

Free Papers A

[O14] ALPHA DEFENSIN IMMUNOASSAY FOR DIAGNOSING PJI. A PROSPECTIVE STUDY

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Aim: A key of success in the treatment of prosthetic joint infection (PJI) is the proper diagnosis. There is a lack of diagnostic tools able to diagnose a PJI with high accuracy. Alpha-defensin has been proposed as possible solution but the available literature is still limited. This prospective study was carried out in order to determine (1) what is the sensitivity, the specificity, the positive and the negative predictive value of the Alpha-defensin immunoassay test in diagnosing PJI; (2) which clinical features may be responsible for false positive and false negative results?

Method: Preoperative aspiration was performed in patients presenting with a painful hip/knee arthroplasty. Metallosis, other inflammatory comorbidities and previous/concomitant antibiotic therapy were not considered as exclusion criteria. Patients with inadequate amount of synovial fluid for culture were excluded. At time of revision synovial fluid samples were taken in the OR in order to perform Alpha-defensin assay. During surgical debridement tissue samples for cultures were obtained. Prospectively, 156 patients (65 knees and 91 hips) were included. A diagnosis of PJI was confirmed in 29 patients.

Results: The sensitivity of the Alpha-defensin immunoassay was 97% (95% CI, 92% - 99%), the specificity was 97% (95% CI, 92% - 99%), the positive predictive value was 88% (95% CI, 81% - 92%) and the negative predictive value was 99% (95% CI, 96% - 99%). Among four false positive patients two had a metallosis and one had a polyethylene wear. The false negative case presented with a draining sinus, and intraoperative cultures were also negative.

Conclusions: Alpha-defensin assay may have a significant role in PJI diagnosis. Negative tests may exclude the diagnosis of PJI. Positive tests are very much likely to confirm PJI, but other conditions (metallosis, poly wear) should be excluded.