Prescribing Therapeutic Lifestyle Changes in the Management of Osteoarthritis In Older Adults

Osteoarthritis (OA) is the most common type of arthritis, affecting approximately 27 million people in the United States. It is expected to affect 18 percent of the United States population by the year 2020. Eighty percent of those affected are older than 65. The prevalence of osteoarthritis is on the rise due in part to the growing aging and obese population. Osteoarthritis is also the leading cause of disability in the United States, with heart disease at second. Therefore, the importance of osteoarthritis prevention and care cannot be overlooked.

There are two main causes of osteoarthritis. There is the primary or genetic cause – what we are all predisposed to, depending on our genetic inheritance – as well as multiple secondary causes such as trauma, metabolic causes like hemochromatosis, anatomic causes like congenital joint malformation, leg length discrepancy and post-inflammatory causes like those related to rheumatoid arthritis. Other secondary causes include obesity and deconditioning, which will be our focus.

The main symptoms of osteoarthritis are use-related pains, which may vary daily or weekly, and often have a poor correlation to radiographs such that severe osteoarthritis on radiograph may be experienced little by the patient and vice versa; stiffness after sitting; morning stiffness less lasting than 30 minutes; and the feeling of a joint giving way or instability. Signs on examination that might indicate to you that someone may have osteoarthritis include pain upon palpation around the joint, possible swelling that is cool or only mildly warm to the touch, and crepitation of the joint upon movement.

There is no gold standard test to diagnose osteoarthritis. The labs are generally normal. The diagnosis is primarily made upon your physical exam findings and radiographs which will show signs of osteoarthritis as it progresses. These will include joint space narrowing, sclerosis of the subchondral bone, osteophytes and malalignment. Osteoarthritis is mainly thought of as a dysfunction of cartilage. Cartilage has a role primarily in joint lubrication and as a stress...
reducer of subchondral bone. It has two components: the extracellular matrix, primarily water (65 to 80 percent) and proteoglycans of which aggrecan and type II collagen are included; and chondrocytes, the primary cellular components of cartilage. The cartilage components must be maintained in a healthy balance to avoid the progression of osteoarthritis, especially the aggrecan portion of the matrix. Age slows the turnover of aggrecans, as well as inflammation and obesity.

Specifically, how can obesity lead to osteoarthritis? Adipose tissue is an active metabolic tissue producing and releasing inflammatory cytokines such as TNF-alpha, IL-6, and leptin, which can lead to insulin resistance, cardiovascular disease and elevated CRP. Leptin can also increase the synthesis of TGF beta, a stimulator of osteophyte formation. Joint replacement surgery is on the rise due to the aging population and those who need joint surgery due to obesity.

Total joint arthroplasty is more technically challenging in the obese due to the size of the patient, is associated with higher complication rates such as DVTs and deep tissue infections, is associated with slower recoveries, and possibly reduces implant survival time due the impact of increased loading pressure across the joint surface. It is important to motivate patients to move after joint replacement surgery as the new hip or knee will not in itself cause weight loss.

Pain is also increased in obese patients. An Italian study looked at 10 patients recruited each by more than 2,000 general practitioners. Pain, BMI, years of education, comorbidities, medications taken and referral to specialists were measured and recorded. They found that the knee was the most painful joint in 53.6 percent. Mean BMI was associated with developing knee OA, but obesity directly correlated with pain in all locations; therefore, obesity was positively correlated with pain. We don’t think often enough about discussing lifestyle changes with our patients, but as the prevalence of obesity is on the rise, and due to its effect on the development of osteoarthritis and chronic pain, it is important that we think about how to counsel our patients.

The American College of Rheumatology (ACR) in 2012 released guidelines on the treatment both non-pharmacologic and pharmacologic of osteoarthritis of the knee and hip. Non-
pharmacologic management of the treatment of knee OA should include participating in a land- or aquatic-based exercise program, weight loss, and self-management programs. Pharmacologic management suggestions include acetaminophen, topical and oral NSAIDs, tramadol, and intra-articular steroid injections.

The recommendations for hip osteoarthritis were similar. A similar group composed of rheumatologists, orthopedic surgeons, and therapists called the Chronic Osteoarthritis Management Initiative Work Group critically appraised all existing osteoarthritis guidelines for treatment. The group strongly recommended referring patients to self-management programs, encouraging patients to engage in low-impact aerobic exercise, joint replacement surgery if necessary, walking aids if needed, intra-articular steroid injections for hip and knee OA, and medications to include acetaminophen, oral and topical NSAIDs, tramadol, duloxetine and oral opioids if needed for long-term chronic pain in those who are not surgical candidates. Intra-articular hyaluronic acid was not strongly recommended due to the lack of data of long-term efficacy. Therefore, it seems as though self-management programs including exercise both land- and aquatic-based were highly recommended by both groups.

How good are we as physicians at prescribing the “exercise pill?” A study published this year looked at variations in physician prescribing of exercise, analgesics and imaging for musculoskeletal pain. Two groups of primary care physicians, divided by year of graduation from medical school (1970-1991 versus 1992-2002) watched two vignettes about either sciatica or osteoarthritis of the knee. Data was then collected after the physicians were able to watch the videos about what tests they would order, what medications or referrals were given, and what lifestyle modifications were recommended to the patients. The advice was matched against what was recommended in the ACR’s 2012 recommendations for knee pain and American College of Physicians and American Pain Society’s treatment recommendations for low back pain. Ninety-five percent of the physicians felt what they saw in the video was reflective of what they saw in practice; 7.3 percent noted they did not follow consensus guidelines for treatment recommendations.

Physicians that graduated between 1992 and 2002 were more likely to give advice on weight reduction, and generate a physical therapy referral for self-management (39.6 percent versus 26.0 percent); this group was also more likely to write a prescription for NSAIDs and order radiographs for symptom reduction and diagnosis (68 percent versus 52.1 percent). We have a ways to go in recommending lifestyle modification and exercise for our patients.

So what is the best exercise recommendation? A meta-analysis review of 48 studies involving knee osteoarthritis therapy regimens looked at
which was the best regimen to achieve reduction in pain and improve range of motion. A single exercise regimen with a common goal outcome was better than mixing different types of exercise within the same session. Thrice-weekly sessions are preferred to achieve the best results. Aquatic exercise is an excellent way to allow movement without weight bearing, increasing the chance that patients will continue the exercise regimen. It also can be combined with strength training to achieve better results.

How do we get started in recommending exercise and lifestyle modification for our patients with osteoarthritis? I would refer you to the following talking points when you meet with your patients.

**Ask** – Determine if the patient is addressing his or her risk of osteoarthritis (e.g., lifestyle modification for weight reduction and improving physical deconditioning).

**Advise** – Help the patient understand the risks and complications associated with arthritis, such as disability and the need for joint replacement in the future.

**Refer** – Provide regional and statewide resources (local community-based programming). They are out there. An example includes the Arthritis Foundation.

**Support** – Follow up on your prescription and praise the patient for initiating or achieving a goal.

In conclusion, osteoarthritis is often not treated until late in its course. It can lead to significant disability and joint replacement especially early in those who are physically deconditioned and obese. An earlier management strategy should be implemented for prevention. There is strong agreement among consensus groups in favor of physical activity and lifestyle modification in the management of osteoarthritis pain and disability. Physicians should facilitate a conversation with their patients using the “Ask, Advise, Refer” strategy in order to initiate change. Community-based programs are available for patients to provide guidance and support. It is up to us to lead the charge to change.

**REFERENCES**


3. Maserejian N, Fischer M, Trachtenberg F. Variations Among Primary Care Physicians in Exercise Advice, Imaging, and Analgesics for Musculoskeletal pain: Results From a Factorial Experiment: Arth Care Res 66(1) 2014 147-156