

Awareness level and recommendation of non pharmacological strategies for managing Knee Osteoarthritis among medical personnel

Sharma Meenakshi

Research Scholar
School of Public Health
PGIMER, Chandigarh, India

Singh Amarjeet

Professor,
Community Medicine
PGIMER, Chandigarh, India

Dhillon M S

Professor,
Orthopaedics and HoD PRM
PGIMER, Chandigarh, India

Kaur Sukhpal

Lecturer,
NINE, PGIMER,
Chandigarh, India

Abstract— Knee osteoarthritis (KOA) is one of the common causes of disability after fourth decade of life. In India, its prevalence has been reported to be in the range of 17-61% among people aged above 50 years. A variety of exercises are available for KOA patients, viz; strengthening exercises for quadriceps and hamstring muscles. However, there is a lack of consensus regarding the recommended set of exercises. So, this study was planned to ascertain the awareness level and practice of orthopaedic surgeons, PRM specialists and physiotherapists regarding the set of exercises usually prescribed for KOA. Of the 125 questionnaires distributed, 25 were returned blank to the researcher and 30 were incomplete. The data was analyzed for 70 responders (44 Orthopedists, 10 PRM specialists and 16 physiotherapists). Exercises were recommended by all in both mild and moderate KoA. Quadriceps stretch (standing), Hamstring stretch (supine), SLR (supine), Hip abduction, Hip adduction and short arc lift exercises were recommended.

Keywords- Knee osteoarthritis, Exercises

I. INTRODUCTION

Knee osteoarthritis (KOA) is one of the common causes of disability after fourth decade of life^(1,2). Quality of life (QOL) of KOA patients significantly deteriorates with pain and loss of mobility causing dependence and disability. In India, its prevalence has been reported to be in the range of 17-61% among people aged above 50 years.

KOA is characterized by joint pain and mobility impairment associated with the gradual wearing of cartilage. Early intervention is considered important for ameliorating the long-term effects of disease. Conservative non surgical treatment is aimed primarily at symptom relief, improving joint mobility and function, and optimizing consumer quality of life. This includes the use of both non-pharmacological (NP) and pharmacological interventions⁽³⁻⁷⁾. Knee replacement is often advocated as the last option for KOA patients which is a costly intervention for people with severe OA⁽⁸⁻¹⁰⁾. Henceforth, long-term effects of early to moderate KOA can be managed through non surgical interventions viz. prescribing various medicines which generally include a nutraceutical (glucosamine, diacerin), a mild analgesic

(paracetamol), NSAIDS, proton pump inhibitors (pantoprazole), Vitamin D and calcium tablets etc. patients are also prescribed physical rehabilitation exercises and physiotherapy modalities viz short wave diathermy (SWD), pulsed short wave diathermy (PSWD), microwave diathermy (MWD), ultrasonic massage, pulsed short wave diathermy (PSWD) and electrical stimulation. The ultimate focus of medicines and physiotherapy is on optimizing the QOL through improvement in joint mobility and function. A variety of exercises are available for KOA patients, viz; strengthening exercises for quadriceps and hamstring muscles. However, there is a lack of consensus regarding the recommended set of exercises.

So, a study was planned to ascertain the awareness level and practice of orthopaedic surgeons, PRM specialists and physiotherapists regarding the set of exercises usually prescribed for KOA

II. METHODOLOGY

A six month cross sectional study was conducted in one of the multispecialty tertiary level teaching hospital of North India. A total of 125 participants participated in the study. The study population included Orthopaedic surgeons, physiotherapists and physical rehabilitation and medicine (PRM) specialists. The Self administered questionnaire was designed to study the awareness level of orthopaedists, PRM specialists and physiotherapists about exercise regime for KOA. The questionnaire had list of the exercises with names and pictorial representation of pictures. The exercises included were knee triangles, heel cord stretch, standing quadriceps stretch, supine hamstring stretch, half squats, hamstring curls, calf raises, leg extensions, SLR (straight leg raise), SLR(prone), hip abduction, hip adduction, leg presses, short arc life, standing toe raise, stationary bike (with resistance and without resistance). It also included list of yoga exercises and deep relaxation techniques.

The questionnaire was also distributed and filled during a continuing medical education (CME) where delegates from various medical institutes of North India were present. Questionnaires were also filled by distant PRM specialists.

III. RESULTS

Of the 125 questionnaires distributed, 25 were returned blank to the researcher and 30 were incomplete. The data was analyzed for 70 responders (44 Orthopaedists, 10 PRM specialists and 16 physiotherapists).

Orthopaedists were not aware about the type of stationary bike to be advocated for KOA patients. On the other hand, 80% (n=8) PRM specialists advocated stationary bike without

resistance for KOA patients whereas 87% (n=14) physiotherapists advocated stationary bike without resistance.

None of the respondents was aware regarding CAM (complementary alternative medicine) regimes for KOA. Most (95%) Orthopaedists and PRM specialists (90%) recommended deep relaxation techniques/meditation for KOA patients. In contrast, 75% (n=12) physiotherapists recommended deep relaxation techniques/meditation. Table 1 shows exercises prescribed by respondents for KoA.

Table. 1: Type of exercises prescribed by respondents for KOA

Exercises	Recommendation
Quadriceps stretch (standing) Hamstring stretch (supine) SLR (supine) Hip abduction Hip adduction short arc lift	By all
Heel cord stretch SLR(Prone) Stationary bike with resistance	By none
Half squats Calf raises Toe raise Leg extensions	By physiotherapists; not by Orthopaedists and PRM specialists
Hamstring curls Stationary bike without resistance	By physiotherapists & PRM; not by Orthopaedists
Knee triangles	Only by Orthopaedists ;not by physiotherapists & PRM specialists
Leg presses	By physiotherapists & Orthopaedists; not by PRM specialists
Exercises in Mild KOA	By all
Exercise in moderate KOA	By all PRM and physiotherapists ,Orthopaedists (n=38)
Exercises in Severe KOA	Only by physiotherapists
Benefit of relaxation technique /meditation	By Orthopaedists(n=42),PRM(n=9), Physiotherapists(n=12)
CAM(Complementary alternative medicine)	By none
Awareness of contraindication of exercises	Orthopaedists (n=5) , physiotherapists(n=2), PRM (n=8)
Awareness of exercises to be recommended after TKR	By Orthopaedists & PRM ;not by physiotherapists

But in prevailing set up in India patient have more faith on Orthopaedists for treatment. This is natural also since they are the mainstream doctors in this field. But due to overcrowding in the hospitals they have less time to devote on training individual KOA patients about exercises. Consequently they refer these cases to PRM department. Of course, some elements of conflicts were also witnessed. This is also a usual occurrence wherever different specialists strive to work together. However, it is desirable that physiotherapy, Orthopaedists and PRM work in close collaboration so that patients get maximum benefit of development in medical

science.

Hence there is a need of developing standard operating procedures and consensus regarding exercise regime among the specialists for benefit of patients. It is also recommended that manuals of exercises and video training should be given to KOA patients to ensure uniformity and standardization.

The verbatim responses of Orthopaedists, PRM specialists and physiotherapists regarding exercises for KOA are shown in table- 2.

Table 2: Verbatim responses of Orthopaedists, Physiotherapists and PRM on exercises for KOA

Orthopaedists	Physiotherapist	PRM
<p><i>Hum patient dekhien ya exercise karwayen</i>(what can we do? Should we examine patients or tell them about exercises) "You are wasting time,Orthopaedics and physiotherapy have parted ways".</p> <p>How can you expect from a surgeon that he remembers exercise for each part of the body,'if we have to do the entire job then what is the point of having PRM department.</p> <p>Most of the orthopaedists are super specialists.How can spine specialist tell you about knee exercises. Ask knee and hip specialists and they are very few.</p> <p><i>“Mere ghar ke pass jo park hai usme log yoga, meditation karte hai ,yohi batate hai ki pharak padhta hai”</i>. (In my neighborhood park people do meditation, they tell that it benefits)<i>“Han yeh breathing exercises, meditation overall health ke leay toh achcha hi hai”</i> (Yes,these breathing exercises and meditation are good for overall health)</p>	<p><i>“Unhe kya pata exercises ke bare main”</i> (Orthopaedists & PRM do not know about exercises),</p> <p><i>“Hame padhate hai , unhe yeh padate nahi hai”</i>(we are taught about exercises and they are not.)</p> <p><i>Har physiotherapist alag exercise batayaga , Do physiotherapists kabhi bhi same tarah ki exercise nahi bata sakte, Itni saari exercises hain”</i> (every physiotherapist will tell a different exercise. No two physiotherapists will explain same set of exercises for a disease .There are so many exercises)</p>	<p><i>“Doctor toh sirf likh kar deta hai exercises ke naam.Physiotherapist ko karwana hota hai” ,Lekin doctor ko pata toh hona chahiye,main toh sirf bata sakta hun ki es muscle ki exercise karo</i> (doctor writes the details of exercises,Rest it is supposed to be done by physiotherapists, But doctor should be aware about exercises. I can only tell which muscle need strengthening)</p>

IV. DISCUSSION

Exercise slows down the progression of KOA and increases the quality of life. It is very important for KOA patients to perform correct set of exercises for stretching and strengthening of the muscles. This is because, quite often, in crowded OPD services in India patients are not able to learn exercises properly. Doctors are also not able to devote required time to each patient.

A number of exercises are prescribed by doctors for management of KOA patients management across the globe viz knee extension, knee flexion, hip abduction, hip adduction, hip internal rotation, hip external rotation, leg press (hip and knee extension).

Our study results also indicated that there was a consensus in prescribing mentioned six basic exercises in all KOA patients. However, there are number of ways to perform above mentioned exercises. For example, hamstring stretching can be performed by lying down on the back with both knees bent or with one knee bent to avoid pressure on spine. But no standard protocol is available in India for KOA. Hence it is vital to evolve a standard operating procedure for every KOA related exercise.

Our study revealed that there was some reluctance among Orthopaedists and PRM specialists for prescribing exercise programs or conservative management for KOA pateints. In essence, PRM specialists and Orthopaedists are medical

postgraduates. They tend to have a surgical approach to manage KOA cases .Hence they tend to give less attention for conservative therapy in these cases. They recommend exercises in mild and moderate KOA, but did not recommend exercises for severe KOA cases.

Non prescription of exercises for severe KOA by Orthopaedists also reflects their focus on total knee replacement (TKR).However;we observed that the physiotherapists recommended exercises even in severe KOA cases as there is no other treatment except surgery. This is understandable because all severe KOA patients may not agree to undergo TKR. Reasons are many .There may be some financial issues. Some patient may have a fear of surgery .Hence it make sense to prescribe exercises for even such cases.

We found that there was a general lack of awareness about contraindication of exercises among Orthopaedic surgeons. This indicates their lack of interest in the exercise regimens. This is also depicted by their verbatim responses (table-2). This leads to poor knowledge of exercise regimen a poor and inadequate prescription for exercises. Neither the details of the exercises are included in their curriculum nor are these inculcated rigorously in their ward rounds. Perhaps this kind of teaching of exercises was abolished after the physiotherapy was established as a separate entity in 1980's in medical colleges of India .They usually delegate their overall responsibility of educating patients about exercises to physiotherapists as depicted by their verbatim responses.

PRM specialists are aware about indications and contraindications of exercises. PRM is a relatively new specialization. The department of PRM has been made functional in 2007 at PGIMER in order to fulfill the objectives of the National Policy for Persons with Disabilities Act 2006 and Persons with Disability Act of 1995, on the recommendations of the Central Council of Health and Family Welfare and the Medical Council of India.

Only one physiotherapist found aware about post operative exercises. This may be due to their less involvement in the preoperative and post operative integrated management of TKR patients.

All (physiotherapists, Orthopaedists and PRM specialists) recommended meditation and relaxation techniques for improvement in overall health and well being. It is also well documented fact that psychological aspects do play a perception of discomfort in KOA patients. It is also reported that much of the reflex hamstring spasm is due to subconscious fear in patients. Hence, the relaxation techniques /meditation have a potential to decrease muscle spasm. This also helps in elevating tolerance threshold of patient to pain and other nociceptive stimuli. This also has a potential to remove the barrier or apprehension to use the knee joint. This way it will reduce disuse of leg /thigh. Studies have shown that stress management also helps in weight reduction. This can also help in relieving the symptoms of KOA.

It can be concluded that importance of exercises is realized by all the respondents. However, there is difference of opinion regarding exercises which can prove to be beneficial for patients.

Our results indicate that in prevailing set up in hospitals teaching exercise to KOA patients is more or less a duty of physiotherapists. PRM specialists and Orthopaedists role in this context is prescription of quadriceps strengthening and related exercises in main OPD. This is understandable as a part of development and differentiation in the specialization in this field i.e separation of physiotherapy from Orthopaedists approximately 20-30 years back and evolution of PRM in last decade as a sequence subspecialty.

This also explains the prevailing scenario in Orthopaedics OPD where some exercises were advised only by physiotherapists (half squats, calf raises, toe raises, leg extensions) verbatim responses of Orthopaedists also indicate this trend e.g. *"Yeh hamara kaam nahi hai exercises karwana"* (This is not our job); *"Itna time kahan hai"* (we don't have this much time for explaining exercises) *Physiotherapists ke pass jao, voh apne apne naam ke saath doctor lagwate hai, unse puchho*, (Go and ask physiotherapists they prefix "Doctor" to their name)

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V. CONCLUSION

Hence there is a need of developing standard operating procedures and consensus regarding exercise regime among the specialists for benefit of patients. It is also recommended that manuals of exercises and video training should be given to KOA patients to ensure uniformity and standardization.

REFERENCES

- [1] Sharma MK, Swami HM, Bhatia V, Verma A, Bhatia SP, Kaur G. An Epidemiological Study of Correlates of Osteo-Arthritis in Geriatric Population of UT Chandigarh. *Indian J Community Med.* 2007; 32:77-8.
- [2] Gupta SJ. Osteoarthritis and Obesity. *Orthopaedics today.* 2001; 3:137-41.5.
- [3] Kellgren JH, Lawrence JS. Radiological assessment of osteoarthritis. *Ann Rheum Dis.* 1957; 16(4):494-502
- [4] Kulkarni C, Leena A, Lohit K, Mishra D, Saji M.J. A randomized comparative study of safety and efficacy of immediate release glucosamine HCL and glucosamine HCL sustained release formulation in the treatment of knee osteoarthritis: A proof of concept study; *J Pharmacol Pharmacother.* 2012; Jan-Mar; 3(1): 48-54
- [5] Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. *Arthritis Rheum.* 2000;43:1905-15
- [6] Jordan KM, EULAR recommendations 2003: An evidence based approach to the management of knee osteoarthritis: report of a task force of the Standing Committee for International Clinical Studies Including Therapeutic Trials (ESCISIT). *Annals of the Rheumatic Diseases.* 2003;62(12):1145-55.
- [7] Guideline for the non-surgical management of hip and knee osteoarthritis. Melbourne, The Royal College of Australian General Practitioners, 2009; 70
- [8] American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update. *Arthritis Rheum.* 2000;43:1905-15.
- [9] Jordan KM, et al. EULAR recommendations 2003: An evidence based approach to the management of knee osteoarthritis: report of a task force of the Standing Committee for International Clinical Studies Including Therapeutic Trials (ESCISIT). *Annals of the Rheumatic Diseases.* 2003;62(12):1145-55.
- [10] The Royal Australian College of General Practitioners. Guideline for the non-surgical management of hip and knee osteoarthritis July 2009