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The effectiveness of antibiotic-loaded bone cement for preventing postoperative infection in patients undergoing total knee arthroplasty

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The study question focuses on the effectiveness of antibiotic-loaded bone cement (ALBC) for preventing postoperative infection in patients undergoing total knee arthroplasty (TKA). Infection has remained being a rare but serious complication after TKA. However, the use of ALBC for reducing the occurrence of infection is debated. We used the National Inpatient Database, which was provided by National Health Research Institutes. We included 16,108 TKA adult patients between January and November, 2012. There were 5,605 patients (34.8%) using ALBC. The postoperative 30-day infection and acute renal failure were compared. We adopted multi-level logistic regression models to adjust for potential confounding factors with consideration of hospital levels (including medical centers, metropolitan hospitals, and local community hospitals). The odds ratio (OR) of infection in ALBC use group and 95% confidence interval (CI) were estimated. The main compositions of ALBC were vancomycin (71.7%), followed by gentamicin (30.7%), and cefuroxime (12.4%). Among patients with ALBC use, 83.8% patient had one type of antibiotics; nevertheless 16.0% patients had two combined antibiotics. We found that the use of ALBC could not reduce the postoperative 30-day infection. When conducting multi-level logistic regression model, there remained no favorable effect of ALBC in reducing postoperative infection (OR=0.80, 95% CI: 0.50-1.26, p=0.329). For risk of acute renal failure for ALBC users, the sample size (n=7) is too small to evaluate. In conclusion, there was no significant benefit of ALBC in reducing postoperative 30-day infection in patients undergoing TKA.

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