Key Session 9

[O113] THE MOST RELIABLE LABORATORY TESTS FOR PJIS: HAVE WE ACHIEVED A GOLDEN STANDARD?

Lorenzo Drago[1]

[1]IRCCS Galeazzi Institute – University of Milan

In the last two decades, significant improvements in laboratory diagnosis of PJI have been reported. As far as microbiological analysis, although debate exists on the minimum number of samples required to diagnose PJI with an acceptable sensitivity and on how to process these samples, development of methods to dislodge biofilm-embedded bacteria from infected prostheses have led to a significant increase in sensitivity of cultures. Particularly, our group has shown that treatment of prosthetic components and periprosthetic tissues with dithiothreitol (DTT), a sulphydryl compound able to chemically detach microbes from biofilm adhered to prosthesis, has a sensitivity and a specificity similar or even higher than traditional methods, such as sonication. More recently, we have contributed to development of a novel device for collection, transport and treatment of prosthetic samples (implants and tissues). The main novelties of the new system reside in the possibility to collect in the same container both prosthetic components and periprosthetic tissues, thus reducing sample processing and the use of a completely closed system which may contribute to limit risks for contamination and, consequently isolation of contaminants. As far as pre-operative PJI diagnosis, analysis of synovial fluid represents a critical issue. Traditionally leukocyte and differential counts and culture are performed on synovial fluid. However, sensitivity of synovial fluid culture does not permit to exclude with sufficient certainty the preserapidnce of infection. On the other hand, preoperative determination of traditional blood markers of infection, such as C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) are not sufficiently specific for PJI, since concomitant conditions, such as inflammatory diseases, may alter ESR or CRP levels and in some cases, particularly when low-virulent bacteria, such as coagulase negative staphylococci and propionibacteria, are involved no or smooth changes in ESR and CRP may be observed.