Cemented Metal and Polyethylene Spacers have Similar Cost Profiles Compared to All-Cement Articulating Spacers for Treatment of Knee Periprosthetic Joint Infection

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INTRODUCTION:

Several types of articulating spacers are available during a two-stage exchange arthroplasty for periprosthetic joint infections (PJIs), including cemented metal and polyethylene (MP) components. Prior studies have demonstrated that the use of spacers with metal components do not increase the odds of treatment failure, including reinfection, compared to spacers without metal components. There is concern that use of primary total knee arthroplasty metal and polyethylene components as a temporary spacer will not be cost effective compared to more traditional molded all-cement articulating spacers. We aim to investigate the cost breakdown of MP versus all-cement articulating spacers for the treatment of total knee periprosthetic joint infection.

METHODS:

A retrospective review of 56 total knee PJIs that were treated with articulating spacers during two-stage exchanges was performed. Articulating spacers were classified based on whether they contained metal and polyethylene components versus being constructed from only cement. The supply and implant costs were reviewed for each spacer construct during Stage 1 and Stage 2. Total surgical cost was analyzed between the two spacer groups.

RESULTS:

Thirty-nine all-cement and 17 MP spacers were reviewed. There was no significant total cost difference between articulating all-cement and MP spacers ($4,101 vs. $4,365, p=0.43) during Stage 1. There was no significant total cost difference between articulating all-cement and MP spacers ($20,008 vs. $20,441, p=0.81) during Stage 2. There was no significant total cost difference between articulating and MP spacers ($24,273 vs. $24,4613, p=0.93) during the total two-stage exchange arthroplasty (Figure 1). Stage 1 spacer constructs make up 17% of the total two-stage exchange arthroplasty surgical supply and implant costs. Three patients in the all-cement group had complications related to their constructs including fracture or dislocation of the spacer itself. There were no complications related to the spacer in the MP group.

DISCUSSION AND CONCLUSION:

Metal and polyethylene antibiotic spacers constructed using primary TKA components have similar cost profiles compared to molded all-cement articulating spacers for two-stage exchange in treatment of TKA PJI. More than 80% of the surgical implant and supply cost of a two-stage exchange is incurred during Stage 2 regardless of the Stage 1 construct utilized.