FREQUENCY OF OSTEOARTHRITIS AMONG PATIENTS OF KNEE JOINT PAIN

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ABSTRACT

Background: Osteoarthritis knee causes disablity among middle aged people. **Objective:** To find out the frequency of osteoarthritis among patients of knee and its association with gender and obesity. **Methodology:** This cross sectional study was conducted at Department of Orthopedics, Bahawal Victoria Hospital, Bahawalpur from 1st January to 31st May 2014. Patients of both sexes with knee pain, age from 40 to 70 years were included in this study. Physical examination of all the patients was done and x-ray of knee joint were also taken from every patients to assess the knee osteoarthritis. The data was entered and analysed by using SPSS version 15. **Results:** Total 100 patients were included in this study. Mean age of the patients was 52.64 ± 8.8 years. Osteoarthritis was found in 72 (72%) patients. 20 (55.6%) among male and 52 (81.25%) among female were having osteoarthritis. Out of 60 (60%) obese patients osteoarthritis was found in 56 (93.33%) patients. **Conclusion:** Obesity is found to be significant important risk factor for Osteoarthritis Knee (KOA). KOA is also found more in females and obese.
Key words: Osteoarthritis, Knee, Articular cartilage, Body Mass Index

INTRODUCTION

Osteoarthritis (OA), also known as degenerative joint disease, occurs when articular cartilage between two bones becomes worn down, and the bones begin to rub against each other in the joint. Osteoarthritis often leads to pain, swelling, a decrease in motion at the joint, stiffness or the formation of bone spurs.[1] Osteoarthritis of the knee is a chronic, localized joint disease affecting approximately one third of adults, with disease prevalence increasing with advancing age.[2] Knee Osteoarthritis is a leading cause of disability and involves progressive destruction of articular cartilage and cause substantial disability among middle age and older adults.[3] Many factors contribute to development of knee OA including heredity, gender, biochemical changes in articular cartilage and biomechanical compressive loads that leads to joint damage.[4]

Osteoarthritis of the knee and non-specific low back pain (NSLBP) are among the most common rheumatic disorders in the Asia-Pacific region.[5] Studies have shown the prevalence of knee osteoarthritis (KOA) to be 7.50%, 10.9% and 13.6% in China, India and Bangladesh.[6] A study in Pakistan has shown that 28% of the urban and 25% of the rural population have knee osteo arthritis (KOA).[7]

The precise etiology of osteoarthritis (OA) is unknown; however, several risk factors have been identified, including age, female sex and both occupational and sports-related joint stress. The most important modifiable risk factor for the development and progression of OA is obesity.[8,9]

Excessive loading of the joint is the most important means by which obesity causes osteoarthritis. It is in the weight-bearing joints, the knee and to a lesser extent the hips that obese individuals are most at risk of developing osteoarthritis.[10]

Because of the way the knee joint works, the effect of excess weight can be four or five times greater in key parts of the joint so that even modest weight gain speeds up the breakdown of cartilage and increases susceptibility to osteoarthritis. At the same time, poor posture and unhealthy gait are more common in obese people, further predisposing the joints to osteoarthritis.[11]

The true impact of obesity on the development of knee osteoarthritis has only recently become clear. A pivotal study by the Medical Research Council's Epidemiology Resource Centre at Southampton University compared the weight of 525 men and women, aged 45 plus to the severity of knee osteoarthritis. The findings showed for the first time that the risk of knee osteoarthritis increases progressively throughout the Body Mass Index (BMI) categories. At the most extreme, very obese individuals with a BMI of 36 or more have a 14-fold higher risk of knee osteoarthritis compared to those within the healthy BMI range.[12] This study was conducted to find out the frequency of osteoarthritis among patients of knee joint pain and its association with gender and obesity.

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METHODOLOGY

This cross sectional study was conducted at Department of Orthopedics, Bahawal Victoria Hospital, Bahawalpur from 1st January to 31st May 2014. The ethical approval was obtained from the ethical committee and informed consent was obtained from every patients. Patients of both sexes with knee pain, age from 40 to 70 years were included in this study. Participants were excluded if they had any specific medical condition affecting the knee joint (such as, tumors, septic arthritis, or rheumatoid arthritis). Physical examination of all the patients was done and x-ray of knee joint were also taken from every patients to assess the knee osteoarthritis. Weight and height of all patients was also measured to calculate BMI. Demographic like age, gender was also recorded. All the data was entered on pre-designed proforma. All the dada was entered in SPSS version 16. Chi square test was used to see the association between knee osteoarthritis and gender. P value $\leq$ 0.05 was considered as significant.

RESULTS

A total of 100 patients were included in this study. Mean age of the patients was 52.64 ± 8.8 years.
Out of 100 patients KOA was found in 72% patients as shown in figure I. Out of 100 patients male were 36 (36%) and female were 64 (64%). Osteoarthritis was found in 72 (72%) patients in which 20 were male and 52 were female. Significant association was found between osteoarthritis and gender as shown in table I.

Figure I: Knee Osteoarthritis
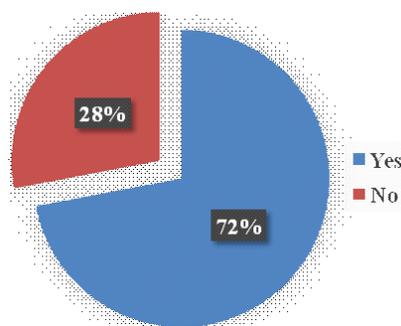
As shown in table II, out of 60 (60%) obese patients osteoarthritis was found in 56 (93.33%) patients and out of 40 (40%) non-obese patients osteoarthritis was found in 16 (40%) patients. There is significant association between osteoarthritis and obesity.

Table I: Gender distribution

Gender	Osteoarthritis		Total Number(%)	P. Value
	Yes Number(%)	No Number(%)		
Male	20 (55.6)	16 (44.4)	36 (36)	0.006
Female	52 (81.25)	12 (18.75)	64 (64)	
Total	72 (72)	28 (28)	100 (100)	

Table II: Stratification for obesity

Obesity	Osteoarthritis		Total Number(%)	P. Value
	Yes Number(%)	No Number(%)		
Obese	56 (93)	4 (6.7)	60 (60)	0.000
Non-obese	16 (40)	24 (60)	40 (40)	
Total	72 (72)	28 (28)	100 (100)	

DISCUSSION

The objective of this study was to examine the role of obesity in the development of symptomatic osteoarthritis of knee joint that would help in planning proper interventions and would also help control this modifiable risk factor of osteoarthritis of knee. Osteoarthritis of the knee is the most common joint disorder worldwide. The estimated population prevalence varies from 4 to 50%, depending on age, gender distribution and disease definition.[5-10] These discrepancies may be due to differences in race, lifestyle, or socioeconomic background and the prevalence of knee osteoarthritis in developed countries is between 27 and 90% in people of 60 years or older.[13] Mean age of the patient in present study was 52.64 ± 8.8 years and is comparable with the study by Iqbal MN et al reporting mean age as 56.28 ± 8.786 years.[7] Our study demonstrated that knee osteoarthritis was higher in women than in men (81.25% versus 55.6%), indicating that gender is an important risk factor for knee osteoarthritis. This difference may be due to the lack of physical activity, mobility, social issues especially in our region and higher prevalence of obesity among women in general. Another reason for difference in gender distribution may be due to sensitivity of cartilage tissue to sex hormones as knee cartilage volume is higher in males than in females.[14] The high incidence of osteoarthritis in women just after menopause suggests that estrogen deficiency plays a role in causing disease. Studies by Al-Arfaj AS[15]and Iqbal MNet al[7]are in agreement with this study.

The true impact of obesity on the development of knee osteoarthritis has only recently become clear. A pivotal study by the Medical Research Council's Epidemiology Resource Centre at Southampton University compared the weight of 525 men and women aged 45 plus to the severity of knee osteoarthritis. The findings showed for the first time that the risk of knee osteoarthritis increases progressively throughout the Body Mass Index (BMI) categories. At the most extreme, very obese individuals with a BMI of 36 or more have a 14-fold higher risk of knee osteoarthritis compared to those within the healthy BMI range.[12]

We identified obesity as being highly associated with knee OA, knee joint pain, perceived physical functioning, and multiple measures of physical functioning performance. The study by Al-Arfaj AS in Saudi Arabia also found strong association between excess weight and knee Osteoarthritis in females(AOR 3.28, 95% CI 2.07-5.36) than the males (AOR 1.88,95% CI, 1.24-2.92).[15] BMI directly corelate with the KOA as it is found that higher the BMI definite the radiographic evidence of KOA in UK in one study by Messier SP et al.[16] In this study, frequency of knee osteoarthritis is much higher in obese as compare to non-obese. Results of a study by Ismail AI et al[17] are in agreement with current study.

CONCLUSION

Obesity is found to be significant important risk factor for Osteoarthritis knee. KOA is more in females and obese in our study.

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