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QUESTION 2: What is the role for serum erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) or white blood cell (WBC) count in the evaluation of an elbow arthroplasty for periprosthetic joint infection (PJI)?

RECOMMENDATION: ESR, CRP and WBC play a role in screening and monitoring for PJI, though evidence is limited regarding specific thresholds and strategies to guide the surgeon when interpreting these values.

LEVEL OF EVIDENCE: Consensus

DELEGATE VOTE: Agree: 95%, Disagree: 0%, Abstain: 5% (Unanimous, Strongest Consensus)

RATIONALE

When in the evaluation stage of a suspected PJI, these laboratory markers are often combined with the clinical findings and joint aspiration to increase confidence of PJI [1-9]. In isolation, ESR and CRP may be difficult to interpret, especially in the setting of a medically complex patient with underlying conditions such as rheumatoid arthritis or with atypical infectious organisms such as fungi [2,3]. In monitoring for resolution of an infection after initial explantation, these laboratory markers are utilized again in concert with clinical factors, and it is important to trend these over time [5]. If the values have not normalized at the time of subsequent surgery with plans to reimplant, a repeat debridement and washout is advised along with the trending of values over time.

Despite the lack of multiple randomized clinical trials reflecting the utility of ESR, CRP and WBC measurement and monitoring in the patient with PJI of the elbow, several retrospective studies demonstrate the usefulness of integrating these values into the treatment plan. Also, the importance of these markers has been incorporated into the recommendations of the American Academy of Orthopaedic Surgeons for the treatment of PJI in the hip and knee [7,10]. This recommendation is rated as “limited” due to the lack of large, high-quality studies addressing PJI in the elbow specifically, rather than adapting already-published data from other joints, though these results are useful as they may be extrapolated to the management of elbow PJI.

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