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Title- "Epidemiological Trends of Knee Osteoarthritis and its related factors in Patients attending Out Patient Department of Medical College Datia- A Hospital Based Surey"

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ABSTRACT

Background : Osteoarthritis (OA) is the most common type of arthritis. OA is a chronic degenerative disorder of multifactorial etiology characterized by the loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis, and range of biochemical and morphological alterations of the synovial membrane and joint capsule. For finding the current burden of OA and its association with lifestyle related factors, it was essential to undertake such a study on the Knee Osteoarthritis

Methods: This is an institution based cross sectional observational study carried out among patients with knee pain & disability attending Out Patient Department of Medical College Datia. The total sample size was 304 subjects. Tools consisted of a questionnaire and plain skiagrams for confirmation of OA. Diagnosis was done using Kellgren and Lawrence scale for osteoarthritis. Questionnaire was administered only to those who gave informed consent.

Results: The study shows a 31.5 % cases found in the overall 304 interviewed Patients present with complain of knee pain. Female of the age group 46-60 are more prone to osteoarthritis comparative to other age group people. Highest % in participants who have a sedentary lifestyle and Obese.

Conclusions: This study conclude the age group, gender, occupation, stages of severity of knee OA in Datia. Awareness program should be initiated at community level which is needed for the prevention of OA of knee at early age. We would like to suggest that a study can be planned which will prove the impact of physical activity, habits, and lifestyles.

Keywords: Knee Osteoarthritis, related factors, Kellgren and lawrence scale

Introduction

Osteoarthritis (OA) is the most common type of arthritis. Its high prevalence especially in the elderly and the high rate of disability related to disease make it a leading cause of disability in the elderly. [1] OA is a chronic degenerative disorder of multifactorial etiology characterized by the loss of articular cartilage, hypertrophy of bone at the margins, subchondral sclerosis, and range of biochemical and morphological alterations of the synovial membrane and joint capsule. [2] Also OA is an enlightened disorder of cartilage degradation, synovial inflammation, osteophyte formation, thinning of joint space and sub-chondral sclerosis. [3] Cartilage act as cushion between the bones of joints and prevent the rubbing of bones on each other. In between two cartilage of bone joint, synovial fluid filled, which secreted by synovial membrane for lubrication of the joints. OA leads to pain, disability as well as difficulty in joints and restrict the routine movements of human beings.[4]

OA accounts as most prevalent musculoskeletal disease among the world and ismost common reasons of joint disability in approximately 100 million people among world having age over 45 years, which is approximately 15% of all musculoskeletal disorders. [5]In Indian impact, nearly 80% of population shows OA among the patient who claimed for knee pain, out of which approximately 20% reported incapability in daily activities and around 11% need peculiar care. Approximately 40% population of more than 70 years shows OA, in which nearly 2% have severe knee pain and disability. [6, 7]

Recent meta-analysis based on observational studies showed that there is association between OA and Cardiovascular Disease (CVD) related death with maximum risk in knee OA.Old age, male sex, smoking, alcohol consumption, physical inactivity, obesity (both general and abdominal), elevated blood pressure (hypertension), elevated blood glucose (diabetes), elevated lipid profile (dyslipidemia) are some of the identified risk factors for CVD. These factors are both positively or negatively associated with OA and well documented in literature. [8]

Keeping this background in mind the rationale will be as there is no nationally representative Study on OA.Therefore, for finding the current burden of OA and its association with lifestyle related factors, it was essential to undertake such a study on the Epidemiological Trends of Knee OA and related factors of Patients attending Out Patient Department of Medical College Datia Hospital.

Mateials and Methods

This is an institution based cross sectional observational study carried out among patients with knee pain & disability attending Out Patient Department of Medical College Datia from February 2020 to February 2021. Sample size estimation was done by purposive sampling. About 304 sample size was estimated as sufficient to meet purpose of study by the researcher. 304 subjects were interviewed which corresponds to approximately 10% of last year patients with knee pain registered. Sample size was taken based on the conveniences of the study

Study Variables

1. Socio-demographic factors like age, sex, residence and occupation status.
2. Information pertaining to activity level, BMI, past h/o of diseases, stages of knee osteoarthritis and treatments received by the subjects.

Data Analysis

Data was entered into excel sheet and analysed using Graph Pad software. Percentage and proportion were used to present data.

Data Collection Method: Data Collection was done by interviewing the subjects. Pre-testing was done and questionnaire was modified where needed. Interviewer visited the facility twice in a week and on that particular day all the subjects presenting to OPD were explained the procedure and purpose of study. Questionnaire was administered only to those who gave informed consent. Invasive procedure and active interventions was not done in the study so only informed verbal consent was taken. They were assured that their responses would be kept anonymous and confidentiality maintained. Staging of knee Osteoarthritis in subjects done by collecting information about pain after a long day of walking or running, greater stiffness in the joint when it's not used for several hours and tenderness when kneeling or bending.

RESULTS

The study was used radiographic diagnosis and The Kellgren and Lawrence scale of OA grading for the confirmation of knee OA. The present study shows a 31.5 % cases found in the overall 304 interviewed Patients present with complain of knee pain. [Table 1] This study reveals that the female of the age group 46-60 are more prone to osteoarthritis comparative to other age group people. 54.1% were female and 56.2% were rural residents. 22.9% Subjects were House wives and Followed by 19.8 % Office workers by Occupation.[Table-2] The study found that knees OA changes increased with increase in body mass index (BMI). Knee OA changes was significantly low in underweight people (27.6%) as compared to normal weight(29.2%) and obese participants (35.1%).[Table-3] Highest % in participants who have a sedentary lifestyle followed by participants with a physically demanding lifestyle and active lifestyle. This difference was significantaly showing that the % Cases of OA was lowest in participants who had a fairly active physical activity level [Table 4].

Table-5 states that the past h/o disease of the subjects are more with hypertension followed by diabetes mellitus compared to the other past histories like, menopause, CKD, asthma, hypothyroidism. By these, it states that the osteoarthritis is more likely to the women with the past history of osteoarthritis than compared to others. Found in this study stages of knee osteoarthritis of subjects, out of 96 subjects, 29.2% subjects are mild knee stage, 37.5% subjects are moderate knee stage and 33.3% subjects are severe knee stage (Table- 6) By these, it states that the subjects are more with moderate stage compared to the other stages like mild osteoarthritis and severe osteoarthritis. Out of total, 25% of the subjects are underwent the surgery (TKR) and 75% of the subjects given the medication. [Table -7] We observed that, most of the patient were received calcium supplement and Rega DSR and ranitidine to avoid GIT disorder. the patient were also given ketorolac tromethamine, naproxen, aceclofenac, calci-Cz, calmet etc.

Table.1 Osteoarthritis status of OPD Patients

Osteoarthritis status	Number of Subjects	Percentage
No OA	208	68.4
OA	96	31.5
Total	304	100

Table.2 Socio-demographic Profile of Osteoarthritis Patients

Socio-demographic Profile(N=96)	Number of Subjects	Percentage
Age(In Years)		
<35	6	6.25
35 to 45	20	20.8
45 to 60	48	50.0
>60	22	22.9
Gender		
Male	44	45.9
Female	52	54.1
Residence		
Rural	54	56.2
Urban	42	43.8
Occupation		
Farmer	12	12.5
Driver	02	02.0
House wife	22	22.9
Laborer	09	09.3
Tailor	04	04.1
Office workers	19	19.8

Table.3 Osteoarthritic Changes According to BMI

OA Status	Underweight		Nomal weight		Obese	
	Number	Percentage	Number	Percentage	Number	Percentage
OA	08	27.6	43	29.2	45	35.1
Non OA	21	72.4	104	70.8	83	64.9

Table.4 Activity level and Osteoarthritis

OA Status	Sedentary work		Moderate work		Heavy work	
	Number	Percentage	Number	Percentage	Number	Percentage
OA	39	39	48	27.4	09	31.0
Non OA	61	61	127	72.6	20	69.0

Table.5 OA Changes Regarding Past H/o Diseases of the Subjects(N=96)

Past H/o of Diseases	Number of Subjects	Percentage
Hypertension	32	33.3
Diabetes Mellitus	18	18.7
Menopause	07	07.3
CKD	01	01.1
Asthma	01	01.1
Hypothyroidism	01	01.1

Table.6 Knee Osteoarthritis Stages of Subjects(N=96)

Stages of knee Osteoarthritis	Number of Subjects	Percentage
Mild	28	29.2
Moderate	36	37.5
Severe	32	33.3

Table.7 Treatment Suggested to Subjects(N=96)

Treatment Suggested	Number of Subjects	Percentage
Total knee replacement	24	25.0
Medication	72	75.0

Discussions

The present study shows 96 cases of knee OA found in the overall 304 interviewed Patients present with complain of knee pain.The present study revealed that knee osteoarthritis was more common among females .This finding was quite similar to the other studies. [8-10] This may be due to the fact that more obesity found in females.Our study shows more proportion of knee OA from rural areas similar results found from the other studies which show preponderance from rural areas.[2,8]96 patients of osteoarthritis were observed during this studied were divided in to four age groups period of this study. first age group is less than 35years,and second age group is (35-45) years, third age group is (45-60) years and fourth group is more than 60 years.it indicates that overall 45-60 years are affected more with osteoarthritis. Similar results found by othe studies [2,8,9]Occupation of osteoarthritis patients was an important focusing point of this study. In our study 22 patients Out of total 96 patients were house wife that means housewife are mostly affected by knee OA .Some other studies also found house wife are mostly affected by knee OA[2,9,11] This is due to the occupational physical activities include monotonous motions and great forces such as kneeling, squatting on joints, climbing and heavy weight lifting. In our study we found that Prevalence was higher in participants who do not Exercise as compared to participants who exercise .Most studies show that OA knee is more prevalent in people with sedentary lifestyle than in people who are physically active. [2,10,11] Exercise being an important aspect of lifestyle has a major impact on OA. The present study also showed that knee OA increased with increase in BMI and was significantly high in obese people as other studies showed. [2,8,11] In this study the past h/o disease of the subjects are more with hypertension than any other diseases and the subjects are more with moderate stage than mild and severe knee stage. In this study only 25% participants underwent total knee replacement and 75% received medical treatment. Similar results revealed by Chintala Srilekha et al. [9]

Conclusion

The main aim of the study was to explore the OA and its association with lifestyle and other related factors . In this study it was proved that osteoarthritis is common over 46-60 years of age and females are more affected than male. Among total participants, mostly was housewife.it indicates that housewife are more affected by osteoarthritis. This study conclude the overall figure of age group, gender distribution, occupation, stages of severity of knee OA and management pattern of patients in Datia. Awareness program should be initiated at community level which is needed for the prevention of OA of knee at early age. We would like to suggest that a study can be planned which will prove the impact of physical activity, habits, and lifestyles. Stress on early diagnosis on the onset of symptoms should be encouraged among the general population. Studies to understand how many people with symptoms of OA seek medical advice are required to understand the treatment seeking behavior associated with OA.

Limitations

Since the subjects included in the study were patients attending tertiary care centre and district hospital study findings cannot be generalized to the whole population at large. To get more insight for assessing burden and Epidemiological Trends of Knee Osteoarthritis, community based studies are needed.

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Conflicts of interest

There are no conflicts of interest.

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