

Total Hip or Knee Replacement in Patients with Chronic Pain

Daniel J. Del Gaizo

Patients with advanced degenerative joint disease of the hip or knee often experience chronic pain that can be effectively treated with joint replacement surgery. Joint replacement surgery remains beneficial even if patients have concurrent extrinsic pain or they are taking narcotics long term, although these groups are at higher risk for persistent pain and for dissatisfaction with their surgical results.

Advanced degenerative joint disease (DJD) of the hip or knee is most commonly associated with severe wear of the articular cartilage of the affected joint. Advanced DJD is also often accompanied by bone wear, bone loss, synovial and soft tissue inflammation, intra-articular effusion, capsular and ligament contractures, and altered joint mechanics. Pain in patients with advanced DJD has multiple causes, including nerve irritation of exposed subchondral bone, inflamed intra-articular pain receptors, the presence of an effusion creating elevated intra-articular pressure, and increased strain on muscles and ligaments.

Although some nonsurgical interventions may help to reduce the effusion and inflammation associated with advanced DJD of the hip or knee, the structural damage caused by the disease is permanent, and no nonsurgical intervention has been proven to reverse its course [1]. Because advanced DJD is almost always progressive, with increasing structural damage occurring over time, patients often experience chronic pain that progresses in severity.

Joint replacement surgery can reliably relieve pain by restoring more normal joint mechanics and by resurfacing the worn cartilage and bone with well-fixed prosthetic implants. In many large studies, more than 90% of patients report being satisfied with the results of hip or knee arthroplasty [2, 3]. Many patients who have recovered from a hip or knee replacement procedure report that they no longer experience any pain. Among those who do continue to have pain, most report that their symptoms have improved markedly compared with their preoperative status.

Many variables can affect how quickly patients recover from hip or knee replacement surgery. These include but are not limited to the severity of the preoperative disease, the patient's level of preoperative conditioning, and the surgical approach. In general, the recovery period appears to be slightly longer for a knee replacement than for a hip replace-

ment. In my practice, we inform patients that most people who undergo a hip or knee replacement will be about 80% recovered by 6 weeks after surgery and that, in our experience, complete recovery can be expected by 1 year after surgery.

Postoperative Pain Control and Use of Narcotics

While the dose and duration of use will vary, many patients require narcotic pain medications for a period of time after hip or knee replacement surgery. These medications not only provide pain relief but also facilitate postoperative rehabilitation by allowing patients to work through discomfort and to meet their rehabilitation goals. In the setting of knee replacement surgery, in particular, it is crucial that patients obtain the desired range of motion before permanent arthrofibrosis is established. Although postoperative narcotics are often necessary, even appropriate use of these agents carries risks of adverse effects, which can include nausea, confusion, constipation, urinary retention, respiratory depression, and/or substance dependence.

My colleagues and I minimize the need for narcotics in several ways. First, we use less invasive surgical techniques in order to minimize soft tissue damage and to decrease the corresponding pain response. Second, we have developed a multimodal pain-control protocol. By targeting the pain pathway at multiple locations, we minimize both pain and potential medication-induced adverse effects. In addition to receiving narcotics, patients are often provided with some form of regional anesthesia for the first 2 nights after a knee replacement; for example, a femoral nerve block can be accomplished by continuously infusing ropivacaine through an indwelling catheter [4]. Nonsteroidal anti-inflammatory agents are also used to address inflammation and swelling, and acetaminophen is used for its central-acting modulation of pain. Finally, ice and compression dressings are used routinely, as they have been shown to significantly reduce postoperative pain after knee replacement surgery.

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Patients are encouraged to wean themselves from narcotics as soon as they can do so without compromising their ability to achieve rehabilitative milestones. The vast majority of our patients who undergo elective primary hip or knee replacement require no narcotic pain medication by 6 weeks after surgery. I counsel all of my patients before surgery that I will not prescribe narcotic pain medications for longer than 3 months unless there is an identified problem with the joint replacement.

If 3 months have passed since the hip or knee replacement surgery was performed and a patient continues to have pain that necessitates the use of narcotic pain medications, there is a significant chance that something is wrong with the joint replacement [5, 6]. Possible causes of such pain include infection, hematoma, loose components, malpositioned components, and fracture. It is imperative that an orthopedic surgeon rule out these possibilities. Once that has been done, the patient should be evaluated for extrinsic causes of pain, such as referred pain from another degenerative joint or the spine. If no extrinsic causes are found, then clinicians should entertain the possibility of myofascial etiologies, such as complex regional pain syndrome or exacerbation of fibromyalgia.

Hip or Knee Replacement in Patients with Concomitant Chronic Pain from Another Cause

Hip or knee replacement surgery can be beneficial even in patients who have concomitant chronic pain related to other etiologies, such as fibromyalgia or chronic back pain. However, such patients may be at increased risk for persistent pain after the surgery, and they are more likely to be dissatisfied with the surgical result. Bican and colleagues [7] compared the results of total knee replacement in patients with and without fibromyalgia. They found that patients with fibromyalgia were less satisfied with their knee replacement and had lower postoperative functional scores [7]. However, patients with fibromyalgia still experienced significant improvement compared to their preoperative status. Indeed, their degree of improvement was similar to that of the control group; they simply started at a lower level preoperatively. The authors concluded that fibromyalgia should not be considered a contraindication to joint replacement surgery, although patients with fibromyalgia should be counseled about their increased risk of being dissatisfied with the results of the surgery.

D'Appuzo and colleagues [8] evaluated the results of 110 patients with fibromyalgia who had undergone knee replacement surgery. After a mean follow-up period of 7 years, patients reported a high incidence of persistent knee pain (44%), and there was a relatively high revision rate (6%). Of patients who continued to have some degree of knee pain after surgery, 48% had mild pain, 29% had moderate pain, and less than 1% had severe pain; pain levels were unknown in the remaining patients. While pain was not totally alleviated in these cases, overall pain severity was

markedly improved for 82% of patients, and 82% of patients were satisfied with the results of their surgery. Although most joint replacement surgeons would consider these outcomes to be inferior to those of standard total knee arthroplasty, these results are still acceptable.

Long-Term Use of Narcotics Before Hip or Knee Replacement Surgery

Long-term use of narcotic pain medications before hip or knee replacement surgery increases the risk that patients will have a more difficult recovery, a higher complication rate, and lower overall satisfaction with the results of the procedure. This was demonstrated in a recent study by Zywiell and colleagues [9], which looked at the outcomes of knee replacement surgery in a cohort of 49 patients with a history of long-term preoperative opioid use. In addition to having lower functional scores and lower satisfaction scores, these patients had a relatively high rate of revision (16%) for persistent stiffness or pain.

Franklin and colleagues [10] used a national database of prescriptions to evaluate the use of narcotic pain medications in patients who had undergone knee replacement for unilateral knee DJD. Only 3% of patients who had not been taking narcotics before surgery required these drugs 1 year after surgery, whereas 14% of patients who had been taking narcotics prior to surgery were still taking them 1 year afterward.

I believe that the majority of patients with advanced DJD of the hip or knee should not be treated with narcotic pain medications. The chronic and progressive nature of the disease places these patients at risk for dependency; as noted previously, use of narcotics prior to hip or knee replacement may also place patients at risk for complications or suboptimal outcomes. Patients with advanced DJD of the hip or knee with pain that necessitates the use of narcotic medications should be promptly referred to an orthopedic surgeon who can evaluate them for hip or knee replacement.

Conclusion

Advanced DJD of the hip or knee can result in chronic pain. In many patients this pain can be effectively treated with hip or knee replacement surgery. Although some patients may continue to have pain after the surgery, the majority of these patients are still significantly improved compared with their preoperative status. Patients with chronic pain and comorbid conditions such as fibromyalgia can also benefit from hip or knee replacement surgery, but they are at higher risk for persistent pain and/or dissatisfaction with their surgical result. Finally, patients who have been taking narcotic pain medications long term before undergoing surgery are at increased risk for complications, persistent pain, and dissatisfaction with the results of hip or knee replacement. NCMJ

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