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Review Article

A Trend to Watch: The Migration of Total Joint Replacement to Outpatient Surgery

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In this comprehensive analysis, Dr. Michael Ast reviews key aspects of successfully performing total joint replacement in the outpatient setting. Topics include hurdles to adoption, the impact of COVID-19, and the value of the proper partner in your endeavor.

Total joint replacement (TJR) has two main goals: to relieve pain and to restore deteriorated function most commonly associated with arthritis. While the ability of joint replacement to relieve pain and restore function has remained largely unchanged since the 1970s, implants are now markedly better than they used to be, and the technology aiding in the procedure has starkly improved as well. In addition to better implants and technology, one of the most significant recent changes is the ability of TJR to be performed in outpatient settings rather than traditional hospitals.

TJR surgeries have been migrating out of the hospital setting gradually over the past few decades alongside an improved understanding of patient selection and the risks and benefits of outpatient surgery for TJR. Outpatient joint replacement has been shown to have a higher rate of patient satisfaction (Kelly et al. 2018), equivalent or lower rate of complications (Sershon et al. 2019) and a high level of surgeon satisfaction. It is also incredibly beneficial to the healthcare system in general because of its lower cost, both for the initial procedure and the potentially reduced incidence of complications.

Given the current trend towards increased outpatient joint replacement, what barriers have prevented these migrations from happening sooner, and what is driving the change in the current landscape?

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[a] Dr. Ast is fellowship trained in Adult Reconstruction and Joint Replacement Surgery from HSS. His primary specialty focus is rapid-recovery, short-stay and outpatient joint replacement surgery. Before returning to HSS, he previously developed and directed one of the largest and most successful outpatient joint replacement programs in the northeast. He also has both clinical and teaching expertise in the use of robotics and computer assistance in joint replacement surgery, and was the director of robotic and computer assisted surgery at a major university institution in New Jersey.

Dr. Ast also specializes in primary, complex and revision total joint replacement. His training includes minimally invasive hip and knee replacement, partial knee replacement, robotic surgery and computer assisted surgery. Dr. Ast has extensive experience with and has published research on patient-specific instruments and implants. During his studies, he published numerous articles and chapters in peer-reviewed journals and internationally distributed textbooks, including several chapters on "Approaches for Hip Replacement Surgery." He has also presented clinical and basic science research both nationally and internationally.

Dr. Ast grew up in Staten Island, New York, and attended Temple University, where he graduated Magna Cum Laude in Biology and Phi Beta Kappa. He completed his Medical Degree at Temple University School of Medicine and returned to New York for his residency training in orthopedic surgery at North Shore-Long Island Jewish Medical Center. Dr. Ast was a Division I gymnast at Temple University and captain of the conference champions and top ten nationally ranked team in 2003. He is married with two children, and enjoys his time playing tennis, golf, fishing, skiing and traveling.

Conflicts of Interest Statement for Dr. Ast

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HURDLES TO ADOPTION

It is important to note when discussing migration that the industry as a whole has been slow to adopt TJR in an outpatient setting for two primary reasons.

First, in the early 2000s, patients were still largely being treated with opioids after surgery, and since opioid medications have tremendous amounts of side effects, patients were often unable to undergo rehabilitation during the first few days following a procedure. Patients typically experienced a significant amount of pain during the early perioperative period, which made it difficult to perform tasks necessary to be discharged in a timely fashion. This resulted in longer stays at the hospital for recovery purposes. There had not yet been a significant use of alternative medications or multimodal analgesia, a method of using multiple different classes of analgesics in order to relieve pain with far more tolerable and less limiting side effects.

Second, two decades ago the blood transfusion rate after primary elective joint replacement was almost 25%. Transfusions are not typically possible at an ambulatory surgery center (ASC), since many centers have strict policies stating that blood and blood products will not be administered, and that patients will be transferred to a more appropriate facility in the event that an emergency transfusion is required.

Given that there had not yet been advances in pain management and blood management, the past was not as outpatient friendly as it is today.

Fast forward to the present: almost all joint replacement surgeons in the United States utilize some type of multimodal analgesia with local anesthetics, anti-inflammatories and other opioid alternatives. Most have eliminated the use of IV opioids, which carry the highest risk of perioperative side effects. With less significant pain levels following surgery, patients are able to walk and begin rehabilitation more quickly. Additionally, the widespread adoption of blood management protocols, including preoperative screening and treatment of anemia and liberal use of tranexamic acid (TXA), has reduced the risk of requiring blood transfusion for an appropriately selected patient to less than a half a percent (Fillingham et al. 2019).

HOW COVID-19 AND VENDOR PARTNERS ARE CHANGING THE TIDE

While the capacity to conduct total joint replacement surgeries has improved gradually, recent events could force a more rapid migration of high acuity surgeries to the ASC. Most significantly, COVID-19 has challenged perceptions in our community as to what constitutes a safe surgical environment and has challenged the healthcare community, notably hospitals, to source innovative ways to adapt rapidly in response to the post-COVID-19 landscape.

Prior to COVID-19, the migration of TJR to ASCs was very much driven from within the healthcare system. Surgeons were seeing the improved patient satisfaction, and payers were beginning to see the potential financial benefits. Therefore, there was a growing population of vocal surgeons pushing to move more surgery to the outpatient setting or ASC. Without a cause, however, this transition was gradual.

Since the pandemic was declared earlier this year, patients have become acutely aware of the risk that visiting a larger general hospital may pose to their health, and in turn have postponed elective procedures in an effort to prevent exposure to individuals who have been infected with the COVID-19. ASCs and specialty hospitals stand to benefit significantly from this climate and provide a respite for hospitals and healthcare providers who are facing a backlog of postponed procedures.

That said, making such a transition may be perceived as complicated and costly, which leads to many healthcare leaders considering what options are available to maintain a high standard of care for their patients and foster a safe environment for healthcare providers and patients.

Vendor partners, such as Stryker, are poised to help make the TJR migration more efficient. Partnering with these vendors can provide access to a broad level of support such as evidence-based peri-operative protocols, necessary equipment, and supply chain solutions that make ASCs and specialty hospitals run more efficiently. One of the toughest obstacles ASCs face is that they often lack the basic equipment necessary to do higher acuity cases, like joint replacement and spine surgery, because they were never built, designed, or equipped with that intent. Several vendor partners have introduced ASC friendly strategies to help surgeons and ASCs The emergence of Stryker's ASC business and similar vendors gives ASCs convenient options to expand their capacity for higher acuity surgeries with opportunities to assist in financing, capital upgrade requirements, and solutions for supply chain issues.

The same problem – that many centers were not designed with TJR surgeries in mind – informs a different issue at play: sterilization. ASCs, especially older ones originally designed for lower acuity cases, typically do not have the sterilization resources needed for the equipment necessary for cases like joint replacement. This is another area that new ASC-focused solutions can address by using technology and resources to limit the equipment necessary to do these surgeries as well as provide solutions for sterilization.

Additionally – and especially in surgeon owned ASCs – the upfront capital cost to outfit an ASC to perform total joint replacement surgery is significant. It can take upwards of a hundred thousand dollars of initial capital investment to transition a center that had previously focused on hand and arthroscopic surgery to a joint replacement program. Many ASCs simply don't have capital on hand to make those investments immediately, even if they can likely generate appropriate revenue over time. Creative financing ideas from our vendor partners, like Stryker, can be extremely beneficial to help eliminate barriers to new programs and growth.

There's no question that ASCs are going to become more popular as a setting for TJRs over time. The traditional model of general hospitals providing large levels of inpatient orthopedic care is on the decline, and all trends indicate that we should expect outpatient facilities and or-

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thopedic specialty hospitals to provide the majority of orthopedics in the future. That said, hospitals need to be prepared for migration and nothing should supersede patient safety when making this transition. The sharing of high-quality data, promotion of proven patient selection and peri-operative protocols and utilizing vendor partners can assist with that transition by providing a broad range of support and value across the care spectrum.

AUTHOR'S NOTE

Dr. Ast is a paid consultant of Stryker Orthopaedics. The opinions expressed by Dr. Ast are those of Dr. Ast and not necessarily those of Stryker. Individual experiences may vary.

ASC Virtual Reality

WATCH THE FULL LENGTH VIDEO
URL: https://www.youtube.com/embed/e7Yzi_aEAkA

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