

AAOS Clinical Guideline on Osteoarthritis of the Knee Support Document

OVERVIEW

Goals & Rationale

This clinical guideline has been created to improve patient care by outlining the appropriate information gathering and decision making processes involved in managing osteoarthritis of the knee in adults. Musculoskeletal care is provided in many different settings by many different providers. This guideline has been created as an educational tool to guide qualified physicians through a series of diagnostic and treatment decisions in an effort to improve quality and efficiency of care.

This guideline should not be construed as including all proper methods of care or excluding methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific procedure or treatment must be made by the treating physician after a full assessment of all circumstances presented by a patient, including the needs and resources of a particular locality or institution.

Scope & Organization

This document addresses the treatment of osteoarthritis of the knee in skeletally mature individuals. The increasing elderly and increasingly overweight population has resulted in an increased prevalence of osteoarthritis of the knee.

This guideline is divided into two parts. Phase I is intended to address issues faced by the **first contact physicians only**. The physician first contacted by a patient with osteoarthritis of the knee is often a family practitioner or general practitioner. Phase I addresses the treatment rendered during the first twelve weeks after a patient presents with pain due to osteoarthritis of the knee. Phase II of this guideline deals with the management of osteoarthritis of the knee by "musculoskeletal specialists". For the purpose of this guideline, a "musculoskeletal specialist" is defined as "any licensed medical doctor who has completed a resident training program focused on the management of musculoskeletal conditions, including: orthopaedists, physiatrists and rheumatologists." Phase II of the guideline generally deals with management of patients who have had pain for 12 weeks or greater, despite treatment by the first contact physician.

This guideline guides the user through the initial treatment and possible modified treatment. The flow charts end when referral to a musculoskeletal specialist is recommended or the condition stabilizes.

Methodology

Revision Panel (1999 - 2003): Greg Stocks, MD, Chairman, Doug Dennis, MD, J. Wesley Mesko, MD, John A. Cardea, MD, Charles R. Clark, MD.

Original authors (1996 - 1999): Aaron Rosenberg, MD, Chairman, Steven F. Harwin, MD, Thomas Sculco, MD, Doug Dennis, MD, Don Reilly, MD, Howard Fuchs, MD, Chuck Bush Joseph, MD, Calvin Brown, MD, Robert Barrack, MD, Ray Wasielewski, MD, and Michael Kelly, MD.

Process Overview:

The guideline was adapted from the 1996 AAOS Clinical Guideline on Knee Pain, originally developed by a multi-professional panel led by the American Academy of Orthopaedic Surgeons Task Force on Clinical Algorithms in cooperation with the AAOS Committee on Clinical Policies, the American Association of Neurological Surgeons, the American College of Physical Medicine and Rehabilitation, the American College of Rheumatology, as well as individuals in other medical specialties including family practice. The original panel or work group, with the assistance of the AAOS and various private and academic medical centers, completed a review of the relevant literature. The work group then participated in a series of meetings in which information from the literature was extracted and transformed into draft "decision trees." Information from the literature was supplemented by the consensus opinion of the work group when necessary. Multiple iterations of written review were then conducted by the participating individuals. Modifications, when supported by references from the literature, were then incorporated by the work group chairman.

The revision panel, with the help of Value Health Sciences, performed a new literature search, reviewed and graded articles, incorporating information into the guideline as appropriate. Information from the literature was supplemented by consensus. The work group members and specialty society representatives completed an objective evaluation of the 1996 Clinical Guideline on Knee Pain. These evaluations assisted the work group in focusing on the osteoarthritis diagnosis, and identifying areas of that portion of the guideline that needed expansion or revision.

The guideline will be reviewed and approved by various groups within the AAOS including the Evidence Analysis Work Group, Evidence-Based Practice Committee, Council on Research and Scientific Affairs, Board of Councilors, and Board of Directors prior to publication.

In developing this guideline the work groups made every effort to be consistent with the American Medical Association's Attribute of Practice Parameters. In brief, the guideline was developed by a physician's organization with scientific and clinical expertise and it is based on a reliable methodology that integrates science and consensus. It is comprehensive and specific, is based on current information, and will be widely disseminated.

Evaluation of Existing Guidelines: A search of MEDLINE, the National Guidelines Clearinghouse and the AMA's Clinical Practice Guidelines Directory (1999) was performed. Only one relevant guideline was located. The American College of Rheumatology Subcommittee on Osteoarthritis Guidelines: Recommendations for the medical management of Osteoarthritis of the Hip and Knee: 2000 Update, was reviewed by the work group.

Literature Review: A search of MEDLINE was performed in order to update the literature used to develop the original guideline. English language peer reviewed journals from 1990 to 2000; human studies of adults over 19 years of age were included. 128 articles were identified and reviewed.

Weighing the Evidence: All literature cited in the bibliography were reviewed and evaluated for quality according to the following categories:

- Type I Meta-analysis of multiple, well-designed controlled studies; or high power randomized, controlled clinical trial.
- Type II Well-designed experimental study; or low-power randomized, controlled clinical trial.
- Type III Well-designed, non-experimental studies such as nonrandomized, controlled single-group, pre-post, cohort, time, or matched case-control series.
- Type IV Well-designed, non-experimental studies, such as comparative and correlational descriptive and case studies.
- Type V Case reports and clinical examples

Consensus/opinion as it is used in bibliography: Articles representing expert consensus and not meeting the rigid I - V measurement are noted to represent consensus/opinion

Consensus Development: The work group participated in a series of conference calls and meetings in which information was extracted and incorporated into the original algorithm. Information from the literature was supplemented by the consensus opinion of the work group, when necessary. Multiple iterations of the guideline were then completed and reviewed by work group members. Modifications (when supported by references from the literature) were then incorporated by the work group chairman.

Strength of Recommendation: The strength of the guideline recommendations for or against an intervention was graded as follows:

- A Type I evidence or consistent findings from multiple studies of types II, III, or IV
- B Types II, III, or IV evidence and findings are generally consistent
- C Types II, III, or IV evidence, but findings are inconsistent
- D Little or no systematic empirical evidence

Revision Plans: The guideline will be reviewed in 2008.

Definition of Terms:

Musculoskeletal Specialist: Any licensed medical doctor who has completed a resident training program focused on the management of musculoskeletal conditions, including but not limited to orthopaedists, physiatrists and rheumatologists.

DIAGNOSIS

Osteoarthritis

Definition of the problem

Osteoarthritis of the knee is an increasingly common problem due to a more active society, often leading to prior knee injuries; an increasingly elderly population; and a growing percentage of the population that is overweight. Osteoarthritis of the knee should be suspected when a patient presents with knee pain that has been longstanding, increases with activity, particularly weight bearing and stairs, and improves with rest. Onset of pain and dysfunction is often insidious. Deformity, fixed contracture, crepitation and effusion are common findings. The differential diagnoses include inflammatory arthritis, bursitis or tendonitis, anterior knee pain and internal derangement.

Recommendations

For patients presenting to the first contact physician with knee pain, those with incapacitating instability, deformity or pain should be referred immediately to a musculoskeletal specialist. For the remainder, initial treatment should include activity modification and trial of an analgesic or non-steroidal anti-inflammatory medication (NSAID) (**"A" recommendation**). Acetaminophen has been shown to be as effective a pain reliever as NSAIDs in patients with OA of the knee (**"A" recommendation**). Selective COX-II inhibitors should only be used in those patients with renal or GI risk factors (**"B" recommendation**). Patients that respond well to initial treatment should be monitored. Those that use NSAIDs for 6 months should have a CBC, renal and liver function tests and a stool guaiac every 6 months (**"D" recommendation**).

Patients should be re-assessed within 1 to 4 weeks, based on the severity of the presenting problem. For patients that fail to respond to the initial treatment, or for whom pain returns, radiographs should be obtained (**"D" recommendation**). A Standing AP and a lateral view should be taken initially. A tangential view of the patella-femoral joint ("sunrise" view) and a standing PA view taken in 40° of flexion can be useful (**"B" recommendation**). Radiographic feature of OA include: narrowing of the cartilage space, marginal osteophytes, subchondral sclerosis, and beaking of the tibial spines (**"B" recommendation**). For those patients with radiographic OA, subsequent treatment should include consideration of: changing to a different NSAID (**"B" recommendation**), patient education (**"D" recommendation**), physical therapy (**"A" recommendation**), and possibly durable medical equipment (DME) (**"B" recommendation**). Patient education includes counseling about weight loss, avoidance of aggravating activities, and support groups such as the Arthritis Foundation (**"B"**

recommendation). Physical therapy should include general conditioning, muscle strengthening, particularly the quadriceps, and range of motion. DME that can reduce pain includes: assistive devices for ambulation such as a cane, appropriate and occasionally modified footwear, and bracing.

Patients should again be reassessed within 1 to 4 weeks. The final treatment intervention involves consideration of aspiration and cortisone injection (**“D” recommendation).** If the patient has an effusion and the physician is technically proficient at aspiration, the knee joint should be aspirated in a sterile manner, and the fluid sent for appropriate studies. If the synovial fluid does not show signs of hemarthrosis or infection, the knee joint should be injected with corticosteroid. If the physician is not technically proficient at arthrocentesis, or a hemarthrosis or infection is suspected or confirmed, referral to a musculoskeletal specialist is recommended. In patients without an effusion, a cortisone injection may be indicated if there are signs of inflammation such as: synovial thickening, pain that is diffuse or felt at night or rest, or improved with NSAIDs. Localized knee pain that is felt only with weight bearing is less likely to respond to cortisone injection.

Clinical Outcomes

Control of pain and maintenance of activity correlate well with satisfactory quality of life. If the patient is not satisfied with the outcome due to continued pain and limitation of activity, more aggressive intervention may be warranted. Referral to a musculoskeletal specialist is warranted.

Alternative Approaches:

Viscosupplementation (**“C” recommendation)** may have a role in the treatment of knee pain due to osteoarthritis during the initial 12 weeks in the hands of physicians technically proficient in arthrocentesis. The role of ‘Chondroprotective’ agents such as Glucosamine (GA) and Chondroitin Sulfate (CS) in treatment of osteoarthritis is not yet clear. There is a need for unbiased studies to clarify the issue.

FUTURE RESEARCH RECOMMENDATIONS

There is little scientific evidence analyzing the long-term risks and benefits of the use of corticosteroid injections into the knee for osteoarthritis. The role of GA/CS needs to be clarified with unbiased studies.

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