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O0472 Evaluation of the FilmArray Bone and Joint Infection Panel using synovial fluid samples

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Background: Bone and joint infections (BJIs) are difficult to treat infections. They can be polymicrobial or caused by fastidious bacteria and the patient could have received antibiotics before surgery. Those factors increase the difficulty of culture-based diagnosis. Furthermore, up to two weeks are often needed to detect bacteria by culture. Alternatively, molecular approaches have been developed and the goal of this study is to evaluate a development version of a FilmArray BJI Panel (bioMérieux SA, BioFire Diagnostics, LLC) using synovial fluid samples.

Materials/methods: 112 patients with suspected BJI were prospectively enrolled in the study. Up to 5 specimens were collected per patient including at least one synovial fluid and several solid samples. All samples (355 total) were tested in culture whereas the BJI Panel was used on synovial fluids only. For each patient, BJI Panel results on synovial fluid were compared to culture but also to the microbiological diagnosis based on the combined culture results of all samples from the patient.

Results: 25 patients (22%) were called positive from synovial fluid culture results versus 29 (26%) with the BJI Panel.
Out of 40 pathogens detected with the BJI Panel using synovial fluid only, 36 were concordant with the microbiological diagnosis based on combined results from both synovial fluids and solid samples. The BJI Panel led to 4 additional detections, 3 of which were later confirmed by PCR/sequencing. Lastly, 3 false negative results were observed for pathogens found only in solid samples by culture.

Conclusions: The majority of results obtained with the FilmArray BJI Panel were concordant with the microbiological diagnosis. Additional clinical sites are currently enrolling synovial fluid samples, meanwhile these preliminary data suggest that the use of synovial fluid only with the BJI Panel remains a good option for the diagnosis of BJI. The test is user-friendly with a time to result of 1 hour and should therefore aid in the diagnosis of BJIs and promote early optimized antibiotic therapy.

Data presented here have not been reviewed by FDA or other regulatory agencies for In Vitro Diagnostic use.