT

Background: Lower extremity musculoskeletal disorders are common rheumatological conditions seeking medical advice. The diagnosis of these disorders is based primarily upon results of specific clinical tests. There are not many studies regarding the etiological profile of these conditions. The aim of this study was to assess the etiological profile of various musculoskeletal disorders of lower extremities among patients reporting to the Physical Medicine and Rehabilitation (PMR) Department of a tertiary care hospital in Kerala, India.

Materials and methods: This study was carried out in the Department of Physical Medicine and Rehabilitation, Government TD Medical College, Alappuzha, during a period of one year from January 2017 to December 2017 to assess the etiological profile of various musculoskeletal disorders of upper extremities. This was a descriptive study conducted by evaluating the final diagnosis from the OP records of patients who were fully evaluated in the musculoskeletal pain clinic, which is functioning in the department.

Results: There were 262 patients in the study. Age of patients ranged between 11 years and 79 years (mean age 46 years). 59.5% were females. 24.4% were manual laborers. The most common etiology of lower limb musculoskeletal problems was osteoarthritis of knee (43.9%) followed by plantar fasciitis (12.6%) and post-traumatic stiffness of lower limb joints (11.8%). Other main causes were internal derangement of knee (6.1%), retrocalcaneal bursitis (4.2%), Achilles tendinitis and meralgia paresthetica (3.8% each), ankle sprain and osteoarthritis of hip (3.1% each). A few cases of osteoarthritis of ankle joints (1.9%), anserine bursitis (1.9%) and Osgood–Schlatter disease (1.1%) were also seen. More than half of the females in this study (51.2%) and one-third of males (33%) were suffering from osteoarthritis of knee. 19.2% of females in the study had plantar fasciitis, and only one male had plantar fasciitis. 68.6% of patients with osteoarthritis of knee were in the above 50 year age category. An important observation is that 31.3% with osteoarthritis of knee belonged to the less than 50-year age category. Plantar fasciitis was exclusively seen in less than 50-year age group. 96.8% with plantar fasciitis were in this category. A quarter of male patients presented with post-traumatic stiffness of lower limb joints (25.5%). Only 3.4% of females were having this problem.

Conclusion: Osteoarthritis of knee, plantar fasciitis and post-traumatic stiffness of lower limb joints were the most common diagnoses reporting to PMR department of this tertiary care center with lower limb musculoskeletal problem. Osteoarthritis of knee was more common in females (p value 0.002). A statistically significant association also exist in plantar fasciitis among females (p value 0.000). Post-traumatic stiffness of lower limb joints was significantly more in males.

Keywords: Etiological profile, Musculoskeletal disorders of lower extremities, Osteoarthritis of knee, Plantar fasciitis.

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BACKGROUND

Musculoskeletal disorders (MSDs) constitute a problem of great public health importance. MSDs lead to high impairment, causing work absence and a decrease in work efficiency; moreover, MSDs have an economic impact on organizations and social costs. However, relative to general and work-related MSD of the upper extremities and lower back area, much less attention has been given to the epidemiology of lower limb musculoskeletal disorders and injuries (LLD).

In this study, we intended to assess the etiological profile of various musculoskeletal disorders of lower extremities. This was a hospital-based study carried out in the Outpatient Department of Physical Medicine and Rehabilitation of a tertiary care center during a period of one year to assess the proportion of various disorders causing musculoskeletal problems of lower limb. This was a descriptive study done with secondary data from out patient (OP) records, which was conducted in the "Musculoskeletal pain clinic" functioning in the department.

Osteoarthritis of Knee

Osteoarthritis (OA) is a degenerative joint disease, occurring primarily in older persons, characterized by erosion of the articular cartilage, formation of osteophytes; which are hypertrophy of bone

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at the margins, subchondral sclerosis, and a range of biochemical and morphologic alterations of the synovial membrane and joint capsule.¹ It is the most common type of arthritis, affecting 27 million adults in the United States.² In industrialized societies, OA is the leading cause of physical disability, increases in health care usage, and impaired quality of life affecting 60–70% of the population older than 60 years.³ The worldwide prevalence estimate for symptomatic OA is 9.6% among men and 18% among women. It is the fourth leading cause of year lived with disability (YLD).⁴ In India, the overall prevalence of osteoarthritis in the elderly is 56.6%;⁵

OA is more common in females as compared to males (70.1% vs 41.6%),⁶ but no gender differences were found in hip and hand OA.⁷ Osteoarthritis is rapidly becoming a significant medical and financial burden in a world whose population is aging.⁸

Plantar Fasciitis

Plantar fasciitis is caused by degenerative irritation at the insertion of the plantar fascia on the medial process of the calcaneal tuberosity. It can also be seen in seronegative spondyloarthropathies. The pain may be substantial, resulting in the alteration of daily activities. Studies conducted in the United States had shown that approximately 10% of the population experiences bouts of heel pain, which results in one million visits per year to medical professionals for the treatment of plantar fasciitis.⁹ The etiology of this condition is multifactorial, and the condition can occur traumatically; however, most cases are from overuse stresses. Plantar fasciitis can be a difficult problem to treat; fortunately, most patients with this condition eventually have satisfactory outcomes with nonsurgical treatment.

Internal Derangement of Knee

Knee ligament and meniscal injuries are mainly seen in sports personnel; especially in contact sports like football. A recent study by Gornitzky et al.¹⁰ had shown that the incidence of anterior cruciate ligament (ACL) injuries in the United States is 120,000 per annum.

Meralgia Paresthetica

It is a painful mononeuropathy of the lateral femoral cutaneous nerve due to focal entrapment of this nerve as it passes through the inguinal ligament. It is a purely sensory nerve and has no motor component.¹¹ Meralgia paresthetica (MP) has been reported to associate with obesity, diabetes mellitus (DM), and other entrapment etiologies including pregnancy, the wearing of tight clothes, and leaning against hard objects.¹² In the general population, an incidence of 4.3 per 10,000 person-years has been reported. In people with diabetes mellitus, an incidence of 247 per 100,000 patient-years has been reported.¹³

Retrocalcaneal Bursitis

Occurs due to the inflammation of the retrocalcaneal (subtendinous) bursa, which is located between Achilles tendon and the calcaneus bone.¹⁴ Inflammation of this bursa is most commonly caused by repetitive (cumulative) trauma or overuse, and the condition is aggravated by pressure, such as when athletes wear tight-fitting shoes. It may also be associated with conditions such as gout, rheumatoid arthritis, and seronegative spondyloarthropathies. In some cases, it may be caused by bursal impingement between the Achilles tendon and an excessively prominent posterosuperior aspect of the calcaneus (Haglund deformity).¹⁵

Achilles Tendinosis/Tendinitis

This is another important cause of posterior ankle pain and is due to the intrasubstance disarray and degeneration of the tendon secondary to over or faulty use. The true incidence of Achilles tendinosis is unknown, although reported incidence rates are 6.5–18% in runners, 9% in dancers, 5% in gymnasts, 2% in tennis players, and less than 1% in American football players.¹⁶ Obesity, diabetes, inflammatory arthropathies can also present with similar complaints. It is estimated that Achilles disorders affect approximately one million athletes per year.¹⁶

AIMS AND OBJECTIVES

The aim of this study is to assess the etiology of various musculoskeletal disorders of lower extremity in patients reporting to the Physical Medicine and Rehabilitation Department of a medical college hospital in Kerala. There have been only a few studies done in past reporting the etiological profile of musculoskeletal disorders of lower extremity. Most of them were done in primary or secondary care centers by different investigators in different hospitals, and in some the data obtained were just clubbed and reported. The results in these studies vary much due to fact that they were diagnosed by primary care physicians and also because the disease definition itself in certain cases is ambiguous.

MATERIALS AND METHODS

The study entitled—“Etiological profile of musculoskeletal disorders of lower extremities among patients attending Physical Medicine and Rehabilitation Department” is a hospital-based study carried out in the Outpatient Department of Physical Medicine and Rehabilitation, Government TD Medical College, Alappuzha, during a period of one year from January 2017 to December 2017 to assess the etiology of various musculoskeletal disorders of lower limbs. This was a descriptive study on secondary data of hospital records conducted by evaluating the final diagnosis from the OP records of patients who were evaluated in the “Musculoskeletal pain clinic” functioning in the department. The final diagnosis had been entered in the OP records after proper clinical evaluation and investigations by an experienced physiatrist who was in charge of the “Musculoskeletal pain clinic.”

STATISTICAL ANALYSIS

A total of 262 patients who attended the “Musculoskeletal pain clinic” during the study period with musculoskeletal disorders of lower extremities were included in the study. All the data were entered in Microsoft Excel sheet, rechecked, and analyzed with SPSS16 statistical software. For categorical variables; Chi-square test and for continuous variables; descriptive analysis was used in statistical analysis.

RESULTS

There were 262 patients in the study. 59.5% among them were females. Age of patients ranged between 11 and 79 years (mean age 46 years). 24.4% were manual labors. 57.5% of males and 1.9% of females were manual laborers.

The commonest etiology of lower limb musculoskeletal problems was osteoarthritis of knee (43.9%) followed by plantar fasciitis (12.6%) and post-traumatic stiffness of lower limb joints (11.8%). Other main causes were internal derangement of knee (6.1%), retrocalcaneal bursitis (4.2%), Achilles tendinitis and meralgia paresthetica (3.8% each), ankle sprain and osteoarthritis of hip (3.1% each). Few cases of osteoarthritis of ankle joints (1.9%), anserine bursitis (1.9%) and Osgood–Schlatter disease (1.1%) were also seen (Table 1).

More than half of the females in this study (51.3%) and one-third of males (33%) were suffering from osteoarthritis of knee. 19.2% of females, in the study, had plantar fasciitis and only 2.8% of males had plantar fasciitis. A quarter of male patients presented with post-traumatic stiffness of lower limb joints (25.5%). Only 2.6% of females were having this problem. All patients who presented with internal derangement of knees were males.

Table 1: Association of diagnosis with gender

Diagnosis	Total (n = 262)	Females (n = 156)	Males (n = 106)	p value
Osteoarthritis knee	115 (43.9%)	80 (51.3%)	35 (33%)	0.002
Plantar fasciitis	33 (12.6%)	30 (19.2%)	3 (2.8%)	0.000
Post-traumatic stiffness	31 (11.8%)	4 (2.6%)	27 (25.5%)	0.000
Internal derangement knee	16 (6.1%)	0 (0%)	16 (15.1%)	0.000
Retrocalcaneal bursitis	11 (4.2%)	11 (7.1%)	0 (0%)	0.003
Achilles tendinitis	10 (3.8%)	7 (4.5%)	3 (2.8%)	0.368
Meralgia paresthetica	10 (3.8%)	3 (1.9%)	7 (6.6%)	0.055
Ankle sprain	8 (3.1%)	4 (2.6%)	4 (3.8%)	0.416
Osteoarthritis hip	8 (3.1%)	5 (3.2%)	3 (2.8%)	0.584
Osteoarthritis ankle	5 (1.9%)	2 (1.3%)	3 (2.8%)	0.324
Anserine bursitis	5 (1.9%)	3 (1.9%)	2 (1.9%)	0.676
Osgood–Schlatter disease	3 (1.1%)	0 (0%)	3 (2.8%)	0.065

Disease wise; 69.6% of persons with OA of knees and 91% with plantar fasciitis were females. 87.1% of subjects with post-traumatic stiffness and 100% with internal derangement of knee were males. Retrocalcaneal bursitis was exclusively seen in females. 70% of persons diagnosed with Achilles tendinitis were females, and 70% of cases of meralgia paresthetica were males (Fig. 1).

Age-wise etiological distribution is as follows. Osteoarthritis was mainly seen in persons more than 50 years of age. 68.6% of patients with osteoarthritis of knee were in the above 50 year age category (Table 2). An important observation is that the incidence of degenerative arthritis of knee is increasing in younger population. It is observed that 31.3% with osteoarthritis of knee belonged to the less than 50 year age category. Plantar fasciitis was mainly a disease of younger age group. 97% of persons with plantar fasciitis were in the less than 50 years old category (Fig. 2). Post-traumatic stiffness of lower limb joints and internal derangement of knees was also seen mainly as a problem of younger age group (Table 2). 87% of patients with post-traumatic stiffness and 100% of patients with internal derangement of knee were in the less than 50 years old category.

DISCUSSION

The commonest etiology of lower limb musculoskeletal problem in this study was found to be osteoarthritis of knee followed by plantar fasciitis.

We found that 51.3% of females and 33% of males in the study were suffering from osteoarthritis of knee and a statistically

Table 2: Association of diagnosis with age

Age group	OAK n (%)	PF n (%)	PTS n (%)	IDK n (%)
Total	115 (100%)	33 (100%)	31 (100%)	16 (100%)
<30 years	0 (0%)	5 (15.2%)	11 (35.5%)	9 (56.3%)
31–40 years	4 (3.5%)	20 (60.6%)	9 (29%)	6 (37.5%)
41–50 years	32 (27.8%)	7 (21.2%)	7 (22.6%)	1 (6.2%)
51–60 years	42 (36.5%)	1 (3%)	4 (12.9%)	0 (0%)
61–70 years	28 (24.3%)	0 (0%)	0 (0%)	0 (0%)
>71 years	9 (7.8%)	0 (0%)	0 (0%)	0 (0%)

OA knee, osteoarthritis of knee; PF, plantar fasciitis; PTS, post-traumatic stiffness; IDK, internal derangement of knee

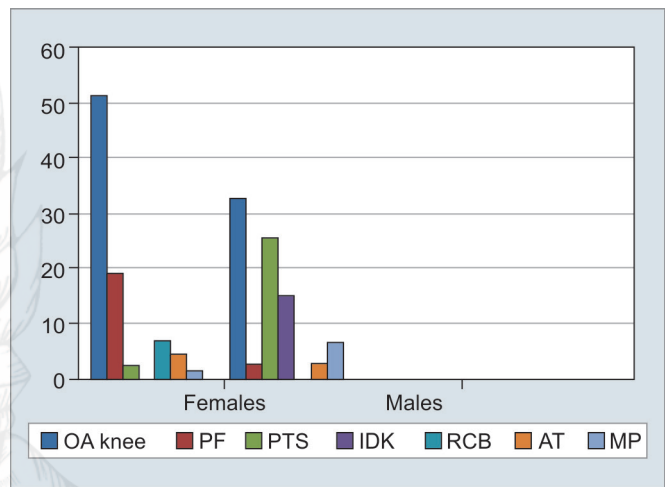


Fig. 1: Association of diagnosis with gender. OA knee, osteoarthritis of knee; PF, plantar fasciitis; PTS, post-traumatic stiffness; IDK, internal derangement of knee; RCB, retrocalcaneal bursitis; AT, Achilles tendinitis; MP, meralgia paresthetica

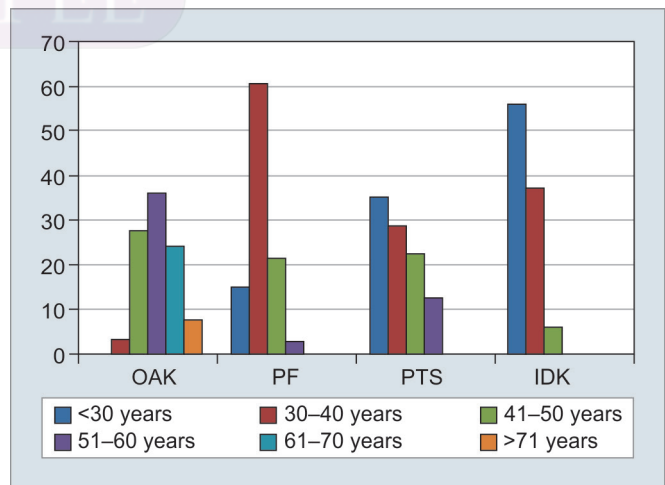


Fig. 2: Association of diagnosis with age. OA knee, osteoarthritis of knee; PF, plantar fasciitis; PTS, post-traumatic stiffness; IDK, internal derangement of knee

significant association exist in the occurrence of OA among females (p value: 0.002). This finding was consistent with the finding of Chopra et al.⁶ OA is usually considered as a disease of persons aged more than 60 years.³ In our study; it was seen that 68.6% of patients with osteoarthritis of knee were in the above 50 year age category. Interestingly; it was evident that the incidence of degenerative arthritis of knee is increasing among younger population. This study found that 31.3% with osteoarthritis of knee belonged to the less than 50 year age category.

CONCLUSION

- Osteoarthritis of knee, plantar fasciitis and post-traumatic stiffness of lower limb joints were the most common diagnoses reporting to PMR department of this tertiary care center with lower limb musculoskeletal problem.
- Osteoarthritis of knee was more common in females (p value 0.002).
- A statistically significant association also exist in plantar fasciitis among females (p value 0.000).
- 97% of persons with plantar fasciitis were in the less than 50 years old category
- Post-traumatic stiffness of lower limb joints was significantly more in males.

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