The Degenerative Joint Disease

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Therapeutic Approaches to Management of Osteoarthritis

Osteoarthritis is the most common form of arthritis and one of the leading causes of pain and disability worldwide. Knees, hips and small hand joints as well as the spine are most commonly affected. Osteoarthritis is a metabolically active repair process that takes place in all joint tissues and involves localised loss of cartilage and remodelling of adjacent bone. A variety of joint traumas may trigger the need to repair. In some people, either because of overwhelming trauma or compromised repair potential, the process cannot compensate, resulting in continuing tissue damage and eventual presentation with symptomatic osteoarthritis or 'joint failure'. This explains the extreme variability in clinical presentation and outcome that can be observed between patients and also at different joints in the same patient.

Patient Education

Accurate information to dispel myths and misconceptions are important for patients to understand the condition and its management, as well as the reassurance that many traditional practices are relatively harmless and can be continued together with current medical practices.

Patient Self-Management Interventions

Positive behavioural changes, such as exercise, weight loss, use of suitable footwear and pacing, should be appropriately targeted.

Exercise and manual therapy

Exercise usually does not aggravate osteoarthritis when performed at levels that do not cause joint pain. Exercise is helpful in osteoarthritis in several ways. First, it strengthens the muscular support around the joints. It also prevents the joints from "freezing up" and improves and maintains joint mobility. Finally, it helps with weight reduction and promotes endurance.

Weight loss

Aside from weight reduction and avoiding activities that exert excessive stress on the joint cartilage, there is no specific treatment to halt cartilage degeneration or to repair damaged cartilage in osteoarthritis. The goal of treatment in osteoarthritis is to reduce joint pain and inflammation while improving and maintaining joint function. Some patients with osteoarthritis have minimal or no pain, and may not need treatment. Others may benefit from conservative measures such as rest, exercise, weight reduction, physical and occupational therapy, and mechanical support devices. These measures are particularly important when large, weight-bearing joints are involved, such as the hips or knees. In fact, even modest weight reduction can help to decrease symptoms of osteoarthritis of the large joints, such as the knees and hips. Swimming is particularly suited for patients with osteoarthritis because it allows patients to exercise with minimal impact stress to the joints. Other popular exercises include walking, stationary cycling, and light weight training.

Although this is particularly difficult in many patients, weight loss must be emphasised strongly in every patient regardless of age and symptoms pre- or post-surgical intervention.

Physiotherapy

Useful modalities used by physiotherapist in co-managing pain in osteoarthritis include transcutaneous electrical nerve stimulation (TENS), interferential, ultrasound and extracorporeal shock wave therapy (ESWT), as well as heat and cold compress where appropriate.

Aids and devices

Appropriate footwear is very important for people with lower limb osteoarthritis. People with osteoarthritis who have biomechanical joint pain or instability should be considered for assessment for bracing/joint supports/insoles as an adjunct to their core treatment.

Assistive devices (eg, walking sticks and tap turners) should be considered as adjuncts to core treatment for people with osteoarthritis who have specific

problems with activities of daily living.

AposTherapy non-surgical medical treatment can reduce pain and restore function by walking with customised shoewear. Personally calibrated for each patient, the APOS system consists of infinitely adjustable, convex Pertupods™ that are attached to the base of the shoe. Set below the weight-bearing heel and forefoot, the best fit Pertupod™ model and their precise location to achieve the desired alignment is selected for each patient. By individually calibrating the Pertupods™ to alter the feet's point of contact with the ground, the APOS system re-adjusts the distribution of the body's weight away from damaged areas with the aim of reducing pain.

Food supplements

Patients taking blood-thinners should be careful taking chondroitin as it can increase the blood-thinning and cause excessive bleeding. Fish oil supplements have been shown to have some anti-inflammatory properties and increasing the dietary fish intake and/or fish oil capsules (omega-3 capsules) can sometimes reduce inflammation of arthritis.

The preservation of good bone stock by the judicious use of calcium and vitamin D replacements are useful for the long term. The use of bisphosphonates may also be considered.

Pharmacological Management of Osteoarthritis

Medications are used to complement the physical measures described above. Medication may be used topically, taken orally, or injected into the joints to decrease joint inflammation and pain. When conservative measures fail to control pain and improve joint function, surgery can be considered.

Oral analgesics

Paracetamol is often recommended for pain relief in addition to core treatment. Regular dosing may be required. Paracetamol and/or topical non-steroidal anti-inflammatory drugs (NSAIDs) should be considered ahead of oral NSAIDs, cyclo-oxygenase 2 (COX-2) inhibitors or opioids.

If paracetamol or topical NSAIDs are insufficient for pain relief for people with osteoarthritis, then the addition of opioid analgesics should be considered. Risks and benefits should be considered, particularly in elderly people. If a person with osteoarthritis needs to take low-dose aspirin, consider other analgesics before substituting or adding an NSAID or COX-2 inhibitor (with a proton pump inhibitor, PPI) if pain relief is ineffective or insufficient.

Topical treatments

Topical NSAIDs for pain relief can be considered in addition to core treatment for people with knee or hand osteoarthritis.

All oral NSAIDs/COX-2 inhibitors have analgesic effects of a similar magnitude but vary in their potential gastrointestinal, liver and cardio-renal toxicity.

Intra-articular injections

Intra-articular corticosteroid injections should be considered as an adjunct to treatment for the relief of moderate to severe pain in people with osteoarthritis. A series of injections of hyaluronic acid (Synvisc, Hyalgan) into the joint can sometimes be helpful, especially if surgery is not being considered. These products seem to work by temporarily restoring the thickness of the joint fluid, allowing better joint lubrication and impact capability, and perhaps by directly affecting pain receptors.

Referral Criteria for Surgery

Surgery is generally reserved for those patients with osteoarthritis that is particularly severe and unresponsive to the conservative treatments. Arthroscopy can be helpful when cartilage tears and for definite mechanical locking symptoms. Realignment osteotomy is helpful to realign the joint in selected patients, usually those who has genu varum (bow legs) but with reasonable preservation of the joint space and function. In some cases, severely degenerated joints are best treated by fusion (arthrodesis) or replacement with an artificial joint (arthroplasty). Total hip and total knee replacement surgery can bring dramatic pain relief and improved function. MD

Dr Francis Wong completed two years of surgical traineeship and attained FRCS (Edinburgh) and FRCS (Glasgow) and trained at London and Cambridge under the government HMDP programme specialising in Paediatric Orthopaedic Surgery and Knee and Adult Reconstruction Surgery. Dr Wong has special interest in paediatric orthopaedics, as well as adult trauma, reconstructive procedures and joint replacements. Dr Wong is currently a Specialist Orthopaedic Surgeon at Orthopaedics International, www.ortho-intl.com.