Authors: John Abraham, Joseph Benevenia, John Strony, Keenan Sobol

QUESTION 3: What is the best surgical treatment for management of a chronically infected oncologic endoprosthesis? Does this change if the patient is receiving or has received recent chemotherapy and/or irradiation?

RECOMMENDATION: We recommend a two-stage revision in the management of a chronically infected oncologic endoprosthesis; however, we acknowledge that support for a one-stage exchange is increasing. There is no study to suggest that this recommendation should change if the patient is receiving or has received recent chemotherapy and/or irradiation.

LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 93%, Disagree: 0%, Abstain: 7% (Super Majority, Strong Consensus)

RATIONALE

Although the use of an endoprosthesis in the treatment of musculoskeletal tumors has many advantages, infection of the endoprosthetic device is a significant complication. In addition to eradicating the infection, the goal in treating these infections is to salvage the limb and avoid amputation. There are numerous interventions used in the management of an endoprosthetic infection, including irrigation and debridement, one-stage revision, two-stage revision and amputation as a last resort.

Jeys et al. demonstrated that two-stage revision was able to eradicate infection in 42 of 58 patients (72%), compared to a 47% (15 of 32) success rate with one-stage revision and a 6% (4 of 68) success rate with local surgical debridement with or without antibiotics [1]. Morii et al. reinforce the idea that two-stage revisions have better outcomes compared to both a one-stage exchange and irrigation and debridement [2]. Finally, investigators in Malaysia reported an 80% success rate with two-stage revision compared to a 42.8% success rate with surgical debridement without a change of the implant [3].

In addition to greater success rates, two-stage revision has demonstrated greater functional outcomes. Grimer et al. assessed the functional outcome of patients with a successful two-stage revision using the Musculoskeletal Tumor Society functional evaluation score. The scores ranged from 47% to 100% with a mean of 77% [4]. One study reviewed one-stage exchange which demonstrated a 77.8% success rate and suggested that one-stage revision of infected megaprostheses without exchange of anchorage components is a sensible and useful choice for patients with antibiotic-sensitive microorganisms [5].

Given these results, we have concluded that two-stage revision is currently more supported by literature as a surgical treatment for the management of a chronically infected oncologic endoprosthesis. However, due to the presence of some conflicting data, the strength of this recommendation is limited, and we do believe that one-stage exchange with or without exchange of anchorage components may represent a feasible option.

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