

## **Generic Orthopaedic Implants**

Total hip arthroplasty (THA) has been described as the operation of the century by Learmonth *et al.*<sup>1</sup> Only few medical treatments have been able to provide such an impressive benefit to a large patient population affected by a disabling group of conditions. THA has been adopted worldwide for the treatment of degenerative and traumatic hip conditions and the worldwide number of operations is projected to continue to increase, especially in the younger population group. Advances in implants' technology, surgical and rehabilitation techniques have improved the end result, while minimizing the associated risks.

Regarding the cost of implants, it varies among healthcare systems, but still represents a major component of the total cost of the operation. Implant and medical device costs comprise up to 60% of hospital reimbursements for primary procedures. Most implants are proprietary in nature and vary substantially in their price and features depending on the industry manufacturer.<sup>2</sup>

Especially, the orthopedic implant expenditures are considerable in the overall cost of care for surgical patients. The cost of total joint arthroplasty implants between 1996 and 2006 increased by an estimated 130%. Actually, the global market for THA has been approximately \$4.8 billion in 2014, with an estimated forecast of \$5.9 billion by 2020.<sup>3</sup>

Therefore, controlling implant costs is essential for the overall cost containment in orthopedic surgery. To that end, as patents on many branded name implants begin to expire, "generic" implants represent a unique opportunity to improve the value of orthopedic care. Similar to available generic alternatives to brand prescription medications when their patents expire, several orthopedic implant companies have emerged to distribute value-based generic orthopedic implants. Very recently, the patents protecting particularly the Exeter and Corail hip arthroplasty systems both expired; allowing other providers to produce equivalent implants with same standards.<sup>4</sup>

The generic implant utilization could be coupled with price transparency initiatives to bolster competitive bidding, drive down costs in the healthcare system, and aid in minimizing the variability of implant costs. Simple awareness of implant price has been shown to influence surgeons' choice, with many surgeons opting for lower priced models in the same implant class.<sup>5</sup>

The current pioneer and protagonist in the orthopaedic imitation implants is Orthimo.. The first challenge faced by Orthimo was to determine which of the implants on the market to duplicate. So the reference implants which selected were cemented Exeter

V40 stem (Stryker), Charnley Elite Plus LPW (DePuy), Corail uncemented stem (DePuy) and Trident uncemented cup (Stryker).<sup>6</sup>

The inclusion of generic implants may enhance surgeons' autonomy in dictating their surgical practice preferences. In a shared decision-making model, this increased autonomy extends to the patient and confers an additional degree of choice to patients regarding the costs of their care.<sup>7</sup>

Physicians who deliver cost-effective, evidence-based care to patients not only help containing untenable healthcare expenditures but also promote community health. Cost-conscious care can also enhance the fair allocation of health resources and can thus maintain the primacy of the patient's welfare.<sup>8</sup>

### **Are the Generic implants worth it?**

Hundreds of articles demonstrating the clinical equivalence of generic medications can be found in the literature. Similarly, no increased complication rates and general improvement in Harris hip scores were found among different studies, using generic total hip implants.<sup>9</sup>

So, when two treatment options achieve equivalent clinical outcomes, it is morally justified, or even obligatory, for physicians to advocate for utilization of the lower priced modality of treatment? This comes in agreement with the framework of utilitarian ethics (the concept that the most ethical course of action in a given situation produces the greatest benefit for the greatest number of persons), which postulates a commitment to maximize the most benefit for the most people as well as the principle of justice. In addition, for Orthopedic surgeons, the wide variation in orthopedic implant prices has direct ethical implications for underserved populations.

As the numbers of hip arthroplasties are increasing, and THA are costly procedures demanding involvement of various staff members using considerable amounts of time, it is of interest to departments, hospitals and societies to reduce cost. One strategy to achieve this goal is to bundle payments by applying a fixed price to individual episodes of care, such as joint replacement.

Moreover, due to this high economic burden on the healthcare systems, several different efforts are made to decrease costs of the treatment without compromising results and without decreasing the overall health outcome of the patients such the enhanced recovery programs with a reduction in length of primary hospital stay. In particular, a multidisciplinary approach, known as "fast-track" surgery, has been shown to enhance recovery and reduce morbidity without increasing overall readmission rate after surgery. The approach was originally developed and introduced in the 1990s in Scandinavian countries in the field of general surgery and colonic

resection. All patients are eligible for fast-track arthroplasty. Its key elements are precise interdisciplinary collaboration, an early postoperative start of exercise, intensification of physiotherapeutic practice, optimization of pain and nutrition management, comprehensive preoperative patient information and psychological support. Several studies showed that the introduction of this approach did not result in an increase in complications, re-admissions, reoperations, manipulations under anesthesia or mortality rates after arthroplasty. Moreover, fast-track protocol implementation is a cost-effective strategy for patients undergoing THA, with high quality-adjusted life year and reduced costs.<sup>10</sup>

There is strong evidence that the minimal invasive direct anterior approach for primary total hip arthroplasty (DAA-THA), which does not require cutting muscle, and it is responsible for a quicker return to function and daily activity, enhanced short-term recovery and rehabilitation in comparison with other conventional total hip approaches. Patients usually experience less pain, shorter hospital stays and faster recoveries than with conventional hip replacement approaches.

Two parameters of high importance exist to the specialized orthopaedic surgeon, who has been trained in minimal invasive techniques, including the appropriate durable implants and a rapid recovery protocol. These factors represent more of a philosophy than an actual rigid program. It is a continuous willingness to improve care of the orthopaedic patient and is a great example of how we can control and minimize costs.

## **Conclusion**

Given that the patents for the most durable implants have now expired, there is a unique opportunity to increase access, as financial constraints slacken. The emergence of equivalent implants may herald a commercial renaissance for global healthcare and present a significant opportunity for our company.

## **References**

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