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A Resource for Interprofessional Providers

Osteoarthritis: An Overview

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Osteoarthritis (OA), also known as degenerative joint disease, is the most common type of arthritis and one of the fastest growing major health conditions in the U.S. OA primarily damages joint cartilage, which makes bone movement painful, and causes joint swelling and loss of motion. OA is the most frequent cause of disability among older adults.

Prevalence and Risk Factors

OA affects an estimated 27 million Americans. It can involve any joint in the body, but generally affects the knees, hips, lower back and neck, small joints of the fingers, and the base of the thumb and big toe. The lifetime risk of knee OA is 45%, and rises to 65% among obese individuals. In addition to obesity, risk factors for OA include increasing age, previous joint injury, prior joint surgery, overuse of the joint, weak muscles, and a genetic predisposition. Gender is also a factor, as women are at higher risk than men.

Symptoms

Early symptoms of OA include aches and pains in joints. These symptoms often occur after physical work or exercise. The pain can be intermittent at first, but may become more persistent over time, increase in severity, and become associated with less physically demanding activities.

Many people feel mild stiffness of short duration (<30 min) in the affected joints after getting out of bed or sitting for extended periods of time. Occasional swelling can be noted in any affected joints.

Diagnosis

Ask about symptoms such as those described above, to be sure that they are consistent with OA. Ask about treatments, how they are used, and if they are effective. Physical exam typically reveals joint tenderness and bony enlargement around joints. The exam should also evaluate for evidence of infection (red, swollen joints) and for signs of other forms of arthritis (e.g., ulnar deviation of the fingers or subcutaneous nodules that suggest rheumatoid arthritis). Plain x-rays are not always needed for diagnosis, but may be useful to assess the extent of joint damage and to exclude other conditions (e.g.,

rheumatoid arthritis, or neoplasia). Magnetic resonance imaging (MRI) can be useful to evaluate soft tissue structures such as menisci of the knee. An MRI is often obtained when surgical treatments are being considered.

Goals of Treatment

OA-associated joint damage cannot be reversed. Instead, the primary focus of current treatment is to reduce pain and improve function of the affected joints. More often than not, this is possible with one or more of the approaches to treatment shown in the table below.

Non-Pharmacologic Treatments

Weight loss and exercise are fundamental treatments for OA. For every 10 pounds of weight lost, lower extremity OA symptoms are reduced by as much as 50%.

Table 1. Approaches to Treatment of Osteoarthritis

• Non-pharmacologic Treatments
Weight loss if overweight
Rest and relief from stress on joints
Exercise
Heat or cooling
Massage
Acupuncture
Adaptive Equipment
Canes, walkers and scooters
Reachers and reaching aids
• Medications
Topical
Oral
Intra-articular
• Nutraceuticals
• Surgery

Resting joints can relieve pain temporarily, but in the long term, exercise can strengthen muscles that support joints. New evidence indicates that exercise has local anti-inflammatory properties. This decreases the force transmitted through joints and reduces pain and stiffness. Exercise should include strengthening, aerobic, and range-of-motion exercises. Some patients benefit from working with a physical or occupational therapist, or coach, when starting exercise regimens.

TIPS ABOUT DIAGNOSIS AND TREATMENT OF OSTEOARTHRITIS

- When evaluating patients with suspected osteoarthritis (OA), perform a history and physical to exclude findings that might suggest some other form of arthritis.
- Patients with OA who are overweight should be encouraged to lose weight. All patients with OA who are capable of exercise should be encouraged to participate in an exercise regimen to strengthen muscles around the affected joints.
- In addition to an exercise regimen, seek to improve a patient's OA symptoms with treatments that include medications and non-drug therapies (Table 1), and, when these are unsuccessful, consider joint replacement surgery.

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There are a number of other non-pharmacologic treatments that also can provide pain relief for patients with OA. Hot and cold application to affected joints through towels, hot packs, showers, ice packs, and other means improve blood flow and decrease inflammation, thereby providing temporary pain relief. Massage is another pain relief approach that can relax muscles and increase blood flow to painful arthritic regions. Acupuncture performed by a licensed professional has also been shown to provide pain relief and improve joint function when performed in addition to traditional treatment approaches. Therapists may also suggest ambulatory assistive devices, such as canes and walkers, to offload painful joints, reduce pain, and enhance safe mobility and quality of life. Other adaptive devices to promote independence at home, such as reachers and special kitchen utensils, are available to ease pain and facilitate daily functioning.

Medications

OA can be treated with topical and oral medications, and intra-articular injections.

Topical Medications used to treat OA include capsaicin cream, lidocaine gel, and non-steroidal anti-inflammatory drugs (NSAIDs) in topical form, most commonly diclofenac cream.

Oral Medications are also widely used, among which NSAIDs are prescribed most frequently. While NSAIDs are effective for pain relief in OA, the current Beers Criteria published by the American Geriatrics Society recommend against chronic NSAID use by older adults unless no other treatments are effective because of NSAID-associated renal and gastrointestinal side toxicity.

Some past studies suggested that acetaminophen was just as effective as NSAIDs for knee arthritis, suggesting acetaminophen may be a preferable choice if drug therapy is needed. A recent meta-analysis, however, which included 74 studies involving more than 55,000 OA patients treated with a variety of drugs concluded that acetaminophen is not an effective treatment for OA.

Several studies have shown that duloxetine is effective for treating pain related to OA, but this approach is appropriate

only for long-term therapy. The Beers Criteria recommend avoiding duloxetine in older adults who have impaired renal function.

Opioids can provide short-term pain relief but current guidelines recommend against using opioids to treat most forms of chronic pain. Furthermore, opioids increase the risk of falls and injury in older adults, and can impair cognition.

Intra-Articular Injections of corticosteroids and/or hyaluronic acid is yet another approach to treating OA. A meta-analysis of seven studies found that steroid injections provide better short-term improvement while hyaluronic acid injections provide better long-term improvement.

Nutraceuticals

A variety of supplements may be used to treat OA, including calcium, vitamin D, and omega-3 fatty acids, but data backing their effectiveness is lacking.

Glucosamine/chondroitin supplements are widely used, primarily for treatment of knee OA. Evidence is mixed regarding their effectiveness. Several individual studies show benefit in comparison to placebo, particularly for lower extremity OA, while others do not. A recent meta-analysis questioned whether glucosamine/chondroitin supplements are effective, and practice guidelines conflict on whether it is an effective treatment for OA. The only clearly positive studies of glucosamine effectiveness are based on pharmaceutical-grade glucosamine sulfate available by prescription in Europe, but not the US.

Surgery

When medical therapies fail and there is major loss of function, surgery - usually in the form of joint replacement - should be considered. Knee and hip joint replacements are widely performed, and OA is the most common reason. Age should not preclude joint replacement surgery for older adults with otherwise good functional capacity. Osteotomy or uni-compartmental arthroplasty should be considered in appropriate patients.

References and Resources

- Bannuru RR, et. al. Therapeutic Trajectory of hyaluronic acid versus corticosteroids in the treatment of knee osteoarthritis: A systematic review and meta-analysis. *Arthritis Rheum.* 2009; 61(12):1704-1711.
- da Costa BR, et. al. Effectiveness of non-steroidal anti-inflammatory drugs for the treatment of pain in knee and hip osteoarthritis: a network meta-analysis. *Lancet.* 2016; S0140-6736(16)30002-2.
- Felson DT. Clinical practice. Osteoarthritis of the knee. *N Engl J Med.* 2006;354(8):841-848.
- Henrotin Y, et. al. Is there any scientific evidence for the use of glucosamine in the management of human osteoarthritis? *Arthritis Res Ther.* 2012;14(1)201.
- Sinusas K. Osteoarthritis: diagnosis and management. *Am Fam Physician.* 2012;85(1):49-56.

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