

INVESTIGATIONS IN SEPTIC ARTHRITIS: HOW GOOD ARE THEY?

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Introduction: Often perceived as the gold standard joint aspiration is performed for the exclusion of septic arthritis (overall mortality 11%). Management decisions are often made based upon initial clinical microscopy. We aim to compare initial microscopy results with definitive cultures and assess trends in patients' presenting inflammatory markers, microscopy and culture (CS) results. We also audited clinical process quality and handover documentation. Varying sensitivities and specificities given in literature.

Methods: All patients presenting with hot swollen native joints from Oct' 2017-Jul' 2018 at Bradford Royal Infirmary retrieved from handover lists. Retrospective study performed using electronic information systems. Standards based on 2007 joint national guidelines.

Results: Microbiology results: Total patients: 85. Positive Gram Stain (GS) and positive CS: 1, positive GS and negative MCS: 0, negative GS and positive CS: 11, negative GS and negative CS: 73. GS Sensitivity: 0.08, Specificity: 0.91, Positive predictive value (PPV): 1, Negative predictive value (NPV): 0.87. Pus cells 3+: sensitivity 0.58, specificity 0.86, PPV 0.19, NPV 0.89. WCC > 12: Sensitivity 0.58, specificity 0.86, PPV 0.19, NPV 0.90. CRP>10: Sensitivity 1, specificity 0.50, PPV 0.16, NPV 1.

Culture: *Staphylococcus aureus* 45%, *Streptococcus G* 18%, Others: 37%. Process audit: WCC taken: 100%, CRP taken: 99%, Urate taken: 62%, Synovial fluid taken before Abx: 97%, Aspirate taken: 100%, MCS Obtained: 100%. Handover Documentation audit: WCC documented: 93%, CRP documented: 94%, Urate documented: 30%, Complete microscopy result documented: 76%, 48 hr date for MCS documented: 0%, 5 day MCS date documented: 11%.

Discussion: Results demonstrate low sensitivity of initial positive gram stain, WCC and CRP to final positive MCS. Possible predictive value of 3+ pus cells. We suggest a greater emphasis should be on clinical presentation and examination findings than GS result when making clinical decisions. Larger study needed to confirm. We also designed an improved handover documentation proforma.

Biography

Paul Andrzejowski completed his Bachelor of Medical Science (Hons) in 2011 and Bachelor of Medicine and Surgery degree in 2013 from the University of Nottingham, UK. He has recently passed MRCS Membership exams to the Royal College of Surgeons of Edinburgh. He has completed his core surgical training programme in Yorkshire with a special interest in Trauma and Orthopaedics, and is currently working as a Research Fellow in Trauma and Orthopaedics at the Leeds General Infirmary.

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