SH7: How should antibiotics be managed in outpatient shoulder arthroplasty?

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Response: A single dose regionally-appropriate antibiotic (e.g. beta-lactam) is sufficient for outpatient shoulder arthroplasty. In cases of MRSA colonization, Vancomycin or an alternative may be added.

Strength of Recommendation: Limited

Delegate Vote: 48 (96%) agree; 0 disagree; 2 (4%) abstain

Rationale: A comprehensive literature review was performed to identify all studies on prophylactic antibiotics for outpatient shoulder arthroplasty. Searches for the terms "outpatient shoulder arthroplasty antibiotics", "outpatient shoulder arthroplasty" were performed using the search engines PubMed and Scopus which were searched through February 2025. Inclusion criteria for our systematic review were all English studies (Level I-IV evidence) that reported on antibiotic prophylaxis for outpatient shoulder arthroplasty. Exclusion criteria were non-English language articles, nonhuman studies, retracted papers, case reports/series, review papers, studies with less than <10 patients in the sample size, studies without clinical follow-up/infection rates, and technique papers without patient data. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) criteria were followed. Searching the term "outpatient shoulder arthroplasty antibiotics" resulted in 1 PubMed and 10 Scopus articles and 1 article met inclusion criteria. Searching the term "outpatient shoulder arthroplasty" resulted in 112 PubMed and 177 Scopus articles and 1 article met inclusion criteria (same article). Given the limited number of articles identified in outpatient shoulder arthroplasty literature, articles were included from the hip and knee arthroplasty literature.

The one article pertaining to shoulder arthroplasty was a retrospective review of a prospectively collected database from a single institution[1]. A total of 1022 patients were identified, 896 patients who underwent inpatient TSA who received 24 hours of IV antibiotics with weight-based dosing of Cefazolin and Vancomycin (unless allergy prohibited) were compared to 126 patients who underwent outpatient TSA with single dose weight-based dose of Cefazolin and Vancomycin with mean follow-up of 23 and 18 months respectively. Overall, there were 1.5% of the inpatient cohort (13/896) had a post-operative infection compared to 1.6% (2/126) of the outpatient cohort (p=0.71).

Evaluating the lower extremity arthroplasty literature, there is great quantity of literature available for review. Christensen et al conducted retrospective review of 3,607 patients who underwent total hip and knee arthroplasty, 2,763 received 24 hr of IV Cefazolin (unless allergy precluded) and were compared to 554 patients who received single-dose Cefazolin. There were noo difference in rates of infection: 0.7% for 24hr IV antiviotics and 0.2% for single dose antibiotic groups respectively. Tan et al conducted the one of the largest retrospective reviews of 20,682 primary total hip and knee arthroplasties[3]. Patients were given either IV Cefazolin or

Vancomycin either for 24 hours or single dose. Overall PJI rate was 0.60% for single dose (27/4,523) and 0.88% for 24hr IV administration (142/6,159). Wyles et al examined unicompartmental knee arthroplasty and included 296 patients (40 single dose, 256 24-hour) with preferential antibiotic being Cefazolin. If there was an allergy patient received Clindamycin or Vancomycin[4]. Patients with MRSA colonization received dual therapy with Cefazolin and Vancomycin. There were no infections in single dose group and a rate of 0.8% (2/256) in the 24hr IV group. Veltman et al included 242,179 patients from the Dutch Arthroplasty Register and concluded no difference between antibiotic or duration of antibiotics in rates of revision for infection[5].

The use of extended oral antibiotics has been evaluated as well. Flynn et al examined 90-day and 1-year infection rates in patients who received THA or TKA with or without 10 days of cefadroxil 500mg PO BID. A total of 4,576 patients (1,769 with EOA and 2,807 no EOA) were included[6]. No differences were seen between the 2 groups (1% EOA vs 0.8% no EOA) at 90-days and 1% for both at 1-year follow-up.

The type of antibiotics prophylaxis has also been questioned. Marigi et al examined 7,713 shoulder arthroplasties and examined the risk of PJI following different antibiotics (89.2% received Cefazolin, 6.0% received Vancomycin, 4.5% received Clindamycin)[7]. Use of Cefazolin resulted in 69% reduction in all-cause PJI risk and 78% reduction in *C. acnes* PJI risk. Burger et al examined a total of 1,997 consecutive TKA/THAs[8]. 1,044 patients were treated with Cefazolin only and 953 treated with Cefazolin and single dose of Vancomycin. When Vancomycin was administered at least 45 minutes prior to incision there was a significant reduction in PJI. Bains et al showed no difference in risk of PJI with addition of Vancomycin to Cefazolin, however did find a possible reduction in MRSA PJI[9]. Peel et al conducted a double-blinded, randomized control trial examining the use of Vancomycin in conjuction with Cefazolin for antibiotic prophylaxis for TJA. Surgical site infections were no different, (4.5% in Vancomycin group and 3.5% in the Placebo group).

References:

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