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QUESTION 4: Should prophylactic antibiotics be started in patients with an oncologic endoprosthesis who develop neutropenia secondary to postoperative chemotherapy?

RECOMMENDATION: Not routinely. Evidence-based guidelines recommend limiting the routine use of prophylactic antibiotics to high-risk patients with chemotherapy-induced neutropenia.

LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 100%, Disagree: 0%, Abstain: 0% (Unanimous, Strongest Consensus)

RATIONALE

Guidelines published by the Infectious Diseases Society of America (IDSA) and the National Comprehensive Cancer Network (NCCN) recommend the use of fluoroquinolone prophylaxis during neutropenia in high-risk patients [1,2]. Risk stratification is based on a number of criteria, including malignancy type. According to IDSA guidelines, "Low-risk patients are those with neutropenia expected to resolve within 7 days and no active medical co-morbidity, as well as stable and adequate hepatic function and renal function. These low-risk features are most commonly found among patients with solid tumors" [1].

These recommendations are based on meta-analyses which included predominantly patients with hematological malignancy [3–5]. None of the articles included in the meta-analyses examined antibiotic prophylaxis in patients with primary bone malignancy or patients with an oncologic endoprosthesis. Furthermore, none of the articles specifically addressed cancer patients with foreign bodies. The largest and most comprehensive of the meta-analyses found that antibiotic prophylaxis reduces overall mortality versus placebo, with a number-needed-to-treat of 34 and low heterogeneity [4].

Two reasons limit the use of antibiotic prophylaxis in low-risk patients. First, concerns exist regarding the development of bacterial resistance and subsequent infection [2]. Although a meta-analysis found that fluoroquinolone prophylaxis leads to a non-significant increase in colonization with resistant bacteria with no difference in infections due to resistant bacteria, concerns remain [6]. Second, guidelines recommend treating low-risk patients with neutropenic fever as outpatients, with oral antibiotics including fluoroquinolones on an outpatient basis. It is unclear whether the potential benefit of prophylactic quinolone use is greater than that of the use of these agents as treatment [2,7]. In summary, given the evidence to date, patients with an oncologic endoprosthesis should not routinely receive antibiotic prophylaxis during neutropenic episodes.

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