

QUESTION 2: Can regional anesthesia be administered to patients with orthopaedic infections?

RECOMMENDATION: Yes. Central nervous system (CNS) infectious complications, such as meningitis, epidural abscesses or vertebral osteomyelitis are exceedingly rare when regional anesthesia is administered to patients with infections after an orthopaedic procedure. However, the potential benefits of neuraxial anesthesia likely outweigh any possible risks.

LEVEL OF EVIDENCE: Moderate

DELEGATE VOTE: Agree: 91%, Disagree: 3%, Abstain: 6% (Super Majority, Strong Consensus)

RATIONALE

There are several proposed benefits of neuraxial anesthesia compared to general anesthesia for joint surgery, including fewer pulmonary and cardiac complications, surgical site infections and venous thromboembolic events as well as a reduction in mortality [1]. However, some surgeons and anesthesiologists alike consider the presence of an active infection to be a contraindication to administering neuraxial anesthesia due to the risks of seeding the spinal canal. This fear stems from case reports of patients developing devastating bacterial meningitis, epidural abscesses or vertebral osteomyelitis following spinal or epidural anesthesia [2,3]. In one historic study on military personnel from 1919, five out of six patients with bacteremia during a routine lumbar puncture subsequently developed meningitis [4]. Of 1,089 bacteremic patients, 2.1% of patients who received lumbar puncture and 0.8% of patients who did not receive lumbar puncture developed meningitis [5]. In a third study, 27% of children with pneumococcal sepsis who underwent lumbar puncture developed meningitis compared to 22% of children with pneumococcal sepsis who did not undergo lumbar puncture [6]. However, bacterial septicemia, in itself, is a risk factor for meningitis and it is likely that patients indicated for a lumbar puncture were those already at the greatest risk for developing meningitis. In patients without an active infectious source, the incidence of CNS infection has been reported to be as low as 0.04% [7–9].

Large studies on patients undergoing orthopaedic procedures for infections, who received spinal anesthesia, provide moderate to strong evidence of its safety. Of 474 patients undergoing removal of an infected prosthesis with neuraxial anesthesia, no patients developed epidural abscess or meningitis [10]. There was a single case of an epidural abscess and no cases of meningitis out of 764 operations performed for perioperative joint infections (PJIs) with neuraxial anesthesia [11].

There is additional evidence to consider outside of orthopaedics. In two retrospective reviews of 531 and 319 women with chorioamnionitis who received epidural or spinal anesthesia, there were no reports of epidural abscesses or meningitis [12,13]. Similarly, there were no infectious CNS complications in 46 children receiving epidurals for postoperative analgesia after thoracotomy for empyema [14].

While there are no randomized trials comparing the safety of neuraxial and general anesthesia for patients with joint infections, the preponderance of evidence suggests that infections related to orthopaedic procedures should not serve as a contraindication to the use of neuraxial anesthesia.

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