



A Comprehensive Approach to Outpatient Total Hip Arthroplasty

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Abstract

Minimally invasive surgery (MIS) techniques for total hip arthroplasty (THA) have the potential for reduced tissue trauma, leading to more rapid recovery and return to function than with traditional approaches to THA. However, to achieve these potential benefits, all other aspects of patient care need to be modernized. Development and implementation of these newer anesthetic and rehabilitation protocols allow MIS-THA to be done safely on an outpatient basis in select patients.

Total hip arthroplasty (THA) is one of the most successful procedures in orthopedics, with uniformly excellent 10-year survival rates, more than 90% in most studies. More recently, however, minimally invasive surgery (MIS) techniques have been developed in an effort to diminish the effects of intraoperative trauma on postoperative function and recovery. MIS posterolateral, MIS anterolateral, MIS Watson-Jones, MIS Smith-Peterson, and MIS 2-incision THAs are examples of this trend.

As MIS hip techniques improve, other aspects of patient care need to be modernized to accommodate the potential rapid recovery and shortened length of hospital stay. At our institution, outpatient THA, is performed daily; patients are discharged home on only oral pain medications with outpatient therapy. However, successful management of patients undergoing outpatient MIS-THA requires organized perioperative protocols that expeditiously optimize care. The goal of these protocols is to educate patients with appropriate expectations and effectively manage their perioperative care, minimizing undesired symptoms that can delay recovery.

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Preoperative Care

A significant aspect of preoperative education involves giving the patient appropriate goals and expectations. At our institution, a preoperative group class is conducted a few weeks before surgery. A member of the clinical support staff conducts the class, reviewing the various aspects of the operative experience in chronological order. In addition, postoperative goals and expectations are emphasized. Particular attention is given to the hospital stay and the requirements for successful discharge home. It is clearly explained that the success of outpatient THA depends on quick completion of functional and symptomatic goals after surgery.

Pain control strategies, both in the hospital and after discharge, are the main focus of the preoperative educational class. A combination of oral pain medications is used for optimal therapeutic efficacy. We generally use a combination of oxycodone controlled-release tablets, hydrocodone bitartrate and acetaminophen tablets, celecoxib tablets, and a laxative/stool softener.

Details of physical therapy are also emphasized in this class. Before surgery, patients are instructed to practice skills such as bed transfer, cane use, and gait training. They are also encouraged to choose an outpatient facility and to arrange for initiation of therapy 1 week after surgery.

Finally, before patients leave the preoperative class, expectations are reviewed, and potential problems are discussed so that patients understand what normally happens after surgery. It is hoped that, by the end of this class, patients will have a defined set of goals and expectations for their surgery, medications, and rehabilitation.

Immediate Perioperative Period

It is helpful to begin outpatient arthroplasty surgery in the morning to allow time to achieve the goals for same-day discharge. The main perioperative goals are prevention and prompt treatment of pain, nausea, and hypovolemia. It is better to manage these issues by providing the proper medications and fluids before symptoms arise.

On the morning of surgery, patients are prescribed oxycodone 10 mg and celecoxib 400 mg. This premedication establishes a basal blood-level of narcotic and anti-inflammatory medication that will significantly aid the patient with postoperative pain.

Choice of anesthesia for outpatient arthroplasty varies according to surgeon, anesthesiologist, and institution. We prefer an epidural anesthetic, which minimizes postoperative symptoms without compromising intraoperative pain relief, for patients undergoing outpatient MIS. Midazolam is given for sedation before the start of the epidural; straight bupivacaine is used as the active agent. Propofol is used for intraoperative sedation. To avoid the detrimental side effects of nausea, hypotension, and malaise, we restrict narcotic use during the perioperative period.

Perioperative medication is also used to prevent nausea. Ondansetron 4 mg IV, metoclopramide 10 mg IV, and famotidine 20 mg IV are administered intraoperatively by the anesthesiologist to minimize postoperative nausea. For prevention of hypovolemia and anemia, the patient's autologous donated blood (if available) is transfused intraoperatively. In addition, the anesthesiologist aggressively manages fluid balance.

As soon as the patient is awake and can tolerate oral medications, oxycodone 20 mg is given. The epidural is then typically continued for approximately 2 hours after the oral agents are started. If a patient has significant postoperative pain, ketorolac can be safely administered. The patient is managed in the postoperative care unit until medically stable and ready for transfer to the floor.

Once on the surgical unit, patients should progress rapidly and satisfy therapy and discharge criteria within a few hours. A set of protocols is followed to consistently facilitate transition to oral medications, progression to solid food, and completion of therapy goals. About 2 hours after surgery, the patient receives lunch, the epidural and Foley catheter are discontinued, and the transition to oral pain medication is carried out.

Physical therapy is usually initiated 3 to 4 hours after surgery, soon after patients reach the surgical unit and are assessed for nausea and hypotension. Patients are asked to sit at the edge of the bed. If no symptoms are present, gait is initiated with the most appropriate assistive device, at the discretion of the physical therapist. If nausea or hypotension is present, it is quickly treated. Patients then ambulate approximately 150 feet and ascend and descend a flight of stairs, first with and then without an assistive device. Only when patients appropriately complete these activities and are medically stable are they cleared for discharge.

Postoperative Protocol

After discharge home, patients are to follow the clearly delineated plan of care that had been explained in the

preoperative class. Their pain is managed with long- and short-acting narcotics, as described earlier, and they are encouraged to weight-bear as tolerated immediately after surgery. Any method of anticoagulation therapy described in the American Academy of Orthopaedic Surgeons guidelines can be integrated as part of this rapid recovery protocol.

Home health physical therapy begins immediately, with an emphasis on ambulation. In addition, patients are allowed to progress off their assistive device as soon as they are able and at the physical therapist's discretion. Hip precautions are not instituted. Last, patients are encouraged to return to recreational activities, such as golf and biking, as soon as possible.

Patients are seen back in the office for follow-up within 1 week of surgery. By that point, they usually are ready to begin outpatient physical therapy and are off their assistive devices. Length of therapy depends on when patients meet all of their goals. Last, they must discontinue narcotics before returning to driving, usually within 1 week.

Use of This Comprehensive Pathway

In an unpublished prospective study of 200 consecutive patients, primary THA was performed as the first case of the day, and a 2-incision MIS approach was used: 1 incision for preparation and placement of the acetabular component and 1 for preparation and placement of the femoral component. These 2 incisions allow preparation and placement of the components through intermuscular planes without transecting any muscle or tendon. A comprehensive perioperative management pathway was implemented, as described earlier. Only when standard discharge criteria were met on day of surgery was the patient allowed the option of being discharged home on day of surgery.

In this select group of 200 patients, using this protocol with MIS-THA, 192 (96%) were discharged home on day of surgery. After discharge, there were no readmissions for acute pain, nausea, or hypotension. There was 1 readmission at 10 weeks for a traumatic periprosthetic fracture.

Conclusion

MIS techniques for THA have the potential for reduced tissue trauma, leading to more rapid recovery and return to function than with traditional approaches to THA. However, to achieve these potential benefits, all other aspects of patient care need to be modernized. Development and implementation of these newer anesthetic and rehabilitation protocols allow MIS-THA to be performed safely on an outpatient basis in select patients.

Author's Disclosure Statement

Dr. Berger wishes to note he is a consultant for Zimmer, Inc.