Prolonged Antibiotics Use In Total Knee Arthroplasty Does Not Lead To Reduced Prosthetic Joint Infection Rates

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INTRODUCTION:
Prophylactic antibiotics have established their role in preventing prosthetic joint infection (PJI) in total knee arthroplasty (TKA), however the duration of antibiotics administration and its influence on PJI rates still remains controversial. Current literature lacks long-term and larger cohort data, and comparisons between studies are limited due to heterogeneity of patient cohorts. This study aims to determine whether the duration of prophylactic antibiotics affects the incidence of PJI in TKA.
METHODS:
Prospectively collected registry data of 17,223 TKAs performed at a single institution from 2000-2018 were reviewed. Baseline demographic data was also reviewed. Patients were grouped into having received short (≤24 hours) or long (≥24 hours) course prophylactic antibiotics. Clinical assessment at preoperative, 6-month and 2-year follow-up was performed using Oxford Knee Score (OKS) and Short Form-36 (SF-36), as well as assessment of postoperative satisfaction. The presence of PJI was recorded.
RESULTS:
There were 15,160 (88.0%) and 2,063 (12.0%) TKA cases that received short and long course prophylactic antibiotics, respectively. There were no significant baseline differences in patient demographic between the two groups. OKS for the whole cohort improved significantly from a mean of 36.0 (SD = 8.2) preoperatively to a mean of 18.7 (SD = 5.4) at 2 years postoperatively, $P < .001$. Significant improvement was also seen in all domains of SF-36 ($P < .001$) at 2 years postoperatively. A total of 68 (0.4%) cases of PJI were identified in the cohort. The incidence of PJI in the short course antibiotics group was 0.40% (n = 61), while a lower incidence of 0.34% (n = 7) was found in the long course antibiotics group. However, this difference did not reach statistical significance ($P = .668$). Increasing age ($P = .001$) and BMI ($P < .001$) were found to be significantly associated with PJI.
DISCUSSION AND CONCLUSION:
The use of prolonged courses of antibiotics in TKA have not been shown to significantly reduce PJI rates. Additionally, it may contribute to problems including the development of multi-drug resistant organisms, exposing the patient to adverse drug reactions and driving up healthcare costs. The routine use of prolonged antibiotics in TKA should be discouraged, however certain high-risk patient groups may benefit from it, and future studies should focus on identifying them.