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QUESTION 4: Does the use of periarticular injections (PAIs) affect the rate of surgical site infections/periprosthetic joint infections (SSIs/PJIs) recurrence in reimplantation?

RECOMMENDATION: Unknown. PAIs are an effective adjunct treatment for pain control following primary total joint arthroplasty (TJA), but their effectiveness and impact on the rates of SSIs/PJIs in the revision setting has not been investigated. The use of PAIs at the time of reimplantation can be performed at the surgeon's discretion.

LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 91%, Disagree: 5%, Abstain: 4% (Super Majority, Strong Consensus)

RATIONALE

Pain management following primary and revision TJA is crucial to facilitate early mobilization, decrease length of stay, decrease opioid consumption and to improve patient satisfaction [1]. It is known that revision TJA cases such as prosthesis reimplantation are more complex and typically require greater dissection than primary TJA, thus postoperative pain control may be more difficult.

PAIs of anesthetic medications are a proven, effective adjunct to multi-modal pain management protocols in the primary TJA setting [1–3]. While the combination of medications injected varies widely amongst randomized controlled trials (RCTs), PAIs have been shown to provide superior pain control versus the use of patient-controlled anesthesia [4] and femoral nerve blocks [5–7], and PAIs are equivalent to the use of a femoral-sciatic nerve block following primary total knee arthroplasty (TKA) [8]. In a systematic review of 13 RCTs of patients undergoing primary total hip arthroplasty (THA), Marques et al. found patients receiving local anesthetic infiltration to have a greater reduction in pain at 24 and 48 hours postoperatively [1]. However, the impact of PAIs on pain management in the revision TJA setting, along with their impact on the rate of SSI/PJI, has not been investigated.

One consideration is whether corticosteroid should be included in the use of a PAI. There is conflicting evidence as to whether inclusion of corticosteroid in a PAI improves pain control [9–12]. Furthermore, there is the theoretical concern of a potentially increased risk of infection with the inclusion of corticosteroid given its immune-modulating properties [13,14]. No studies in the setting of primary arthroplasty have found a significant difference in SSI rates in PAI containing corticosteroid, and it is worth noting that all these studies were powered using pain as a primary outcome [9, 13,15,16]. Thus, these studies were not designed to determine the influence of corticosteroid on an outcome of low incidence such as SSI/PJI, and the risk posed by intraoperative corticosteroid PAI remains theoretical.

Unfortunately, there are no studies that assess the impact of PAIs on the rates of SSIs/PJIs recurrence during TJA reimplantation. As PAIs assist with pain control in the primary setting, it could be presumed that they are effective during TJA reimplantation, yet this has not been proven. The use of PAIs at the time of reimplantation can be performed at the surgeon's discretion, but the addition of corticosteroid should be cautioned as its immuno-modulating risk may outweigh its questionable benefit. Studies investigating the influence of PAI on the incidence of SSI/PJI following primary and revision arthroplasty are needed.

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