## Paper #20

## What is the Optimal Criteria to use for Detecting Prosthetic Joint Infections in Total Joint Arthroplasty?

**Notes** 

Sumit Kanwar, MD, Manisha Chand, MD, Ahmed Al-Mansoori, MBBS, Juan C. Suarez, MD, **Preetesh D. Patel, MD** 

Introduction: Intraoperative culture (IC) are considered gold standard for diagnosing prosthetic joint infections (PJI), but still have a 30% false negative rate. To improve diagnostic accuracy for PJI, Musculoskeletal Infection Society (MSIS) criteria was developed and newer assays such as Alpha-defensin (AD) have been developed to further improve diagnostic accuracy. The purpose of our study was to evaluate the accuracy of AD when compared to MSIS criteria in diagnosing PJI.

**Methods:** A retrospective analysis of 217 hip and knee joint aspirations performed between 2014-2017. One hundred aspirates (46%) had revision surgery with IC obtained. Sensitivity (Sn), Specificity (Sp), Positive Predictive Value (PPV) and Negative Predictive Value (NPV) were calculated for MSIS criteria and AD in comparison to IC for all the intraoperative aspirations. Chi Square tests were performed for comparisons.

**Results:** Our results showed 33 positives for AD, 33 met MSIS criteria, and 17 had positive IC, which was significantly different between the groups (p<0.001). Based on comparison with IC the Sn of AD was calculated to be 94.1%; Sp: 78.3%; PPV: 47.1%; NPV: 98.5%. When comparing MSIS criteria with IC results showed a Sn of 94.1%, Sp: 79.5%; PPV: 48.5%; NPV: 98.5%. Phi test showed strong positive association between AD and MSIS criteria (F=1, p=0.001)

**Conclusion:** According to our results MSIS and AD have a strong positive association for diagnosing PJI, with a high sensitivity and negative predictive value. The addition of AD did not improve our accuracy beyond MSIS criteria alone.

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