Articulating vs. Static Spacers in the Management of Periprosthetic Knee Infection:
A Randomized Clinical Trial

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Summary

This randomized trial demonstrates that articulating spacers provide significantly better range of motion than static spacers for periprosthetic joint infection after total knee arthroplasty.

Background

Although the use of an interim antibiotic loaded spacer is considered standard for a two-stage exchange for periprosthetic joint infection (PJI), the use of articulating versus a static spacer is controversial. The purpose of this multicenter, randomized control trial is to compare articulating and static spacers for the treatment of PJI after total knee arthroplasty (TKA).

Methods

52 Patients who met MSIS criteria for PJI following a primary TKA at 3 centers were randomized; 26 into the articulating and 26 in the static group. Antibiotics and reimplantation timing were managed using the standard of care of each surgeon and institution. Power analysis determined that 56 patients were needed to identify a 13º difference in range of motion (ROM) between groups (β=0.80 and α=0.05). Demographics between the two groups were not significantly different, suggesting appropriate randomization.

Results

At a mean of 1.7 years (range, 1.0 to 2.9) following reimplantation, ROM was significantly better in patients who had an articulating spacer (113.1° vs. 99.9°, p=0.033). There was a trend toward a higher rate of re-infection among static spacers (13% vs.5%) however this difference was not significantly different with the numbers available for study (p=0.582). Similarly, the mean Knee Society Score was somewhat higher at 83 for the articulating and 74 for the static group (p=0.264). There was no difference in mean operative time at the first (129 vs. 134 minutes, p=0.711) or second stage (146 vs. 149 minutes, p=0.823). There was no difference in length of stay after the first stage (5.5 vs. 5.9 days, p=0.667) or second stage (3.9 vs. 4.1 days, p=0.596).

Conclusions

This randomized trial demonstrates that articulating spacers provide significantly better range of motion than static spacers in the treatment of PJI after TKA with a non-significant trend towards higher Knee Society Scores and decreased infection recurrence.