

QUESTION 6: How should a patient with a symptomatic preoperative urinary tract infection (UTI) be managed prior to undergoing elective joint arthroplasty?

RECOMMENDATION: Preoperative symptomatic UTIs should be treated/eradicated with appropriate antibiotics prior to elective total joint arthroplasty (TJA).

LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 97%, Disagree:2%, Abstain: 1% (Unanimous, Strongest Consensus)

RATIONALE

The potential link between asymptomatic bacteriuria, asymptomatic UTI, and symptomatic UTI with surgical site infection/periprosthetic joint infection (SSI/PJI) is an area of controversy in the arthroplasty literature. Given the low incidence of SSI/PJIs and the relatively low incidence of preoperative symptomatic UTI, the evidence for optimal management is limited. However, in light of the dire consequences of SSI/PJIs, every effort should be made to eliminate the sources and nidus of any infection, including UTIs, prior to elective orthopaedic procedures.

Perioperative symptomatic UTI has been shown to be a risk factor for SSI/PJI [1–3]. Pulido et al. [1] reviewed a prospective database of 9,245 primary TJA patients and found that postoperative UTI was a predisposing factor for PJIs (odds ratio (OR): 5.45, $p = 0.04$). The authors advocated for treatment and eradication of preoperative UTIs before proceeding with TJA [1]. Yassa et al. [2] reviewed 460 femoral neck fracture patients, 192 of which underwent hip arthroplasty. Ninety-nine patients (21.5%) had a preoperative UTI with 13 being chronic. All patients with UTI began treatment immediately with trimethoprim. Postoperatively, 57 of 460 patients (12.4%) had SSI, with a significantly higher proportion of those having had a preoperative UTI (rate ratio (RR): 2.47). The authors concluded that UTIs have a high prevalence in patients with femoral neck fractures and that it is an important risk factor for SSI [2]. Pokrzywa et al. [3] reviewed the American College of Surgeons (ACS) National Surgical Quality Improvement Program ((NSQIP) database of 434,802 general surgery patients and found that the preoperative UTI group had a higher incidence of infectious complications (OR: 1.515; 95% confidence interval (CI) 1.000 to 2.296) and non-infectious complications (OR: 1.683, 95% CI 1.012 to 2.799). The authors recommended treating UTIs prior to surgery and delaying elective procedures until resolution of the preoperative UTI [3].

The evidence available seems to indicate equivalent SSI/PJI rates between patients with appropriately-treated preoperative UTI and patients without UTI, though these studies are underpowered. Garg et al. [4] reviewed 150 primary TJA patients and found that those treated for preoperative UTIs had similar outcomes to patients without UTIs. Koulouvaris et al. [5] retrospectively reviewed 19,735 TJA patient records with 58 postoperative wound infections and matched those patients to 58 control patients. Of the 58 with SSI/PJIs, 3 had a preoperative UTI and 4 had a postoperative UTI, though only 1 SSI/PJI was the same organism as the urinary culture. In the matched control group, eight had a preoperative UTI and one had a postoperative UTI. The authors concluded that treated UTI (five to eight-day treatment course) had no greater likelihood of a postoperative infection than a patient without UTI. However, given the low infection rate of 0.29%, the power of the study was only 25%. Park et al. [6] reviewed 544 patients who underwent primary THA, 13 of which had a symptomatic UTI. The UTI patients were treated starting the day of surgery. Surgery was delayed in cases of fever or leukocytosis. There were no instances of SSI/PJI in either the case or control group, and with only 13 patients with UTIs, with the study being underpowered [6].

To our knowledge, there are no studies reporting on symptomatic preoperative UTIs that are untreated prior to elective TJA. In light of the limited evidence, the best practice in management of symptomatic preoperative UTIs prior to elective TJAs is to treat and eradicate the infection before proceeding to surgery.

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