Letter to the Editor

Do “Premium” Joint Implants Add Value?

Analysis of High Cost Joint Implants in a Community Registry

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Published online: 19 October 2010
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To the Editor:

The article by Gioe et al. [2] is relevant and of great interest to the orthopaedic community. However, as the authors' conclusions are considered, several issues must be addressed. The current data do not account for the physician bias in device selection, the economic reality of pricing, and key variables that highly correlate to device failure.

Potential selection bias between patient groups was not controlled. Differences in age, activity level, rehabilitation potential, etc, can greatly affect device selection. Moreover, selection often depends on the life expectancy of the device and the patient. Differences between the current groups must be acknowledged, as outcomes of a standard implant in young and active patients are unknown.

To fully assess value, cost effectiveness, cost utility, and cost benefit must be considered. A more appropriate analysis of “premium”-priced devices would include a full economic cost analysis, along with an agreed value of Quality Adjusted Life-Years (QALYs). It also should be evident that cost depends on more than the just the device. Premium contemporary devices are implanted with relatively advanced surgical techniques and instrumentation, capable of improving patient outcomes and resource utilization. For example, Biasca et al. [1] showed that a combination of computer-guided technology and a

minimally invasive surgical technique can result in reduced duration of hospital stay and improved postoperative joint function. Moreover, emerging patient-matched cutting instruments, custom fit to preoperative patient anatomy, may be capable of reducing procedure complexity and surgical time [3, 4]. Technologic advances allow physicians to solve difficult problems associated with unique and complex surgeries. Once all patient and physician needs are fully met, the development of premium devices may become unnecessary. Until that time, it must be understood that innovation inexorably adds to cost.

Gioe et al. [2] reported that 40 physicians from five hospitals contributed registry data during the course of 18 years. It would be helpful to know the average number of practicing physicians during that period. If it was half the reported value, the average procedures per physician would be 59.7 per year, or approximately one per week. Device longevity is greatly affected by physician and hospital clinical practice [6]. Neither variable is captured in the current data. Moving past discharge diagnosis to capture comorbid conditions would have provided more transparency to the cumulative revision rate (CRR).

Finally, one limitation of analyzing registry data is controlling for loss to followup. The CRR is limited to patients having revision surgery by registry physicians. For patients who moved outside the catchment area, revision outcomes would be lost. Although the Kaplan-Meier analysis accommodates for loss to followup, it overestimates survival in proportion to excluded patients. Moreover, Kaplan-Meier analysis may be less effective over longer periods of time. In a longitudinal study, Utley et al. [5] reported differences in survival curves associated with enrollment date.

The study by Gioe et al. has added valuable insight to the current discussion. We thank them for their

(Re: Gioe TJ, Sharma A, Tatman P, Mehle S. Do “premium” joint implants add value?: Analysis of high cost joint implants in a community registry. *Clin Orthop Relat Res*. 2010 June 22. [Epub ahead of print].)

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contribution. However, the assessment of value in health-care is a very complex task. Additional research using more robust and comprehensive methodologies is required.

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