1.8. PREVENTION: POSTOPERATIVE ISSUES

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QUESTION 1: Should patients with cellulitis following total joint arthroplasty be treated with antibiotic therapy?

RECOMMENDATION: Yes. When periprosthetic joint infection (PJI) has been ruled out, it is reasonable to treat patients presenting with cellulitis with empiric antibiotics.

LEVEL OF EVIDENCE: Moderate

DELEGATE VOTE: Agree: 94%, Disagree: 4%, Abstain: 2% (Super Majority, Strong Consensus)

RATIONALE

Much of the literature relating to infectious postoperative complications relates to deep PJIs. Postoperative cellulitis is a rare, yet realistic complication that may occur following arthroplasty. The concern for cellulitis is that the superficial infection may spread to the deeper tissues including the prosthetic joint. Thus, the presence of cellulitis in patients with a prosthetic joint is considered to be a serious issue.

All the literature relating to the treatment of superficial infections relates to hip and knee arthroplasty. Many of the studies in this area are of non-randomized, retrospective designs. Much of the literature related to surgical site infections (SSIs) in total joint arthroplasty is epidemiological in nature, focusing on incidence and risk factors, rather than treatment and outcomes. Perhaps reflecting the diagnostic dilemma facing physicians, there appears to be much heterogeneity in the literature in defining the diagnosis of cellulitis versus inflammation versus superficial SSIs.

The largest prospectively gathered dataset regarding superficial wound infections has been described by Guirro et al. in a Spanish cohort following total knee arthroplasty (TKA) [1,2]. They highlight 45 cases of superficial wound infections in a larger series of 3,000 joints with six years follow-up, without any evidence of recurrence of infection or progression to deeper periprosthetic infections. Of note, is that six (13.3%) of these patients also required surgical treatment in the form of wound irrigation and debridement in addition to antibiotic therapy. Interestingly, three of these patients required later revision arthroplasty for non-infectious causes.

The occurrence of an erythematous, erysipelas-like manifestation after total hip arthroplasty (THA) has been described in two publications [3,4]. A total of 17 patients across both publications were described as successfully treated with antibiotics following an erythematous eruption around the incision and the gluteal area. There was no evidence of a deep infection at last follow-up.

Walls et al. described a case series of methicillin-resistant *Staphylococcus aureus* (MRSA) SSIs following primary hip arthroplasty [5]. Out of 1,790 hips performed over a five-year period, 18 (1%) were described as having MRSA SSIs. Six of these 18 were defined as superficial infections. Five were treated successfully with antibiotics, while one patient returned after seven months with a deep infection.

The other series described in relation to TKA has been published by Manian et al. [6]. Of note, this was a retrospective case series evaluating post-arthroplasty patients presenting with any form of soft tissue or skin bacterial infection in the lower limb. Interestingly, at a mean of 65 months postoperatively, patients were statistically more likely to present with cellulitis in the operated limb than their contralateral leg. They did not define their treatment outcomes.

It is clear from this discussion that there is a marked heterogeneity in the literature regarding the use of antibiotics in patients with cellulitis post-arthroplasty. Without clear consensus on defining the diagnosis, in addition to the myriad of study methodologies, the data is not amenable to meta-analysis. To determine a more robust consensus on this question, further prospective randomized trials are recommended.

In the absence of such studies and evidence, we feel that cellulitis is a serious event in patients with a prosthetic joint in place and requires treatment. However, to distinguish cellulitis or superficial infection from PJI is a difficult task in a majority of patients. As missing the diagnosis of PJI may result in suboptimal outcomes for patients because they are not usually amenable to treatment with antibiotics alone, we recommend that any patient presenting with cellulitis or presumed superficial infection undergo an evaluation for a PJI, which may include aspiration of the joint in order to rule out a PJI prior to empiric antibiotic treatment.

REFERENCES

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