

Extended Oral Antibiotic Prophylaxis Reduces Early Wound-Related Complications Following Aseptic Revision Total Knee Arthroplasty

Background

Periprosthetic joint infection (PJI) following aseptic revision total knee arthroplasty (TKA) remains a devastating complication with an incidence ranging from 1-3%. Recent literature has suggested a possible role for the use of extended oral antibiotic prophylaxis (EOAP) following aseptic revision TKA. This study compared infection-related outcomes following aseptic revision TKA for patients receiving standard perioperative antibiotics and EOAP to those who received only standard perioperative antibiotics.

Methods

This is a retrospective comparative study of 594 aseptic revision TKAs performed at a single institution from June 2016 to April 2023. This included 42 patients with known history of two stage revision TKA for chronic PJI (17 EOAP and 25 standard). Seven surgeons were included and use of EOAP was at the discretion of the treating surgeon. Exclusion criteria were second stage revision TKA and distal femur replacement for fracture. Patients who received >7 days of EOAP in addition to standard perioperative antibiotics (n=157) were compared to those who received standard perioperative antibiotics alone (n=437). Cumulative probability of poor wound healing (PWH), superficial wound infection (SWI), and PJI at 30 days, 90 days, and 1 year were determined. Fisher's exact test and chi-square analysis were used to compare infection rates between the groups. Type-I Error was set $\alpha=0.05$.

Results

Patient follow-up at 30 days, 90 days, and 1 year was 99.5%, 89.5%, 80.4%, respectively. PJI rate of the entire cohort at these timepoints was 1%, 2.7%, and 4.5%, respectively. There was no significant difference in the PJI rate for EOAP vs standard at 30 days (0% vs 1.38%, $p=0.349$), 90 days (2.3% vs 2.8%, $p=0.745$), or 1 year (4.7% vs 4.4%, $p=0.904$). When looking at the cumulative probability of any deep or superficial wound-related complication (PWH + SWI + PJI) for EOAP vs standard there was a significant reduction at 30 days when using EOAP (0% vs 3.8%, $p=0.009$). When looking at the cumulative probability of any superficial wound-related complication (PWH + SWI), EOAP trended toward significance at 30 days (0% vs 2.39%, $p=0.07$), 90 days (0.8% vs 3.6%, $p=0.11$), and 1 year (1.3% vs 4.5%, $p=0.19$).

Discussion

This study demonstrated no benefit of EOAP in reducing the risk of PJI following aseptic revision TKA out to one year after surgery. However, EOAP may provide benefit in preventing early wound-related complications. Future randomized controlled trials are needed to elucidate the role of EOAP following aseptic revision TKA.