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Research Article

PREVALENCE OF OSTEOARTHRITIS IN URBAN POPULATION

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Abstract:

The most common cause of knee pain and disability especially in elderly is known as osteoarthritis. It is most crippling disease considered in both developed and under developed countries. Knee osteoarthritis is characterized by disability and pain which occurs due to the articular cartilage and soft tissue surrounding the joint. It results in muscle weakness, synovial joint inflammation and articular damage which causes pain and decreases the ability of activity of daily livings. In 2040 approximately 78 million adults aged 18 or older of US would have diagnosed by arthritis. The most common rheumatologic disorder in Asian region is considered non-specific low back pain and osteoarthritis. There is 28% prevalence of osteoarthritis in Pakistan urban areas whereas in rural areas there is 25% prevalence. Most commonly affected joints are large weight bearing joints such as joints and hip joints. Out of both knee arthritis is more prevalent than hip arthritis.

It was a cross sectional. The data collection was limited to urban population only. The margin of error was 5% with confidence interval 95%. The sample was conducted on the bases of inclusion criteria through consecutive sampling technique.

Total 130 participants were included in the study. The mean age of the sample was 51.28 ± 8.987 years. The most persistent co-morbidities in the sample were 66% HTN, 38% DM, 29% dyslipidemia, 28% IHD and 48% obese patients. A study conducted in 2005 has also shown some similar results that co morbidities linked with knee arthritis were type II diabetes mellitus (15%), hypertension in (53%), obesity (22%), osteoporosis (21%) and obstructive pulmonary disease (13%)

The study has concluded that women having age more than 45 had regular hospital visit because of knee arthritis. The main contributing factors are age, gender, obesity, BMI, and level of HB.

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INTRODUCTION:

The most common cause of knee pain and disability especially in elderly is known as osteoarthritis. It is most crippling disease considered in both developed and under developed countries. Knee osteoarthritis is characterized by disability and pain which occurs due to the articular cartilage and soft tissue surrounding the joint. It results in muscle weakness, synovial joint inflammation and articular damage which causes pain and decreases the ability of activity of daily livings. In 2040 approximately 78 million adults aged 18 or older of US would have diagnosed by arthritis. The most common rheumatologic disorder in Asian region is considered non-specific low back pain and osteoarthritis. There is 28% prevalence of osteoarthritis in Pakistan urban areas whereas in rural areas there is 25% prevalence. Most commonly affected joints are large weight bearing joints such as joints and hip joints. Out of both knee arthritis is more prevalent than hip arthritis. The incidence of osteoarthritis depends upon multiple factors such as age, gender, sex and other risk factors. Literature has found positive relation in those who had higher BMI and knee arthritis. Among all those factors obesity is still very important factors. Obese females, older adults and people who had knee injury are at higher risk of developing knee arthritis symptoms. Apart from other symptoms one of the major contributing factor is pain which results in reduced physical activity which may also has negative impact on quality of life. Studo conducted a study in which he has stated that greater higher risk of radiographic knee arthritis is always linked with greater BMI, older age and obese females. A study conducted in Germany of 1250 primary care patients has given the results that most disabling factors which are linked with knee OA were decrease physical functioning of lower limb, social network, BMI, and length of the disease. Literature has reported that most common risk factors which are associated with the development of knee OA were obesity (42.4%), menopause in women (66.7%), history of OA (43.2%), and previous knee injury (19.5%). Al Afraj has demonstrated that there is positive association between knee arthritis, generalized osteoarthritis and serum uric acid. However, another study which was carried out by Sun at al has recommended that there could be a reason of higher serum level of uric acid in the etiology of generalized OA. Whereas different studies have opposed this hypothesis and declared that serum uric acid levels do not fluctuate at different levels of knee OA. Many studies have conducted to explore the factors associated with knee osteoarthritis but couldn't state any local factor.

METHODS:

It was a cross sectional. The data collection was limited to urban population only. The margin of error was 5% with confidence interval 95%. The sample was conducted on the bases of inclusion criteria through consecutive sampling technique. The total sample size was 130. An informed consent was obtained from the participants after explaining them the purpose of the study. The questionnaires were explained to the participants into their first language. Participants who met the inclusion criteria were recruited into the study. The inclusion criteria were participants with age more than 40 years, male and female, already diagnosed knee OA on knee x-ray. Patients who were having positive family history of knee OA, haemochromatosis, females with hormonal replacement therapy, hyperparathyroidism, mill workers, jack-hammer operators, Systemic Lupus Erythematosus (SLE) were excluded from the study. Studies have reported that the factors such as smoking cigars, pipes, cigarillos did not have a positive relation with the association of OA as compared to age, gender, BMI, tobacco cigarettes. However for current study osteoarthritis factor was considered major for participant's inclusion. The diagnosis was purely based on the clinical and radiological findings reduce joint space, knee pain for most of the days, presence of osteophytes, crepitus on joint movement, and morning stiffness for 30 minutes. On the basis of x-ray findings, osteoarthritis was divided into three grades. The grade I was defined as visible outgrowing margins of the bone and very obvious decrease in joint space. In grade II, there is an absolute joint narrowing and presence of osteophytes. However, in grade III there is moderate multiple osteophytes, definite narrowing of joint space, and some sclerosis and possible deformity of bone ends. Grade IV is having larger osteophytes, and distinct space reduction of the joint, worse sclerosis, and absolute deformity at the ends of bone. The main variables of the current study were the factors associated with osteoarthritis that include obesity, age, gender, smoking and anemia.

According to WHO the BMI was classified as

- Pre obesity----- 25-29.99
- Grade I Obesity----- 30-34.99
- Grade II Obesity----- 35-39.99
- Grade III Obesity----- > 40

Smoking was defined as the active smoking of one or more manufactured or hand rolled tobacco cigarettes (or parts there-of) per day. It does not include the smoking of tobacco in cigars, pipes and cigarillos.

Anemia was explained as level of hemoglobin below 13 for male and below 12 for females. The participants who were recruited into the study they were interviewed by investigator. A questionnaire was given which contains variables such as age, gender, height, BMI, weight diabetes mellitus (DM), hypertension (HTN), dyslipidaemia, ischaemic heart disease (IHD), smoking, grades of osteoarthritis and anaemia. Data was analyzed in SPSS version 21. For continuous variables such as age, height, weight, BMI and anaemia was categorized in mean and standard deviations. Categorical variables like gender, obesity, diabetes mellitus (DM), hypertension (HTN), ischaemic heart disease (IHD), dyslipidaemia and clinical and radiological criteria and severity of osteoarthritis were presented in percentages and proportions.

RESULTS:

Total 130 participants were included in the study. The mean age of the sample was 51.28 ± 8.987 years. The most persistent co-morbidities in the sample were 66% HTN, 38% DM, 29% dyslipidaemia, 28% IHD and 48% obese patients. A study conducted in 2005 has also shown some similar results that co morbidities linked with knee arthritis were type II diabetes mellitus (15%), hypertension in (53%), obesity (22%), osteoporosis (21%) and obstructive pulmonary disease (13%) [16]. Obesity, gender, leisure time behaviour, genetic disposition, metabolic syndrome, smoking behaviour and regular practice of extreme sports were found to be associated with KOA. Other, studies have also shown that smoking seems to increase the risk of osteoarthritis. However, the mechanism remains unexplored. Similarly, current study has also revealed that obesity, gender, smoking and old age were associated with KOA. Whereas the current study has shown that osteoarthritis is more prevalent in females out of 130 participants 90 (75%) were females whereas only 40 (25%) were males. The remarkable difference could be due to limited physical activity, locomotion, social issues especially in our region and because of obese females are more prevalent in general, which is compatible from literature. The study by Abdurhuman S et al in Saudi Arabia 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). The prevalence of osteoarthritis in current study was more common in the age group 45-59 years (28%) and then decreased. However, study in China has showed that KOA increases with age, from 1.3% in the 40-49-year-old age group to 13.2% in the 70 plus age group. This difference may be due to socio demographic differences between the two settings.

A study concluded by Umair Khalid in Bahawalpur Pakistan stated that a very significant factor of osteoarthritis in general population is obesity with the percentage of 93.3 who are having knee arthritis. Weight has direct relation on the development of knee arthritis whereas weight reduction is linked with better prognosis and good outcome of the treatment. The main limitation was the selected data from tertiary medical care centers. In the selected area there were only those patients who were in search of treatment of knee arthritis or were asking for follow up. Hence no mild case was reported. Secondly, Study type was not able to debate on credibility and temporal relation.

CONCLUSIONS:

The study has concluded that women having age more than 45 had regular hospital visit because of knee arthritis. The main contributing factors are age, gender, obesity, BMI, and level of HB.

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