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Original Research Article

Prevalence of Knee Osteoarthritis in Elderly Persons in a District of Central Uttar Pradesh: A Cross Sectional Study

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ABSTRACT

Background: Osteoarthritis (OA) is a degenerative disease characterized by gradual development of joint pain, stiffness, swelling and limitation of movements. OA causes chronic disability; the degree of disability depends on the site involved and varies greatly between individuals. Knee OA is more common in all types of arthritic conditions. The present study was conducted to know the disease burden in the society, to make the people aware more about the disease.

Methodology: The present study was conducted in the department of Orthopedics, Major SD Singh Medical College, Farrukhabad (UP). It was a cross sectional study and duration of study was one year from January 01 to December 31, 2014. Total numbers of patients enrolled for study were 810. Patients with knee joint pain of either sex and above the age of 60 years were included in the study.

Results: In the present study there were 446 females (55.06%) and 364 were males (44.94%). Maximum numbers of patients were in the age group of 60-65 years, 77.41% patients were vegetarian and 22.59% were having mixed dietary habits. There is higher prevalence of knee osteoarthritis among lower income group. There was high prevalence of knee osteoarthritis among patients with high body mass index. All the cases were having pain in the knee and majority (85.81%) was having it in both the joints while only 14.19% were having unilateral knee pain.

Keywords: Knee Osteoarthritis, Prevalence, Knee pain.

INTRODUCTION

Osteoarthritis (OA) is a degenerative disease characterized by gradual development of joint pain, stiffness, swelling and limitation of movements. OA causes chronic disability; the degree of disability depends on the site involved and varies greatly between individuals. [1] Knee OA is more common in all types of arthritic conditions. A recent WHO report on the worldwide burden of disease indicates that knee OA alone is likely to become the 4th most important cause of disability in women and the 8th in men. Knee OA is much more

prevalent in India than in west and accounts as much more disability as any other chronic conditions. The prevalence is high, especially among the elderly. With the increase in the population of elderly it has become the major health problem now days. [2] OA is believed to be a disease of old age with three fold increase in prevalence among elderly when compared to the younger counterpart. [3,4] With India witnessing demographic transition leading to proportionate as well as absolute increase in number of elderly, the magnitude of OA is bound to increase. [5] OA of knee joint contributes to nearly 80% of total osteoarthritis burden. [6] Radiological assessment remains the mainstay of diagnosis of OA of knee. Most of the cases of OA seek treatment very late, only when the condition hampers with the physical activity. Moreover, elderly persons residing in rural areas are likely to have been worse health seeking behavior. Definitive treatment in form of total knee replacement is costly and unaffordable in Indian setting. Thus, prevention and early diagnosis remains the most cost effective strategy. [7] Osteoarthritis is multifactorial in aetiology. Both systemic factors (e.g. age, sex, genes) and local factors (e.g. muscle weakness, joint deformity) appear to influence the risk of individual joints developing the disease. The specific aetiological factors are unknown, but may include mechanical overloading, failure of the chondrocyte-controlled internal remodeling system and extra cartilaginous factors such as synovial or vascular changes. [8] Keeping in view the greater burden of disease and disability in the form of compromised functions, the present study was conducted to know the disease burden in the society, to make the people aware more about the disease.

MATERIALS AND METHODS

The present study was conducted in the department of Orthopedics, Major SD Singh Medical College, Farrukhabad (UP). Prior to study, ethical clearance was taken from the ethical committee of the college. It was a cross sectional study and duration of study was one year from January 01 to December 31, 2014. Total numbers of patients enrolled for study were 810. Patients with knee joint pain of either sex and above the age of 60 years were included in the study. Patients below 60 years and history of recent injury or accident within 6 months were excluded. Reasons for the study were explained to patient; prior to interview, a written consent was taken. A pretested semi structured schedule based on different standardized questionnaires adopted in such a manner that the information regarding demographic profile (age, sex, religion, occupation etc.), dietary habit, addiction and detailed information on knee joint is collected.

Data collection proforma was divided in to the two parts- Part 1 contains information regarding age, gender, marital status, family type, habitat, weight, height, religion, education, occupation and annual income. Body mass index was calculated and classified according to the WHO classification of body mass index. Information regarding the personal habits like smoking, alcohol intake and other specific habits. This part also collected information about dietary habits. Socioeconomic status was assessed by using Kuppuswamy scale. Second part was designed to obtain the information about the history and physical examination of knee joint such as history of injury or accident, joint pain, duration of pain, swelling, crepitations, disability, aggravating and relieving factors related to joint pain, previous investigations and diagnosis.

RESULTS AND DISCUSSION

In the present study, 810 patients of either gender visited to department of Orthopedics, Major SD Singh Medical College, Farrukhabad (UP) were included. The data revealed that the number of subjects enrolled rose with increase in age (Table 1), because as the age advances, morbidity also increases. The higher incidence in older age group (>60 years) substantiate the claim made by Shadab M et al, [2] Reddy SV et al, [9] Ajit NE et al, [10] Patil PS et al, [11] Kasper et al. [12] In the present study there were 446 females (55.06%) and 364 were males (44.94%) (Table1). The probable reason for higher incidence among female patients may be due to their postmenopausal status and habit of constant squatting and this type of findings also observed by Shadab M et al, [2] Reddy SV et al, [9] Patil PS et al, [11] Kasper et al. [12]

Maximum numbers of patients were in the age group of 60-65 years followed by 66-70 years. There was no significant difference in the cases of osteoarthritis among patients of different categories. (Table 1)

Table 1: Demographic profile of study subjects (N=810)

Variable		No. of patients	Percentage
Gender	Male	364	44.94
	Female	446	55.06
Age Group (years)	60-65	573	70.74
	66-70	169	20.86
	70-75	47	5.80
	>75	21	2.60
Categories	General	318	39.26
	Other backward class	411	50.74
	Scheduled cast/tribe	81	10.00
Dietary habit	Vegetarian	627	77.41
	Mixed	183	22.59
Socioeconomic class	I	4	0.49
	II	97	11.98
	III	139	17.16
	IV	570	70.37

According to dietary habits, 77.41% patients were vegetarian and 22.59% were having mixed dietary habits. Studies conducted by Razi, Ibn Sina and Majusi showed that there are relationship between dietary habits and osteoarthritis as they observed more cases of osteoarthritis among patients of non-vegetarian dietary habits. (table 1)

The data revealed higher prevalence of knee osteoarthritis among lower income group which is similar to the findings of Ajit NE et al [10] and Salve et al. [13] they stated that osteoarthritis was found to be higher in low socioeconomic group as compared to middle group. (Table 1)

Table 2 shows that there was high prevalence of knee osteoarthritis among patients with high body mass index and similar findings were observed by other researchers also viz. Shah SN et al, [1] Shadab M et al, [2] Patil PS et al [11] and Vrezas I et al, [14] Present study confirms that obesity and overweight are considered to be potential risk factors for the development of knee osteoarthritis.

Table 2: Distribution of subjects according to Body Mass Index (N=810)

Variable		No. of patients	percentage
Body Mass Index	Underweight	7	0.86
	Normal	277	34.20
	Overweight	393	48.52
	Obese	133	16.42

Table 3 shows distribution of patients according to their occupation. Maximum numbers of patients were

housewives i.e.50.86% followed by farmer (15.18%), labourer (13.22%), and businessman (9.14%). The maximum numbers of cases were housewives and the reason due to gender factor and sedentary life style i.e. they used to their household work in the knee bent position and similar findings were observed by Shakoor MA et al, [15] Warrel DA et al. [16]

Table 3: Distribution of subjects according to Occupation (N=810)

Occupation	No. of patients	Percentage
House wife	412	50.86
Business	74	9.14
Farmer	123	15.18
Labourer	107	13.22
Teacher	12	1.48
Tailor	7	0.87
Carpenter	9	1.11
Unemployed	27	3.33
Others	39	4.81

Table 4: Distribution of subjects according to Signs and Symptoms

Variable		No. of subjects	Percentage
Pain n=810 (100%)	Unilateral	115	14.19
	Bilateral	695	85.81
Crepitations n=645(79.63%)	Unilateral	222	27.41
	Bilateral	423	52.22
Tenderness n=772(95.31%)	Unilateral	78	9.63
	Bilateral	694	85.68
Morning stiffness n=432(53.33%)	Unilateral	29	3.58
	Bilateral	403	49.75
Bone warmth n=244(30.12%)	Unilateral	31	3.83
	Bilateral	213	26.30
Bony overgrowth n=121(14.94%)	Unilateral	103	12.72
	Bilateral	18	2.22

Table 4 shows that all the cases were having pain in the knee and majority (85.81%) were having it in both the joints while only 14.19% were having unilateral knee pain. Crepitations were present in 79.63% patients (52.22% bilateral & 27.41% unilateral). Most of the cases were having tenderness (95.31%) and it was more bilaterally. Morning stiffness was present in 432 cases (53.33%) and bone warmth was present in 244 (30.12%) cases. Only 14.94% cases were having bony overgrowth and it was 12.725% unilateral while in 2.22% cases it was bilateral. Presence of all these symptoms in majority of patients suggests that these patients were having osteoarthritis of knee as noted by other researchers also viz. Shah SN et al, [1] Shadab M et al, [2] Shakoor MA et al, [15] Warrel DA et al. [16]

The prevalence of osteoarthritis knee was estimated 78.27% in the present study. The prevalence was similar to study conducted in urban elderly population of Chandigarh and study conducted in a hospital of Bangalore but higher than study conducted in urban slum of Delhi. Osteoarthritis was considered if patient was suffering from pain, swelling, limitation of movement of a large joint. Other rheumatologic conditions may also present with similar symptoms, which are differentiated from osteoarthritis by absence of crepitus and a longer duration of stiffness. There is evidence showing a higher risk of knee osteoarthritis with a higher body mass index. [4] A lower body mass index may put them at a lower risk of getting osteoarthritis knee. American College of Rheumatology (ACR) criterion are good tool in community based Indian setting where osteoarthritis is quite prevalent. Diagnosis using ACR criteria required only short training.

Nevertheless, this study has some limitations. Since, the study was done among elderly who have a higher prevalence of osteoarthritis than the general population.

CONCLUSION

India is passing through a demographic transition and absolute number of elderly going to increase leading to a higher magnitude of burden of osteoarthritis. The study concludes that the knee osteoarthritis is a major public health problem especially in elderly population. There is a need of immediate attentions towards this issue in the form of estimation of problem of osteoarthritis and various risk factors responsible for its development. There is a need to take appropriate steps regarding knee osteoarthritis in order to increase awareness of modifiable factors

like importance of daily exercise, proper positioning of the knee joint during daily activities and also control over the other modifiable factors such as dietary habits, obesity, adequate treatment and rehabilitative services.

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