



ISSN (P): 2521-3466
ISSN (E): 2521-3474
© Clinical Orthopaedics
www.orthoresearchjournal.com
2022; 6(4): 01-04
Received: 04-08-2022
Accepted: 07-09-2022

Dr. Dipesh Kumar
Assistant Professor, GMC
Amritsar, Amritsar, Punjab,
India

Dr. Basant Rai
Associate Professor, GMC
Amritsar, Amritsar, Punjab,
India

Dr. Lokesh Chugh
Senior Resident, GMC Amritsar,
Amritsar, Punjab, India

Dr. Dixit Bansal
Junior Resident, GMC Amritsar,
Amritsar, Punjab, India

Corresponding Author:
Dr. Dixit Bansal
Junior resident, GMC Amritsar,
Amritsar, Punjab, India

Osteoarthritis in people aged under 40 in post covid era: Incidence, prevalence, and etiological factors and treatment options

Dr. Dipesh Kumar, Dr. Basant Rai, Dr. Lokesh Chugh and Dr. Dixit Bansal

DOI: <https://doi.org/10.33545/orthor.2022.v6.i4a.373>

Abstract

Background: Osteoarthritis (OA) and other disorders of the musculoskeletal system are the most frequently reported causes of impairment affecting the elderly population. The goal of this study was to find out how common primary osteoarthritis of the knee is in people younger than 40 in post covid era and to find out its etiological factors, what are the treatment options

Materials & Methods: 200 patients in the department of Orthopaedics in the Govt. Medical College, Amritsar of either sex coming to the OPD of the department with a chief complaint of knee pain were the subjects of the study. Cases were assessed and subjected to an AP view of both knees in a standing position. Parameters such as height, weight, and 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 (30-34) years, and 8% were in the age group (25-29) years. There were 44 males and 156 females. 74% of the cases had a BMI of 24.9 kg/m², 26% had a BMI of 18.9 to 24.9 kg/m², and none had a BMI of less than 18.9 kg/m². Primary osteoarthritis of the 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%) had left-knee involvement. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. 20 (10%) cases had KL grade I, 32 (16%) had KL grade II, 72 (36%), and 8 (4%) had KL grade IV. Grades II and III combined constituted 52% of cases. 60 (53.5%) had predominantly sitting, squatting, or kneeling as a household habit. 48 (42.8%) cases had to stand as a household habit, while 4 (3.5%) cases had nothing specific as a predominant household habit. There were 40 cases of housewives, 4 cases of skilled workers, 16 cases of tailors, 4 cases of traders, 30 cases of housemaids, 2 cases of teachers, 4 cases of nurses, and 4 cases of paramedics.

Conclusion: OA knee is a significant contributor to pain and disability and poses a severe burden on the economy. Primary prevention of knee OA should become a major aim of health care. Covid 19 will also have its effects on the increased incidence which will require more detailed study.

Keywords: Osteoarthritis, occupation, worker

Introduction

Osteoarthritis (OA), also called 'Osteoarthritis' 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 somewhat characteristic feature of aging^[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 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]. Patients suffering from COVID-19 displayed hypocalcemia, vitamin D deficiency, and are often immobilized due to the disease, which will contribute to bone demineralization, early aging environmental changes could contribute to the development of this early OA-like phenotype. The impact of SARS-CoV-2 on the initiation of endothelial and adipose tissue dysfunction was analyzed and

compared to early OA. A large similarity between COVID-19 and OA patients was observed regarding endothelial and adipose tissue dysfunction and neuronal sensitization. The SARS-CoV-2 induced changes were mainly attributed to the expression of ACE2 on the respective cells, the disruption of the (local) RAS, and inflammation. Moreover, disruption of the RAS itself could also give rise to musculoskeletal problems [4] Osteoarthritis affects more people than any other joint disease [5] OA is ranked as either the top or second leading cause of disability among the elderly [5]. It is now listed on the World Health Organization's top 10 list of global disease burdens, with the knee being one of the most frequently affected joints [6]. According to the Global Burden of Disease Study 2010, hip and knee osteoarthritis were ranked as the 11th highest contributor to global disability and 38th highest in DALYs. The risk of disability attributable to OA knee is as great as that attributable to cardiovascular disease and greater than that due to any other medical condition in elderly people [7]. The present study was conducted to assess incidence, prevalence, and etiological factors for primary osteoarthritis knee in 40 years and less age group.

Results

Table 1: Shows the patient distribution

Age groups (yrs)	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 (30-34) years, and 8% were in the age group (25-29) years.

Table 2: 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 show that there were 44 males and 156 females. 74% of the cases had a BMI of > 24.9 kg/m², 26% of the cases had a BMI between 18.9 and 24.9 kg/m², and none of the cases had a BMI below 18.9 kg/m². Primary osteoarthritis of the 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%) had left-knee involvement. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. 20 (10%) cases had KL grade I, 32 (16%) had KL grade II, 72 (36%), and 8 (4%) had KL grade IV. Grades II and III combined constituted 52% of cases. 60 (53.5%) had predominantly sitting, squatting, or kneeling as a household habit. 48 (42.8%) cases had to stand as a household habit, while 4 (3.5%) cases had nothing specific as a predominant household habit. The occupations were house maker in 40, skilled workers in 4, tailor in 16, trader in 4, farming in 8, a housemaid in 30, teacher in 2, nurse in 4, and paramedics in 4 cases. The difference was significant (P< 0.05).

Graph I: Evaluation of parameters

Discussion

Osteoarthritis (OA) is one of the most prevalent conditions resulting in disability, particularly in the elderly population [8] OA is the most common joint disease in the developed world, and knee and/or hip OA are the most common types of chronic disability caused by OA [9]. 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 an OR of 1.54 [10]. A history of diabetes, cancer, or cardiovascular disease and the presence of a walking disability are major risk factors. Death rates are higher than expected for all diseases with specific causes of death, but this is especially true for heart problems [11, 12]. The goal of this study was to find out how often primary osteoarthritis of the knee happens and what causes it in people over the age of 40.

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 (30-34) years, and 8% were in the age group (25-29) years. Khanna *et al.* [13] studied 200 knee pain patients below 40 years of age over one and a half years. The incidence of primary osteoarthritis in the knee on a radiological basis was found to be 6.54%. The mean age of 200 subjects was 34.7 years, with the female-to-male ratio being 6:1. 82.1% of cases of OA had a BMI of >24.9 kg/m², whereas 80 female cases had a BMI of >24.9 kg/m². 53.5% of cases reported predominantly sitting, squatting, or kneeling as household habits (p=0.02). Based on their jobs, 67.8% of people with OA knees were in the medium activity group, and 57.1% of people with OA knees had a first-degree relative with the condition.

We observed that there were 44 males and 156 females. 74% of the cases had a BMI of > 24.9 kg/m², 26% of the cases had a BMI of between 18.9 and 24.9 kg/m², and none of the cases had a BMI below 18.9 kg/m². Primary osteoarthritis of the 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%) had left-knee involvement. 56(42.4%) had bilateral knee involvement. Bilateral cases had similar KL grading on both sides. Bala *et al.* [14] found that the overall prevalence of knee osteoarthritis was 35.7% (females: 44.5%, males: 23.1%). Age over 60, being a woman, having a history of trauma, and having a BMI of more than 30 were all found to increase the risk

of OA knee (P 0.05).

We found that grade 0 was only symptomatic, 20 (10%) had KL grade I, 32 (16%) had KL grade II, 72 (36%) had KL grade III, and 8 (4%) cases had KL grade IV. Grades II and III combined constituted 52% of cases. 60 (53.5%) had predominantly sitting, squatting, or kneeling as a household habit. 48 (42.8%) cases had to stand as a household habit, while 4 (3.5%) cases had nothing specific as a predominant household habit. Housewife in 40 cases, skilled worker in four, tailor in sixteen, trader in four, a farmer in eight, housemaid in thirty, teacher in two, nurse in four, and paramedic in four cases. In a study to see the impact of squatting on tibiofemoral knee osteoarthritis by Zhang *et al.*, it was found that squatting at age 25 was a risk factor for knee OA among elderly Chinese subjects in Beijing [15].

The limitation of the study is the small sample size.

The primary goals of treating osteoarthritis of the knee are to relieve the pain and return mobility. The treatment plan will typically include a combination of the following:

Weight loss. Losing even a small amount of weight, if needed, can significantly decrease knee pain from osteoarthritis [16].

Exercise. Strengthening the muscles around the knee makes the joint more stable and decreases pain. Stretching exercises help keep the knee joint mobile and flexible.

Pain relievers and anti-inflammatory drugs help in improving range of motion at knee joint by relieving inflammation. [16]

Injections of hyaluronic acid into the knee joint in early stage (KL stage I) of OA. Hyaluronic acid is normally present in joints as a type of lubricating fluid [16].

Alternative therapies. Some alternative therapies that may be effective include topical creams with capsaicin, acupuncture, or supplements, including glucosamine and chondroitin.

Using devices such as braces. There are two types of braces: "unloader" braces, which take the weight away from the side of the knee affected by arthritis; and "support" braces, which provide support for the entire knee.

Physical and occupational therapy: Physical or occupational therapy can help to strengthen muscles and increase flexibility in knee joint and paves the way to perform regular daily activities, such as housework, with less pain [16].

Surgery. When other treatments don't work, surgery is a good option. Osteotomy or knee replacement (unicompartmental or total knee replacement) can be done depending upon age and severity of knee osteoarthritis, if conservative treatment fails.

Conclusion

The authors found that OA knee is a significant contributor to pain and disability and poses a severe burden on the economy. Because of this, primary prevention of knee OA should become a major aim of health care. For prevention strategies to work, it's important to know what causes the disorder. According to the study, the main risk factors are being female, being overweight, having a job that requires kneeling or squatting, and having a family history of OA knee.

Conflict of Interest

Not available

Financial Support

Not available

References

- Gabriel SE, Crewson CS, Campion ME, O'Fallon WM. Indirect and nonmedical costs among people with

- osteoarthritis and cartilage with rheumatoid arthritis and osteoarthritis compared with non-arthritic controls. *Rheumatology*. 1997;24:43-8.
2. Abdulrazak A, Boyer JT. Arthritis and Aging. *Curr Opin Rheumatology*. 1992;4:153-9.
 3. Buckwalter, Joseph A., Charles Saltzman, and Thomas Brown. The impact of osteoarthritis: implications for research. *Clinical Orthopedics and Related Research*. 2004;427:S6-S15.
 4. Lauwers M, Au M, Yuan S, Wen C. COVID-19 in joint ageing and osteoarthritis: Current status and perspectives. *International Journal of Molecular Sciences*. 2022 Jan 10;23(2):720.
 5. Felson, David T. Michael Nevitt. Epidemiologic studies for osteoarthritis: new versus conventional study design approaches in Rheumatic Disease Clinics of North America. c2004. p.783-797.
 6. Englund M, Guermazi A, Roemer FW, Aliabadi P, Yang M. Meniscal tear in knees without surgery and the development of radiographic osteoarthritis among middle-aged and elderly persons: the Multicenter Osteoarthritis Study. *Arthritis & Rheumatism: Official Journal of the American College of Rheumatology*. 2009 Mar;60(3):831-9.
 7. Risk factors for knee osteoarthritis progression, M. Doherty, *Lancet* 2001;358 (9284):775-6.
 8. Jordan JM, Linder GF, Renner JB, Fryer JG. The impact of arthritis on rural populations *Arthritis Care Res*. 1995;8(4):242-50.
 9. Losina E, Weinstein AM, Reichmann WM. In the United States, the lifetime risk and age of diagnosis of symptomatic knee osteoarthritis are similar. 2013;65(5):10.1002/acr.21898.
 10. Wilder FV, Hall BJ, Barrett JP Jr, Lemrow NB. A prospective epidemiological assessment of the history of acute knee injury and osteoarthritis of the knee The Clearwater Osteoarthritis Study, *Cartilage Osteoarthritis*, 2002;10:611-6.
 11. Cooper C, Snow S, McAlindon TE, Kellingray S, Stuart B, and Coggon D. risk factors for the incidence and progression of radiographic knee osteoarthritis. *Rheumatology*. 2000;43:995-1000.
 12. Niu J, Zhang YQ, Torner J, Nevitt M, Lewis CE, Aliabadi P, *et al*. Is obesity a risk factor for progressive radiographic knee osteoarthritis? *Rheumatology* 2009;61:329-35.
 13. Khanna V, Sharma R., *Indian Journal of Orthopaedic Surgery*. An OPD survey of 200 knee pain patients found the incidence of primary osteoarthritis knee below 40 years of age and its etiological factors. January 2019;5(1):88-94.
 14. Bala K, Bavoria S, Sahni B, Bhagat P, Langeh S, Sobti S. Prevalence, risk factors, and health-seeking behavior for knee osteoarthritis among the adult population in rural Jammu-A Community-based Cross-Sectional Study. *Family Medicine and Primary Care*. Oct 2020;9(10):5282.
 15. According to the Beijing Osteoarthritis Study, radiographic tibiofemoral knee osteoarthritis is more common in people who squat, according to the Beijing Osteoarthritis Study. *Arthritis Rheumatism*. 2004;50(4):1187-1192.
 16. DeRogatis M, Anis HK, Sodhi N, Ehiorobo JO, Chughtai M, Bhave A, Mont MA. Non-operative treatment options for knee osteoarthritis. *Annals of translational medicine*; c2019; 7(Suppl 7).

How to Cite This Article

Kumar D, Rai B, Chugh L, Bansal D. Osteoarthritis in people aged under 40 in post covid era: Incidence, prevalence, and etiological factors and treatment options. *National Journal of Clinical Orthopaedics*. 2022;6(4):01-04.

DOI: <https://doi.org/10.33545/orthor.2022.v6.i4a.373>

Creative Commons (CC) License

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0) License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.