

P1794

Abstract (poster session)

Evaluation of PNA FISH assays for the rapid diagnosis of sepsis and other severe infections, and identification of *Streptococcus agalactiae* in the screening of pregnant women

A. Calderaro*, M. Martinelli, F. Motta, M. Benecchi, S. Covan, C. Chezzi (Parma, IT)

Objectives: Identification (ID) of pathogens by conventional methods from liquid culture media requires 24-48 hrs. Peptide nucleic acid fluorescence in situ hybridization (PNA FISH) is a new molecular diagnostic tool for the rapid ID of pathogens directly from liquid media. The aims of this study were to evaluate PNA FISH in comparison with conventional methods both from positive blood cultures (BC) and other biological fluids, as well as to evaluate the ID of *Streptococcus agalactiae* (GBS) from vaginal swabs (VS) in pregnant women. **Methods:** The PNA FISH assays (AdvanDx) were applied on 61 positive BC bottles (Bactec 9240, BD) (56 blood samples and 5 biological fluids other than blood). On the basis of the Gram stain microscopy results, 4 different panels were used: one for identification/differentiation of *Staphylococcus aureus* (SA) and other coagulase-negative staphylococci (CNS), one for *Enterococcus faecalis* (EF) and other enterococci (OE), one for *Escherichia coli* (EC), *Klebsiella pneumoniae* (KP) and *Pseudomonas aeruginosa* (PA), and one for *Candida albicans*/*C. parapsilosis* (CAP), *C. tropicalis* (CT) and *C. glabrata*/*C. krusei* (CGK). For GBS ID, "GBS PNA FISH" assay (AdvanDx) was performed on 25 VS belonging to pregnant women after 24 hrs of incubation in enrichment broth. The results of the molecular assays were compared with those obtained by ID with conventional methods. **Results:** On all 56 positive BC, PNA FISH assays showed a 100% agreement with the ID obtained by conventional methods (14 CNS, 4 SA, 5 EF, 1 SA+EF, 1 OE, 9 EC, 2 KP, 2 PA, 3 CAP, 1 CGK, 1 CT, 14 negative). When PNA FISH assays were tested on the 2 peritoneal fluids, 1 cerebrospinal fluid, 1 bile and 1 liver abscess, the results agreed with the conventional methods in all cases (1 EF+EC, 1 CGK, 1 CNS, 1 OE, 1 OE+CAP). PNA FISH assays provided species identification in average 2.8 days before the conventional methods. "GBS PNA FISH" tested on 25 VS, all samples showed a 100% agreement with conventional methods providing species identification in average 1 day before than conventional method. **Conclusion:** PNA FISH assays showed, even if tested in this study only on a limited number of samples, an excellent efficacy in the rapid identification of main pathogens yielding a significant reduction on reporting time, leading to a more appropriate patient management and therapy in case of sepsis and severe infections and a rapid screening for GBS colonization in pregnant women.