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Abstract (poster session)

Molecular identification of yeasts causing fungaemia: are cryptic species frequent?

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Objectives: The study of the epidemiology of fungaemia is necessary to optimize empirical and proven treatment. However, morphological and biochemical procedures are unable to uncover the presence of closely related species (cryptic species) in complexes of Candida parapsilosis, Candida guilliermondii, and Candida glabrata. We used molecular techniques to provide definitive identification of species causing fungaemia in patients admitted to a tertiary hospital. Methods: We studied 445 fungal isolates from the blood cultures of 401 patients with fungaemia admitted to our hospital between January 2007 and August 2011. Each isolate represented 1 fungaemia episode. Multiple episodes were defined as isolation of the same fungal species in further blood cultures taken >=7 days after the last isolation in blood culture. Isolates were identified after amplification and sequencing of the ITS1-5.8S-ITS2 region. A phylogenetic tree based on the sequenced ITS1-5.8S-ITS2 region was constructed to detect the presence of cryptic species within the C. parapsilosis, C. guilliermondii, and C. glabrata complexes. Results: Only 9 (2%) fungaemia episodes were caused by a mixture of 2 different yeast species. The distribution of species involved in the fungaemia episodes was as follows: Candida albicans (n= 217, 48.7%), C. parapsilosis (n=129, 29%), C. glabrata (n=45, 10.1%), Candida tropicalis (n=28, 6.3%), C. guilliermondii (n=6, 1.3%), Candida krusei (n=6, 1.3%), Candida dubliniensis (n=4, 0.9%), Candida kefyr (n=2, 0.5%), Candida lusitaniae (n=2, 0.5%), Candida pelliculosa (n=1, 0.25%), other non-Candida yeasts (n=14, 3.1%). Only 3 isolates from the C. parapsilosis complex were cryptic species. One adult patient who underwent cardiac surgery developed candidemia by Candida metapsilosis. Two adult patients with digestive cancer developed candidemia by Candida orthopsilosis. Only 1 of the isolates identified as C. guilliermondii was confirmed as Pichia caribbica (the isolated was from a patient with digestive cancer). No cryptic species were found in the isolates identified as C. glabrata. Conclusion: In our hospital, most episodes of fungaemia were caused by C. albicans, followed by C. parapsilosis. The presence of cryptic species within the C. parapsilosis, C. guilliermondii, and C. glabrata complexes was infrequent and represented only 2% of their isolates. Jesús Guinea (CP09/00055) and Pilar Escribano (CD09/00230) are supported by a contract from FIS.