COMMENTARY & PERSPECTIVE

Joint Replacement Costs in the Era of Healthcare Reform

Commentary on an article by James C. Robinson, PhD, MPH, et al.: "Variability in Costs Associated with Total Hip and Knee Replacement Implants"

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Rising costs will likely be the focus of our healthcare debate for the foreseeable future¹. Orthopaedic implants and procedures are a major cost contributor². Recent evidence shows that the numbers of hip and especially knee arthroplasties are increasing in the United States^{3,4}. If orthopaedic implant device companies followed usual economies-of-scale principles, the cost of implants would decrease with the increasing number of procedures every year. However, implant costs remain high, which is one of the reasons that arthroplasty is an expensive procedure.

Robinson et al. analyzed 10,155 patients undergoing total knee arthroplasty and 5013 patients undergoing total hip arthroplasty from sixty-one hospitals that participated in a value-based purchasing initiative. The authors based their analysis on hospital and implant costs—data that are often difficult to obtain. Implants were major contributors to variation in joint replacement surgery costs across hospitals. Most medical device cost variation (36% for hip replacement and 61% for knee replacement) was attributable to hospital characteristics, and only 3% to 4% was explained by patient characteristics. Within-hospital variance in cost was attributed to physician preference of implant device, although the authors had no direct information on physician preferences. This study provides important insight into factors responsible for hip and knee implant cost variations. However, the total variance (R^2) explained by the regression model was 6% for hip replacement and 7% for knee replacement. Hence, the models cannot explain most of the variability in cost of these procedures, an important issue to consider when making conclusions from this study.

From my perspective, there are a number of reasons for high implant costs, some of which are arguably speculative. The first reason is that there is a lack of a defined collective bargaining strategy by hospitals and insurers, despite the fact that most arthroplasties are performed on patients receiving Medicare, which is a publicly funded system. The second reason is the relatively ill-defined standards pertaining to the impact of new devices on cost and outcomes prior to marketing them. Does the increased cost (if any) of new technology result in improved outcomes? Robinson et al. report that the ratio of device cost to total surgical cost for knee and hip arthroplasty can be as high as 87%, with the median ratio being 43%. There is little evidence that newer and more expensive knee and hip implants are associated with better functional outcomes as compared with existing devices. The third reason is the lack of "gain-sharing" between hospitals and physicians, which leads to little incentive for physicians to be active participants in cost-cutting measures (while maintaining or improving patient outcomes). Moreover, the current reimbursement system that encourages volume and not quality leads to a disincentive for physicians to spend additional time counseling patients on why the latest device on the market may not necessarily lead to better outcomes. The fourth reason is the lack of a national joint registry that tracks implants, surgeons, and long-term patient outcomes. Ideally, a national registry would include independent assessors of patient outcomes. Simple measures such as pain, joint motion, and a standardized and validated questionnaire would offer most of the information that is required to assess outcomes. A strong argument can be made in support of such a registry that may assist in reducing costs and holding surgeons, hospitals, rehabilitation specialists, and implant makers accountable for their outcomes and costs.

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The American Academy of Orthopaedic Surgeons recognizes the importance of rising healthcare costs attributable to hip and knee arthroplasty and has a statement on “value driven use of orthopedic implants.”⁵ This issue will gain increased traction with the approximately one million hip and knee arthroplasties performed every year. Cost-cutting measures will inevitably need to be implemented. It is imperative that the physician community and our professional organizations come together to work with the hospitals, insurers, and the government to curb joint replacement and implant costs without compromising patient outcomes and safety. Physicians are likely in the best position to accomplish this goal with intimate knowledge of their patients as compared with bureaucrats and insurance companies. However, this requires sincere introspection, substantive proposals, and leadership.

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