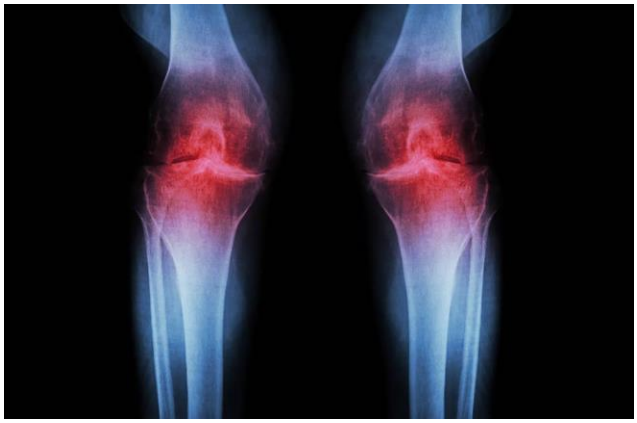
AAOS
American Academy of Orthopaedic Surgeons

Plain Language Summary

The Management of Osteoarthritis of the Knee (Surgical and Non-Surgical)



Background

This plain language summary is an overview of the non and operative management of osteoarthritis (OA) of the knee.

The knee joint is one of the largest and most complex joints in the human body. As a hinge joint, it is a type of joint that connects two or more bones and serves to allow for motion. This joint connects the thigh bone (femur) to the shin bone (tibia) and the kneecap (patella). The femur and tibia are the two main bones that make up this joint, with the kneecap resting in front of the joint. The ends of both bones are covered with a layer of smooth flexible tissue that lines the joints (cartilage) which helps to reduce friction and absorb shock during movement. Arthritis is a result of the loss of cartilage leading to the exposure of the rough ends of each of the bone surfaces. This exposure causes pain when bearing weight and, often, even when at rest.

What are risk factors for osteoarthritis of the knee?

The exact cause of OA is not known. However, certain risk factors, such as age, gender, obesity, previous injury, and genetics are known to be associated with OA. OA becomes more common as people age, particularly in those over the age of 50. Women are more likely to develop knee OA than men. Being overweight or obese can increase the risk of developing OA of the knee. People who have had a previous knee injury and/or surgery are more likely to develop knee OA. There is some evidence to suggest that certain genetic factors may increase the risk of developing knee OA. It is important to note that having one or more of these risk factors does not necessarily mean that a person will develop knee OA.

What are treatment options for osteoarthritis of the knee?

Treatment for knee OA should start with self-managed approaches like home exercise, weight loss, and appropriate use of medication like non-steroidal anti-inflammatory drugs (NSAIDs), which can be used topically, or used orally, and pain relievers such as acetaminophen. Patients should be careful about the adverse reactions of long-term use of NSAIDs and check periodically with their clinicians. Supervised or unsupervised exercises or water exercises are recommended for the management of OA of the knee. Moderate evidence states that using a cane can be very helpful in improving the pain and function in patients with OA of the knee, and also shows that steroid (corticosteroid) injections into the knee can provide short-term relief. Moderate evidence also shows that hyaluronic acid is not recommended to treat OA of the knee. Likewise, strong evidence states that lateral wedge insoles also are not recommended for patients with knee OA.

Strong evidence states that oral narcotics, including tramadol, result in the significant increase of adverse events and are not effective at improving pain or function for treatment of OA of the knee. Popular interventions like laser, acupuncture, massage, manual therapy, platelet rich plasma (PRP), denervation therapy, and dry needling have very limited scientific support that they help with knee OA.

What is done to prepare for surgery?

To prepare for surgery, patients should first reach out to family or friends for help, as driving is not

recommended for the first 2 to 3 weeks following surgery. Patients should discuss their risk factors and address them with their physician prior to surgery for a better overall outcome. Strong evidence shows that factors such as diabetes, and an increased body mass index (=40), may increase the risk of complications, and postoperative patient outcomes, and every effort should be made to reduce weight and lower blood sugar levels prior to surgery. Patients should also consult with their primary care physician and other specialists, if needed. In most cases, blood thinners should be discontinued prior to surgery. Blood hemoglobin levels should be at 12 or above. Moderate evidence also shows that patients should stop using preoperative opioid pain relievers as these can lead to increased pain scores and post operative complications. A consensus recommendation states that patients should quit smoking prior to surgery, as smoking may result in complications, lower functional post-surgery scores, and a higher increase for post-surgical site infections.

Surgical treatment

When non-operative treatments, such as exercise and NSAIDs fail to provide adequate relief and patients continue to have pain and difficulty with activities of daily life, surgical treatment should be considered.

Based on the patient's condition, a partial or total knee replacement could be considered. Artificial knee components can be implanted on the bone with or without cement (glue). A combination of medication (pain cocktail) should be injected around the nerve to reduce pain after surgery. Tranexamic acid is a medication which reduces blood loss during surgery and should be used before and after surgery to reduce blood loss and therefore reduce the chances of needing a blood transfusion.

Strong evidence shows that there is no difference in patient reported outcomes whether the kneecap (patella) has or has not been resurfaced with a plastic liner.

Knee replacements using robotic technology have not shown significant benefit in the short-term while long-term benefit has not yet been proven. Similarly, knee replacements using Patient Specific Technology or Navigation systems have also not been shown to improve surgical outcome scores.

What to expect following surgical treatment for osteoarthritis of the knee?

After surgery, patients are expected to get up and move as soon as possible as early movement lowers the chances of developing a blood clot. Most patients will need some form of blood thinner to avoid blood clots. Early mobilization and aspirin are very effective in reducing blood clots. However, a few patients may need more aggressive blood thinners to reduce the chance of clotting. Several pain control strategies involving a combination of medicine-like opioids and NSAIDs are very effective. A nerve block, that includes pain reducing medication significantly reduces pain. Additionally, compression stockings may also be prescribed. Post-operatively, a discharged to home, with or without home services, is associated with fewer adverse events as compared to a discharge to an acute rehabilitation facility or skilled nursing facility.

This summary was written by the Committee on Healthcare Safety.

Learn more about the Committee's work HERE.