

Browser's Notes

Published online: 8 April 2015
© ISS 2015

Synovial fluid interleukin-6 as a predictor of periprosthetic shoulder infection

Frangiamore SJ, et al.

Bone Joint Surg Am (2015); 97(1):63–70

Leukocyte esterase strip test: matched for musculoskeletal infection society criteria

Tischler EH, et al.

J Bone Joint Surg Am (2014); 96(22):1917–1920

α -Defensin as a predictor of periprosthetic shoulder infection

Frangiamore SJ, et al.

J Shoulder Elbow Surg (2015); *ePub*. <http://dx.doi.org/10.1016/j.jse.2014.12.021>

Diagnosis of periprosthetic joint infection (PJI) is challenging in part because of the indolent nature and difficulty in culturing some of the offending organisms. These articles investigate new tools for PJI diagnosis that may overcome the low sensitivities and specificities of joint aspiration cultures, cell counts and serum markers such as ESR, and CRP. These techniques are based on detection of molecules released into the synovial fluid by inflammatory cells as markers of infection that are measurable even when the organism cannot be directly cultured. Frangiamore, *et al.* in a study of 32 consecutive patients who underwent revision total shoulder arthroplasty (TSA) found that synovial fluid levels of the cytokine interleukin-6 exceeding 359 pg/ml were 87 % sensitive and 90 % specific for PJI. Tischler, *et al.* investigated the use of leukocyte esterase urine test strips with hip or knee joint synovial fluid for detection of PJI in 221 joints that underwent revision arthroplasty. They found a 66 % sensitivity and 97 % specificity when the “++” reading was considered positive. Bloody joint aspirates required centrifugation to avoid false reading; they warn that metal-on-metal reactions may also cause false positive readings. In a study of 33 patients with

painful total shoulder arthroplasties who had revision surgery, Frangiamore, *et al.* determined that synovial fluid levels of α -defensin, antimicrobial peptides primarily expressed by neutrophils, were 63 % sensitive and 95 % specific for determining the presence of infection. The authors of each of these articles indicate these techniques may serve as helpful, but not definitive markers of infection that could be incorporated into the clinical diagnosis of PJI.

Five-year followup of knee joint cartilage thickness changes after acute rupture of the anterior cruciate ligament

Eckstein F, et al.

Arthritis Rheumatol (2015); 67(1):152–161

Quantitative segmentation analyses for articular cartilage thickness were performed on knee MR images of 121 young active adults, aged 18–35 years, that were obtained 4-weeks, 2- and 5-years after acute anterior cruciate ligament rupture. Manual segmentations of articular cartilage and subchondral bone were performed by as paired datasets with masking of the timepoints. Mean cartilage thickness over the total area of bone was calculated for each cartilage plate. During the 5 years of the study, overall thickness of the femorotibial cartilage, *i.e.* sum of the femoral and tibial cartilage in both the medial and lateral compartments, increased by 31 $\mu\text{m}/\text{year}$ with a significantly greater gain in subjects under 25 years of age. Subregional analyses of each compartment showed concurrent local increases and decreases of cartilage thickness occurred that were greater during the first 2 years of the study. The mechanisms of these changes, whether adaptive or degenerative, remain unclear. Subregional quantitative analyses of cartilage volumes and thicknesses may provide insights into the dynamic processes occurring after injury that are undetectable by global analyses.

Abstracted by C. S. Winalski, M.D.

June 2015