Evidence based PJI workup pathway for early diagnosis and treatment of possible PJI in post-operative hip and knee arthroplasty patients.

Rationale:

Post-operative (PostOp) periprosthetic joint infection (PJI) in total hip and/or knee arthroplasty patients requires varying degrees of treatment. Treatment of these PostOp PJIs hinges on the identification of the potential infection and is followed by medical (e.g., antibiotics) or surgical intervention—from a washout to implant removal.

Although early detection and eradication of PJI is imperative to optimal outcomes and lower morbidity following joint arthroplasty, the literature provides no "gold standard" in PJI work up. In the absence of clear signs of infection—such as visualization of the sinus tract, studies show multiple biomarkers in varying combinations yield higher predictive ability than individual tests to identify a PJI.[4, 5]

There is strong evidence to suggest the use of peripheral blood erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), and interleukin-6 to aid in diagnosis of PJI.[1, 2, 5] Additionally, synovial fluid analysis for leukocyte and neutrophil counts, cultures, leukocyte esterase (LE), alpha-defensin (α-defensin), and C-reactive protein (CRP) are all strongly supported, though not all tests are easily or equally accessible across Michigan hospitals and ambulatory surgery centers (ASC).[2, 3]

With many tests available in the workup process for infection, MARCQI identified high performing and accessible tests to guide initial workup standards for suspected PJI. Taking a stepwise approach from least to most invasive, the MARCQI Medical Advisory Committee approved these tests to provide a strong foundation for PJI workup.

The following evidence-based guidelines are meant to structure the workup process for possible infections, with the intention of early identification and intervention.

References

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