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Abstract (publication only)

Initial treatment as consequence of using PNA-FISH for yeast in blood cultures

R.R. Laub*, J.D. Knudsen (Hvidovre, DK)

Objectives: The clinical guidance from microbiologists following blood cultures (BC) with yeast depends on patient history and the pathogen retrieved. *C. albicans* has a high grade of susceptibility to fluconazole. Other species have a low grade of susceptibility to fluconazole and should be treated with other antifungals. PNA-FISH (peptide nucleic acid fluorescence in situ hybridization) identifies pathogens within 90 min. The clinical consequences of early species detection were studied. **Methods:** In November 2009, PNA-FISH was implemented for examination of yeast directly from positive BC. Records of BC containing yeast from January 2010 - September 2011 were reviewed, and the guidance given was recorded. **Results:** We identified 103 patients having BC with yeast (51 *C. albicans* and 52 non-*C. albicans*). PNA-FISH was used to identify the pathogen of 53 cases; 28 *C. albicans* and 25 non-*C. albicans*. **Patients with *C. albicans*:** Of 28 cases identified PNA-FISH, 5 (18%) patients were dead or transferred to other hospitals. Of the 23 patients available for evaluation, 15 (65%) were treated with fluconazole and 8 (35%) received caspofungin or amphotericine B. For patients with *C. albicans* fungaemia, where PNA-FISH was not used, 8 (42%) patients received fluconazole and 11 (58%) got either caspofungin or amphotericine B. **Patients with non-*C. albicans*:** Of 25 cases identified with PNA-FISH, 19 were available for evaluation. 16 (84%) received caspofungin or amphotericine B and 3 (16%) got fluconazole. Of 17 cases not identified with PNA-FISH, 10 (59%) received caspofungin or amphotericine B and 7 (41%) got fluconazole. Given that fluconazole is the right treatment for *C. albicans*, and for other yeasts caspofungin or amphotericine B should be used, 31 of 41 (74%) patients got correct treatment in the PNA-FISH group compared to 18 of 36 (50%) patients in the group not examined by PNA-FISH ($P=0.037$). **Conclusions:** PNA-FISH was able to improve guidance from clinical microbiologist to clinical doctors. The benefits were early diagnosis and early appropriate treatment. Obviously, these improvements in patients care also hold economic benefits.