ORIGINAL RESEARCH

Incidence, prevalence and etiological factors for primary osteoarthritis knee in 40 years and less age group

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ABSTRACT
Background: Osteoarthritis (OA) and other disorders of the musculoskeletal system are the most frequently reported causes of impairment affecting the elderly population. The present study was conducted to assess incidence, prevalence and etiological factors for primary osteoarthritis knee in 40 years and less age group.
Materials & Methods: 200 patients in the department of Orthopaedics in the Hind Institute of Medical Sciences, Mau, Ataria, Sitapur, U.P, India of either sex coming to the OPD of the department with chief complaint of knee pain were the subjects of the study. Cases were assessed and subjected to AP view of both knee in standing position. Parameters such as height, weight, BMI were recorded. Cases were divided as per the Kellgren Lawrence Grading system
Results: Out of the total of 200 cases observed, 64 % were in the age group (35-40) years, 28 % were in the age group of (30-34) years, 8 % were in the age group (25-29)years. there were 44 males and 156 females. 74% of the cases had BMI > 24.9 kg/m^2, 26% of the cases had BMI between 18.9-24.9 kg/m^2, while none of the cases had BMI below 18.9 kg/m^2. Primary osteoarthritis knee was present in 112 and absent in 88. Out of the 112 cases of OA, 60 (45.4%) had predominantly right side knee involvement while 16(12.1%) cases had left knee involved. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. Grade 0 were only symptomatic, 20(10%) had KL grade I, 32(16%) had KL grade II, 72(36%) had KL grade III while 8(4%) cases had KL grade IV. Grade II and III combined constituted 52% cases.60 (53.5%) had predominantly sitting/ squatting/kneeling as household habit. 48 (42.8%) cases had predominantly standing as household habit while 4 (3.5%) cases had nothing specific as a predominant household habit. Occupation was housemaker in 40, skilled workers in 4, tailor in 16, trader in 4, farming in 8, housemaid in 30, teacher in 2, nurse in 4 and paramedics in 4 cases.
Conclusion: OA knee is a significant contributor to pain and disability and poses severe burden on economy, primary prevention of knee OA should become a major aim of health care.
Key words: Osteoarthritis, Occupation, Worker

INTRODUCTION
Osteoarthritis (OA), also called 'Osteoarthrosis' or 'Degenerative joint disease', is one of the most ancient companions of mankind, being attested to since our Neanderthal ancestors and

is so widespread in elderly people that its presence has long been felt as a somewhat characteristic feature of ageing.[1] But the increased life expectancy recorded in recent decades, together with changes in lifestyle and diet has made its burden even heavier and stimulated active research in an effort to define the pathogenesis of this ancient disease and prevent disease advancement with early intervention.[2]

Osteoarthritis (OA) and other disorders of the musculoskeletal system are the most frequently reported causes of impairment affecting the elderly population.[3] Osteoarthritis affects more people than any other joint disease.[4] OA is ranked as either the top or second leading cause of disability among elders.4It is now listed on the World Health Organization's top 10 list of global disease burden, with the knee being one of the most frequently affected joints.[5] According to The Global Burden of Disease Study 2010, hip and knee osteoarthritis was ranked as the 11th highest contributor to global disability and 38th highest in DALYs. The risk for disability attributable to OA Knee is as great as that attributable to cardiovascular disease and greater than due to any other medical condition in elderly persons.[6] The present study was conducted to assess incidence, prevalence and etiological factors for primary osteoarthritis knee in 40 years and less age group.

MATERIALS & METHODS

This study was carried out on 200 patients in the department of Orthopaedics in the Hind Institute of Medical Sciences, Mau, Ataria, Sitapur, U.P, India. Patients of either sex coming to the OPD of the department with chief complaint of knee pain were the subjects of the study.

Cases were assessed and subjected to AP view of both knee in standing position. Parameters such as height, weight, BMI were recorded. Cases were divided as per the Kellgren Lawrence Grading system on the basis of radiological features obtained in x rays of both knees AP view in standing position into following groups- grade 0 as no features, grade 1- doubtful: minute osteophyte, doubtful significance, grade 2: minimal: definite osteophyte, unimpaired joint space, grade 3: moderate: moderate diminution of joint space and grade 4: severe: joint space greatly impaired, with subchondral bone sclerosis and possible deformity of bone ends. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I: Distribution of patients

Age groups (years)	Frequency
25-29	16
30-34	56
35-40	128
TOTAL	200

Table I shows that out of the total of 200 cases observed, 64 % were in the age group (35-40) years, 28 % were in the age group of (30-34) years, 8 % were in the age group (25-29) years.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Gender	Male	44	0.01
	Female	156	

BMI	< 18.9	0	0.01
	18.9 -24.9	52	
	> 24.9	148	
Primary osteoarthritis knee	Present	112	0.05
	Absent	88	
Side	Right	60	0.12
	Left	16	
	B/L	56	
KL grading	Grade 0	68	0.41
	Grade I	20	
	Grade II	32	
	Grade III	72	
	Grade IV	8	
Household activity	Kneeling/squatting/sitting	60	0.05
	Standing	48	
	Nothing specific	4	
Occupation	Housemaker	40	0.03
	Skilled workers	4	
	Tailor	16	
	Trader	4	
	Farming	8	
	Housemaid	30	
	Teacher	2	
	Nurse	4	
	Paramedics	4	

Table II, graph I shows that there were 44 males and 156 females. 74% of the cases had BMI > 24.9 kg/m^2, 26% of the cases had BMI between 18.9-24.9 kg/m^2, while none of the cases had BMI below 18.9 kg/m^2. Primary osteoarthritis knee was present in 112 and absent in 88. Out of the 112 cases of OA, 60 (45.4%) had predominantly right side knee involvement while 16(12.1%) cases had left knee involved. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. grade 0 were only symptomatic, 20(10%) had KL grade I, 32(16%) had KL grade II, 72(36%) had KL grade III while 8(4%) cases had KL grade IV. Grade II and III combined constituted 52% cases.60 (53.5%) had predominantly sitting/ squatting/kneeling as household habit. 48 (42.8%) cases had predominantly standing as household habit while 4 (3.5%) cases had nothing specific as a predominant household habit. Occupation was housemaker in 40, skilled workers in 4, tailor in 16, trader in 4,

farming in 8, housemaid in 30, teacher in 2, nurse in 4 and paramedics in 4 cases. The difference was significant (P< 0.05).

Graph I Assessment of parameters
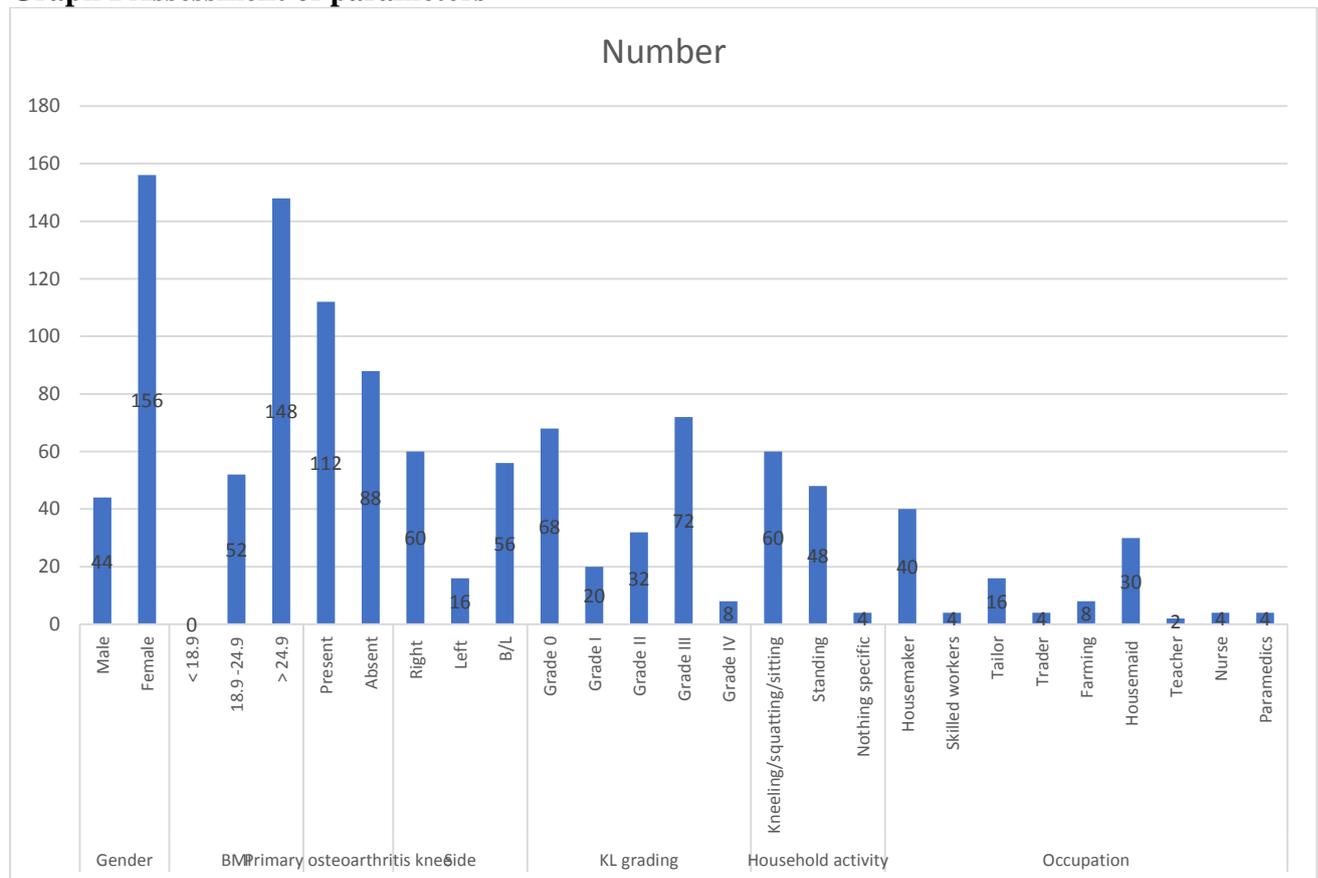
DISCUSSION

Osteoarthritis (OA) is one of the most prevalent condition resulting to disability particularly in elderly population.[7] OA is the most common articular disease of the developed world and a leading cause of chronic disability, mostly as a consequence of the knee OA and/or hip OA.[8] The economic costs of OA are high, including those related to treatment, for those individuals and their families who must adapt their lives and homes to the disease, and those due to lost work productivity. Patients with OA are at a higher risk of death compared with the general population by OR of 1.54.[9] History of diabetes, cancer, or cardiovascular disease and the presence of walking disability are major risk factors. Excess mortality is observed for all diseases with specific causes of death but is particularly pronounced for cardiovascular complications.[10,11] The present study was conducted to assess incidence, prevalence and etiological factors for primary osteoarthritis knee in 40 years and less age group.

We found that out of the total of 200 cases observed, 64 % were in the age group (35-40) years, 28 % were in the age group of (30-34) years, 8 % were in the age group (25-29) years. Khanna et al[12] studied 200 knee pain patients below 40 years of age, over a period of one and a half years, incidence of primary osteoarthritis knee on the radiological basis was found to be 6.54%. Mean age of 200 subjects were 34.7 years with female: male ratio being 6:1. 82.1% cases of OA had BMI >24.9kg/m2 whereas 80 female cases had BMI>24.9kg/m2. 53.5% cases had predominantly sitting/ squatting /kneeling as household habits (p=0.02). 67.8% cases were of medium activity group on the basis of their occupation while 57.1% of cases had history of OA knees in the first- degree relatives.

We observed that there were 44 males and 156 females. 74% of the cases had BMI > 24.9 kg/m^2, 26% of the cases had BMI between 18.9-24.9 kg/m^2, while none of the cases had BMI below 18.9 kg/m^2. Primary osteoarthritis knee was present in 112 and absent in 88. Out of the 112 cases of OA, 60 (45.4%) had predominantly right side knee involvement while 16(12.1%) cases had left knee involved. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. Bala et al[13] found that the overall prevalence of knee osteoarthritis was 35.7% (females: 44.5% Males: 23.1%). Age more than 60 years, female gender, history of trauma, BMI >30 were found to be significantly associated with higher odds of OA knee (P < 0.05).

We found that grade 0 were only symptomatic, 20(10%) had KL grade I, 32(16%) had KL grade II, 72(36%) had KL grade III while 8(4%) cases had KL grade IV. Grade II and III combined constituted 52% cases.60 (53.5%) had predominantly sitting/ squatting/kneeling as household habit. 48 (42.8%) cases had predominantly standing as household habit while 4 (3.5%) cases had nothing specific as a predominant household habit. Occupation was housemaker in 40, skilled workers in 4, tailor in 16, trader in 4, farming in 8, housemaid in 30, teacher in 2, nurse in 4 and paramedics in 4 cases. In a study to see the impact of squatting on tibiofemoral knee osteoarthritis by Zhang et al[14] it was found squatting at age 25 was a risk factor for knee OA among elderly Chinese subjects in Beijing.

The limitation the study is small sample size.

CONCLUSION

Authors found that OA knee is a significant contributor to pain and disability and and poses severe burden on economy, primary prevention of knee OA should become a major aim of health care. The design of preventive strategies requires a clear understanding of the risk factors for the disorder which as shown in the study mainly include female sex, obesity, occupation, kneeling/squatting in daily activity, family history of OA knee.

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