MUSCULOSKELETAL PAIN
IASP Special Interest Group

FACT SHEET

Surgical Techniques for Joint Pain

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Joint pain can be caused by various factors, including arthritis, injuries, or degenerative conditions. When conservative treatments, such as medication, physical therapy, and lifestyle modifications, fail to alleviate all pain, surgical intervention may also be considered. The commonest surgical techniques used to address joint pain are:

Arthroscopic Surgery

Arthroscopic surgery, also known as arthroscopy, is a minimally invasive procedure that allows surgeons to visualize, diagnose, and treat joint problems. This technique is commonly used for the knees, shoulders, hips, and ankles.

Knee Arthroscopy

Meniscal tear morphology independently affects pain relief following arthroscopic partial meniscectomy (removal of the torn portion of the meniscus) in patients over the age of 50 years. Middle-aged patients with radial tears of the medial meniscus (odds ratio (OR) 4.1, 95% confidence interval (CI) (1.1-20.9)) benefit the most terms of pain reduction after arthroscopic knee surgery.[1] Arthroscopic meniscal repair combined with anterior cruciate ligament reconstruction has been shown to significantly improve Knee Injury and Osteoarthritis Outcome scores (KOOS) pain scores with improvement from 72.2 at baseline compared to 91.7 and 94.4 two and six years following surgery.[2]

Shoulder Arthroscopy

Recent evidence from the 'Can Shoulder Arthroscopy Work' trial (CSAW) has shown that arthroscopic subacromial decompression surgery for shoulder impingement symptoms (allowing more space for the rotator cuff tendons to move underneath) has no significant benefit over physiotherapy.[3] Arthroscopic removal of painful loose bodies associated with synovial chondromatosis of the shoulder is a successful surgical treatment in 70.8% of patients with only a 14.7% recurrence risk.[4] A meta-analysis on the combined effects of return to activities in 1,065 patients undergoing arthroscopic rotator cuff repair demonstrated the combined return to activities (including return to work, sport and daily activities) using the random effects model to be 88.5%.[5]

Osteotomy

An osteotomy is a surgical procedure in which a bone is cut and repositioned to realign the joints including knees, hips, ankles, and elbows etc. Among them, high tibial osteotomy (HTO) is a well-established joint preservation surgical option in patients with medial compartment knee osteoarthritis and varus malalignment, which aims to realign the mechanical axis and offload the medial compartment with the overall goal of reducing pain, improving knee function, and delaying the progression of end stage osteoarthritis.[6] There are two main approaches a medial open wedge or a lateral closing wedge HTO. Medial open wedge HTO has gained increased popularity in recent years as it is less surgical demanding and allows more accurate and precise corrections to be performed in the sagittal and coronal planes. A recent 20-year outcome study after HTO has shown 97% patient satisfaction with 88% of those patients willing to have the same surgery again for medial compartment osteoarthritis pain.[7]

Unicompartmental Knee Replacement

Unicompartmental knee replacement (UKR), is a surgical procedure that is typically recommended for patients with isolated osteoarthritis or other degenerative conditions affecting a single compartment of the knee. Compared to total knee replacement, UKR preserves bone, cartilage and the anterior cruciate ligament thereby leading to better range of motion, improved post operative pain and a faster recovery. A systematic review involving two studies (397 UKR and 423 TKR patients pooling postoperative pain data) demonstrated significant benefit favouring UKR over TKR for 5-years postoperative pain relief (weighted mean difference= 8.91 mm on a 100-mm VAS) [8].

Total Joint Replacement

Total joint replacement is a surgical procedure that is commonly performed to alleviate severe pain and restore the functionality of the joints including knees, hips, shoulders, elbows, and ankles etc. This procedure is typically recommended for individuals who suffer from advanced osteoarthritis, rheumatoid arthritis, or other degenerative joint conditions that have not responded to conservative treatments such as medication, physical therapy, or lifestyle modifications. Total knee replacement (TKR) and total hip replacement (THR) are most common procedures. During a total joint replacement surgery, the damaged portions of the joint, including the cartilage and bone, are removed and replaced with artificial components made of metal alloys, high-grade plastics, and sometimes ceramic materials. These prosthetic components are designed to mimic the natural movement and function of the joint while reducing pain and improving mobility.

One of the primary benefits of a total joint replacement is significant pain relief. By replacing the damaged joint surfaces with smooth, artificial components, the surgery can effectively eliminate the pain caused by bone-on-bone contact and joint inflammation. Patients often report a remarkable reduction in their pain levels, allowing them to engage in daily activities with greater ease and comfort. However, it is still concerning that up to 20% of patients still report significant knee and hip pain after TKR and THR despite objective measures of surgical success. Recent studies have demonstrated that preoperative pain sensitization, pain catastrophizing personality traits and postoperative synovitis may contribute to this continuous pain state after surgery.[9]

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