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QUESTION 5: What type, dose and duration of prophylactic antibiotic(s) should be administered to patients undergoing oncologic endoprosthetic reconstruction who have received or will be receiving chemotherapy and/or radiation?

RECOMMENDATION: Antibiotic prophylaxis should be given in accordance with existing guidelines for standard arthroplasty surgery and other orthopaedic surgical procedures with foreign body placement.

LEVEL OF EVIDENCE: Consensus

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

RATIONALE

Studies examining the effect of chemotherapy and radiation on risk of postoperative infection in tumor patients have found an increased risk of surgical site infection (SSI) following radiation therapy (thoracic, head and neck, gynecological, breast malignancies) and chemotherapy (thoracic, head and neck, breast malignancies) [1,2]. No studies have been conducted to compare different prophylactic antibiotic regimens for patients who received radiation or chemotherapy prior to surgery; in a single randomized, controlled trial comparing prophylactic antibiotics with placebo in breast cancer patients, no significant difference was seen in the risk of developing postoperative infection between patients who received neoadjuvant chemotherapy and those who did not [3].

Studies examining the effect of chemotherapy and radiation on risk of postoperative infection specifically in patients with bone tumors and metastases have shown differing results based on the type and location of disease. A study of patients who underwent a variety of lower-extremity oncological operations did not find either chemotherapy or radiation to increase the risk of infection [4]. Similarly, in a cohort of patients undergoing surgery for primary bone tumor, mostly involving the lower limb, chemotherapy was not a risk factor for infection, nor was it in a group of patients who underwent endoprosthetic reconstruction for tumors around the knee [5,6]. On the other hand, a study of patients with spinal metastases found that postoperative radiation was associated with increased risk of infection [7].

As no studies have been conducted addressing the tailoring of antibiotic prophylaxis in oncologic patients undergoing tumor surgery pre- or post-radiation or chemotherapy, including endoprosthetic reconstruction, prophylaxis should be given in accordance with existing guidelines for arthroplasty and other orthopaedic surgical procedures with foreign body placement [1,8]. In the event of colonization with methicillin-resistant *Staphylococcus aureus*, the choice of intravenous antimicrobial prophylactic agent should be adjusted accordingly.

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QUESTION 6: Does the type, dose, and duration of antibiotic prophylaxis differ for patients undergoing oncologic endoprosthetic reconstruction compared to conventional total joint arthroplasty (TJA)?

RECOMMENDATION: No. There is no recommendation to adjust type, dose or duration of antibiotic prophylaxis in patients undergoing oncologic endoprosthetic reconstruction from that which is routinely administered in conventional TJA.

LEVEL OF EVIDENCE: Consensus

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