IJPMR 14, April 2003; 33-36 *CME Paper*

Osteoarthritis Knee Revisited

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Osteoarthritis, a degenerative disease of cartilage with secondary changes in the bone is the most commonly diagnosed condition affecting the knee joint. The special mention here is to the fact that it is not so commonly proved but is often blamed to be the cause of knee pain in adult population, especially in the elderly. Due to the fact that in early stages x-ray changes are not significant[1] and joint aspiration or arthroscopy is not indicated therefore patients are often put on presumptive treatment with NSAIDS regardless of the fact that the cause of the pain may not be arthritis. Because OA is present in older people and because older people complains of aches and pains an unfortunate tendency exists to blame OA for any ache or pain they have. However the pain in a patients with OA may be due to some other cause other than OA[2]. For instance, fibromyalgia has its greatest prevalence in individuals 50-75 years old, other diseases, which can begin at old age, are Rheumatoid arthritis and lupus. Leaving aside systemic conditions and focussing on a patient with a painful, obviously osteoarthritic joint, the following questions should be asked; (a) Are there soft tissue problems contributing to or explaining, the pain. (b) Does the pain have a remote origin (e.g., spinal disease causing deep pain or radicular pain? (c) Is a concurrent joint condition causing, or adding to, the symptoms e.g. a ruptured meniscus, bacterial infection, or crystal induced synovitis. (d) Mechanical factors leading to secondary stress on joint. In the knee joint two bones are required to be in better congruity taking the two menisci in between. Therefore the dynamic and static stability of the joint which is essentially maintained by joint capsules ligaments and muscles of the joint assumes the prime importance. Here the muscles play an important role in maintaining the dynamic stability of the joint. This leads us to the fact that any disturbances in the muscle torque production in between agonists and antagonists in concentric or eccentric modes are to be considered in the etiopathogenesis of knee pain with more emphasis. The patients are often diagnosed as osteoarthritis knee but they did not confirm to the ARA criteria for OA knees and no other cause of knee pain could be detected. Many of these patients take NSAIDS on regular basis with partial or temporary pain relief. These cases should be examined clinically and radiologically and isokinetic testing performed at two speeds-60 and 120 degrees. In most cases it is noticed that in all these patients there was either concentric or eccentric muscle weakness of hamstrings or quadriceps or both or there was imbalances in their muscle strength as measured by the isokinetic testing. Such patients respond to strengthening exercises based on specific torque deficiencies in the knee stabilizing muscles. Therefore keeping in view the above facts a specific knee pain protocol should be followed so as to omit an obviate the tendency for hitting with arrow in the dark.

Therefore in every knee pain we should first try to rule out all the differential diagnoses other than osteoarthris. The clinical laboratory and radiographic evaluation will help in ruling out most of the disorders. Table 1 refers to the American

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College Of Rheumatology criteria for classification and reporting of osteoarthritis of knee. Table 2 illustrates the other causes of anterior knee pain, which are to be looked for in a patient with knee pain. Investigations, which are very important, are hemogram with ESR, X-rays, Isokinetic assessment, and serum chemistry.

Here Isokinetic assessment of a patient with knee pain assumes its due importance, as it is a useful tool for assessment and quantification of exact muscle weakness and its response to exercise therapy. Unnecessary branding of osteoarthritis of a patient obviated and unnecessary long-term usage of NSAIDS avoided altogether. Procedures like joint fluid aspiration, arthroscopy and MRI are needed for very few patients in whom some specific diagnostic indication or therapeutic intervention is planned.

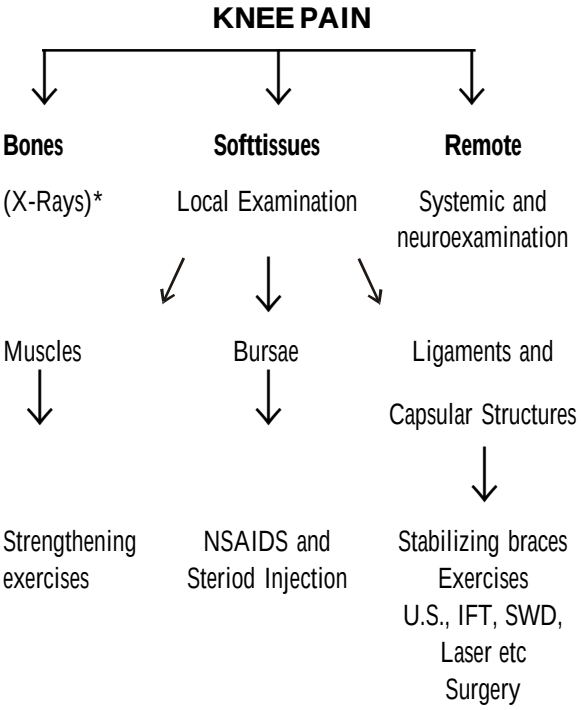
The knee pain management protocol in the alogrithm form is demonstrated in Table 1. It gives a rough guideline for the management of a patient with knee pain.

Treatment Protocol for knee pain and Osteoarthritis of knee

The primary goal of therapy are to relieve pain and maintain function. The initial approach to the patient should always include patient and family education regarding nature of disorder and prognosis.The mainstay of treatment rests on the motivation of the patient to undergo exercise regularly and to follow the suitable precautions as advised. Counseling the patient about the disease and the role of exercise needs to be emphasized. Isokinetic testing helps in documentation of amount of weakness and provides feedback for the patient if improvement is noticed. The exercises can be supervised with isokinetic dynamometer or home bound exercises can be given. After ruling out the easily treatable causes of knee pain if the patient is diagnosed as osteoarthritis then a more vigorous treatment protocol is followed.

After isokinetic assessment of the muscle torque loss the specific exercise regime as per the patient tolerances is prescribed. Abdominal and trunk muscle strength assessment and suitable exercises are also given. Weight line transmission if found faulty is corrected using knee supports and shoe wedges. Diet modification to reduce body weight assumes most important role so as to prevent the progression of the disease. Initial attempts at pain control should rely on use of safe therapies such as non narcotic analgesics (i.e acetaminophan), topical therapies (heat, cold, capsiacin cream). In patients showing no response low dose NSAIDS for pain reduction and control of inflammation in moderate doses.These are given along with gastroprotective agents. In patients who do not respond well to these conservative measures, other high dose NSAIDS and analgesic agents like propoxyphene, tramadol, or nightly tricyclic antidepressants may be given. Physical modalities like ultrasound, shortwave diathermy, microwave diathermy, interferential therapy and LASER therapy also helps in pain relief. Intraarticular steroids are given to provide pain relief and for control of inflammation. Use of anabolic steroids and antioxidant vitamins is controversial. Use of strong narcotics and oral corticosteroids should be discouraged. Intraarticular hyaluronidase[3,4] and gene therapies[5] are being tried. A variety of metalloproteinase inhibitors and chondroprotective agents are undergoing investigation in OA. Surgery is reserved for very painful deformed joints only.

Therefore from the above discussion it is implied that we should be more careful in diagnosing and treating a most common disorder like knee pain and osteoarthritis knee.



* X-Rays for evaluating bony pathology (See text)

Table 1

Alogrithm to show the various causes of knee pain and the management principles

X-Rays

X- Rays of the knee are in no way useful in diagnoses or prognosis of knee pain. The patient might have changes in joints but is asymptomatic, symptomatic patients with early OA may not have any X-ray findings suggestive of OA but on artthroscopy and bone scan may show cartilage degeneration. Prognostically also it has no role as its seen at times in presence of radiographic progression the pain may diminish owing to biologic splinting of joint by capsular fibres or restricting osteophytes.

Therefore X-Rays are useful only for exclusion of any other bony pathology.

Some frequently encountered questions are answered in the light of the available literature.

Role of Diet

Although exact association of diet with OA is not known but significant association of obesity and OA is observed. Reduction in weight reduces joint loading and hence reduces wear and tear of the cartilage.

Activity

Is activity good or bad? It is commonly encountered question faced by the physician.

Certain types of activities such as jogging and racquetball are to be discouraged. Excessive recreational activities that cause prolonged pain or joint effusion of more than two hours or additional symptoms the next day should be avoided and reduced to a tolerable level. Swimming is an excellent alternative to stay fit. Avoidance of prolonged, continuos activities in one position of the joint is the mainstay principle in prescribing activities. Adequate rest in between the activities is also stressed. Squatting and cross-legged sitting are to be avoided. Walking on plain surface for at least 3-5 km per day is a good exercise for strengthening as well as for building endurance .

NO ACTIVITY IS COUNTERPRODUCTIVE, RELATIVE REST IS THE KEY in acute phase also.

Counseling

Osteoarthritis is often not a visible illness so the patient either masks it or there is lack of understanding by others in family to the patient. This may lead to psychological stress to the patient and hence increase the problems of the patient. It is often useful to suggest to patient that the price they pay for covering up or keeping up is loss of potential support help and understanding. It may be pointed out that no matter how much others may care for the patient, they cannot read his mind. This may help the patient to decide when and where to cover up or keepup.

Another area that is less often explored is the effect of OA on sexuality and marital harmony. OA may significantly affect the sexual function and the cause may be pain, stiffness, and loss of libido. This can leads to marital unhappiness. The physician should try to initiate the discussion of sexual concerns, as the patient himself/herself may be reluctant to do so. This may often be accomplished as natural components of evaluation of daily activities task. The cause of sexual concern should be ascertained as well as what patient thinks and how the partner feels about it might improve the problem. In depth marital counseling is needed if such problems are detected.

Exercise in Osteoarthritis

Muscle strengthening exercises for quadriceps and hamstrings muscles are started in gradual manner. Initially isometeric muscle setting exercises which are of low intensity helps in promoting relaxation, increase circulation, decreases pain and spasm. Later resisted isometeric exercises at different angles are given to increase the muscle strength.These help in improving the stability during weight bearing and walking at various speeds. For advanced stage of rehabilitation isotonic exercises with the weights are started which are increased in intensity according to patient tolerance. The third type of exercises which assumes an important role in case of functional rehabilitation are isokinetic exercises which are carried out at the velocities consistent with the desired functional activity. Isokinetic exercises in higher velocity range produces maximal ,benefit with minimal joint compression. Apart from these specific exercises range of motion exercises and stretching of hamstrings and quadriceps is also important. Aerobic exercises like swimming and walking helps in maintaining the effect of exercises.

Patients with OA who are not relieved with analgesics, low dose NSAIDS, exercises thermotherapy , joint protection , footwear modification and compensation for altered biomechanics and use of cane and suffer from severe nocturnal pain should be referred for surgical evaluation.

Osteoarthritis and knee pain are the most common disorders encountered in general practice but are often casually addressed and managed. It is very important to understand the problem of the patient and to manage it in an effective and Holastic, manner. Attention to above mentioned facts can be helpful in complete management of the patients of knee pain.

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