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"Routinely Resurfacing" The Patella During Primary Total Knee Arthroplasty Is Associated with Better Patient Reported Outcomes than "Selectively" or "Rarely" Resurfacing Strategies

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Summary:
Our results support an association between an 'routinely' patella resurfacing strategy and improved patient reported outcomes.

Abstract:

Introduction

During primary total knee arthroplasty (TKA), surgeons may 'routinely' resurface the patella, 'rarely' resurface, or 'selectively' resurface based on certain criteria. Data comparing these three strategies is sparse, and it is unknown which strategy yields superior outcomes. To determine this, we asked: (1) Which strategy is associated with the highest 6-month, 5-year and 10-year Oxford Knee Score (OKS)? (2) Which strategy is associated with the lowest overall revision rate?

Methods

Surgeons who had more than 100 primary TKAs recorded on the New Zealand Joint Registry between 1999 and 2015 were categorized into three surgeon strategies based on how often they resurfaced the patella during primary TKA ('rarely' <10%, 'selectively' 10 - 90%, and 'routinely' >90%). Inclusion criteria were primary TKA for osteoarthritis, using one of the four most commonly used prostheses. Exclusion criteria were hinged and non-hinged constrained TKA, tumour prostheses, and distal femoral replacement stems. Revision rates were summarised using Kaplan-Meier curves and compared between groups using log-rank tests. The 6-month and 5-year post-operative OKSs were compared between groups using 1-way analysis of variance (ANOVA). A two-tailed p-value <0.05 was taken to indicate statistical significance. Data for fixed bearing and mobile TKA were analysed separately, as were cruciate retaining and posteriorly stabilised TKA.

Results

203 surgeons who performed 57,766 primary TKAs were identified. 56.6% of these surgeons 'selectively' resurfaced, 36.5% 'rarely' resurfaced and 6.9% 'routinely' resurfaced. Patient factors and surgical variables were similar between the three groups. 'Routinely' resurfacing was associated with the highest mean OKS (38.6, Standard Deviation [SD] 7.7), followed by selective resurfacing (37.8, SD 8.0) and then rarely resurfacing (36.9, SD 8.3; p<0.001). When different prosthetic designs were analysed together, there was no difference in the revision rate per 100 component years between the three strategies (rarely = 0.46, confidence interval [CI] 0.43 – 0.50; selective = 0.52, 95% CI 0.48 – 0.55; routinely = 0.46, 95% CI 0.39 – 0.54; p=0.305). When analysed separately, posterior stabilized TKA that were selectively resurfaced had a lower revision rate (0.54, 95% CI 0.49 - 0.60) than those performed using the routinely

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resurface (0.64, 95% CI 0.51 - 0.78) or rarely resurface strategies (0.74, 95% CI 0.63 - 0.87; p=0.005).

Discussion

and Conclusions:
Our results support an association between an 'routinely' patella resurfacing strategy and improved patient reported outcomes. Although there was no difference in overall revision rates between the three strategies, we found that 'selective' resurfacing was associated with a lower cumulative incidence of revision for primary posteriorly stabilised TKA. To our knowledge, this study is the first to compare the overall outcomes of the three surgeon strategies across different prosthetic designs.