In conclusion, Dr Tejwani highlighted that although there are multiple benefits of BPB for postoperative pain control in patients undergoing fixation of distal radius fracture, rebound pain can occur. Therefore, use of GA may be beneficial in these patients. The orthopaedic surgeon should educate patients on the benefits of BPB and GA to determine the best pain management option.

Postoperative Antibiotics and Their Effect on Postoperative Infection After ORIF

Written by Emma Hitt Nichols, PhD

Surgical treatment of fractures is common, and therefore it is important to understand which approaches are most effective in reducing postoperative infections for these procedures. Brett D. Crist, MD, University of Missouri, Columbia, Missouri, USA, presented the results of a study of postoperative antibiotics for open reduction and internal fixation (ORIF) surgery for closed fractures [NCT00610987].

Although preoperative antibiotics are known to be effective in reducing infection, it is not clear whether postoperative antibiotics are also useful. Dr Crist noted that the Surgical Care Improvement Project increases the burden on hospitals and potentially on providers to use all possible means to reduce infections, increasing the importance of determining whether postoperative antibiotics are needed.

In this prospective, placebo-controlled, double-blinded study, adult patients receiving treatment for closed fractures (ORIF or prosthetic device placement) were randomized into 2 groups. All patients received 1 g of cefazolin intravenously prior to incision (2 g for patients weighing ≥80 kg) and then 1 g of cefazolin every 3 hours until completion of the surgery. The control group received 2 additional postoperative doses of 1 g of cefazolin administered at 8-hour intervals, whereas the treatment group received normal saline in identical packaging at the same postoperative intervals. Patients were followed up at 10 to 21 days, at 6 weeks, at 12 weeks, and at 6- to 8-week intervals until bony union occurred (for ORIF). Of the 229 patients initially randomized into treatment groups, 146 patients (75 in the antibiotic group and 71 in the placebo group) completed the full follow-up.

The primary outcome was presence or absence of infection, including superficial and deep infections. Deep infections were defined as those needing operative management. Descriptive statistics were calculated, and 6 risk factors were evaluated: smoking, age ≥65 years, diabetes mellitus, obesity, duration of surgery >3 hours, and urinary catheterization. These risk factors, which were chosen because they have been associated with infection in previously published studies, were ranked from 0 (lowest risk) to 7 (highest risk).

Table 1. Risk Factors for Infection Following Surgery

Risk Factor	Infected (n = 13)	Not Infected (n = 133)	*P* Value
Age >65 y	1	29	.3
Smoker	4	46	.5
Diabetes	4	12	.038
Body mass index >35	5	25	.14
Surgery >3 h	6	28	.049
Urinary catheter <48 h	2	19	.6
Urinary catheter >48 h	3	31	.15
Mean total risk factors	2.2	1.6	.15

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There was no significant difference in infection between the treatments, with 5.3% and 12.7% of patients developing infections in the antibiotic and placebo groups, respectively ($P = .12$). There was also no significant difference in deep infection ($P = .33$). Of the 6 risk factors examined, only diabetes (4.5 times greater risk of infection based on odds ratios) and duration of surgery >3 hours (3.2 times greater risk of infection based on odds ratios) showed statistical significance (Table 1).

Based on these results, Dr Crist concluded that postoperative antibiotics do not decrease the risk of infection. This is consistent with a previous meta-analysis by Slobogean and colleagues [*J Orthop Trauma*. 2008]. However, the current study differed from previous work in that it was placebo-controlled (unlike some others), focused on closed limb fractures, and used the preferred current cephalosporin antibiotic (cefazolin).

Dr Crist noted 2 limitations of the current study. First, the sample size was relatively small. Second, fracture types were combined. However, Dr Crist explained that combining fracture types increased the generalizability of the results and was consistent with other previous studies.

In conclusion, Dr Crist stated that postoperative antibiotics may not make a difference, based on this underpowered study, but continuation of antibiotics should be considered in patients with diabetes or if the surgery is going to last for >3 hours due to their significant increased risk of infection.