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QUESTION 5: What are the contraindications to using antibiotics in a cement spacer?

RECOMMENDATION: With the exception of a scenario in which a patient has a history of severe adverse reaction to each of the thermally-stable antibiotics intended for use in cement spacers in the treatment of prosthetic joint arthroplasty, there are no definite contraindications to using antibiotics in a cement spacer.

LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 90%, Disagree: 6%, Abstain: 4% (Super Majority, Strong Consensus)

RATIONALE

There are no prospective studies directly comparing the use of cement spacers with and without antibiotics. A small randomized controlled trial by Cabrita et al. assessed patients with vancomycin-loaded spacers versus no spacers [1]. The infection rate and multiple outcomes were significantly improved with the use of an antibiotic-loaded spacer; however, it is impossible to separate benefits of the presence of the spacer versus impregnation of the spacer with antibiotics. A retrospective assessment of 120 cases found no benefit in infection eradication with the use of an antibiotic-loaded spacer but also noted no adverse effects from their use [2].

There are no studies that describe a benefit from omitting antibiotics from the cement spacer used to treat infection.

There are multiple case reports relating to nephrotoxicity associated with the use of aminoglycosides and other antibiotics [3–13]. Recommendations include monitoring renal function and other clinical parameters and consideration of spacer removal as soon as possible in the case of ongoing renal dysfunction. Of all of these reports, two papers recommend avoiding aminoglycoside antibiotics in patients at risk of developing renal impairment [12]. Infection has been acknowledged as a risk factor in renal impairment and the relative contributions are unknown. Hypersensitivity to piperacillin/tazobactam has also been observed [14]. Vancomycin has also been associated with systemic adverse reactions when included in the cemented spacers [10,15]. This suggests that specific antibiotics may need to be avoided in the cement spacer on a case-by-case basis, but it does not suggest that antibiotics should be avoided in their entirety.

With the exception of a history of life-threatening allergic reaction to a specific antibiotic [15], no published studies or reports are recommending an outright contraindication to the addition of antibiotics to the cement of a spacer in the treatment of infection. There is a hypothetical scenario of a patient who has a history of severe adverse reactions to each of the thermally-stable antibiotics described for use in cement spacers in the treatment of prosthetic joint arthroplasties that could constitute a contraindication. There are no published case reports of this scenario.

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