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MICOLOGIA

FUNGEMIAS DIAGNOSED AT THE MICROBIOLOGY LABORATORY OF SS. ANTONIO E BIAGIO E C. ARRIGO HOSPITAL OF ALESSANDRIA AND TESTED BY MULTIPLEX REAL-TIME PCR FROM JUNE 2015 TO AUGUST 2019.

C. Leli [1], L. Di Matteo [1], F. Gotta [1], D. Vay [2], V. Cavallo [1], R. Mazzeo [1], S. Busso [1], L. Carrabba [1], A. Rocchetti [1]

[1]*Microbiology and Virology Laboratory, SS. Antonio e Biagio e C. Arrigo Hospital, Via Venezia 16, 15121 Alessandria*

[2]*Pathology Unit, SS. Antonio e Biagio e C. Arrigo Hospital, Via Venezia 16, 15121 Alessandria*

INTRODUZIONE

Fungemia is a serious life-threating illness associated with high mortality. The gold standard for the diagnosis of fungemia is blood culture. Conventional biochemical methods for species identification typically take from 24 to 72 hours. Several studies have shown how a delay of 12 to 48 hours in appropriate antifungal therapy is associated with an increased risk of mortality. Rapid identification of fungi allows a more targeted empirical therapy and a better outcome of the patient, given the different antifungal susceptibility profile of some species. For these reasons, all blood cultures positive for fungi during the period from June 2015 to August 2019 were tested by means of a multiplex Real-Time PCR for rapid identification.

METODI

All blood cultures positive for fungi by microscopic examination after Gram staining underwent FilmArray® blood culture identification panel, standard culture and identification by means of Vitek 2. Median values of C-reactive protein (CRP) and complete blood count from samples drawn concurrently with blood cultures were evaluated.

RISULTATI

A total of 77 blood cultures were included. Sixty-six blood cultures out of 77 (85.7%) were positive for one species of Candida, 2/77 (2.6%) for two species, while 9/77 (11.7%) were positive for both Candida spp. and bacteria. Considering all Candida spp. recovered (79), Candida albicans was the most frequently identified species: 42/79 (53.2%), followed by Candida parapsilosis: 18/79 (22.8%), Candida glabrata: 16/79 (20.2%) and Candida tropicalis: 3/79 (3.8%). The agreement between FilmArray® and Vitek 2 was 100%. FilmArray® allowed to reduce turnaround time by approximately 36-48 hours. Taking into account only the 66 blood cultures positive for single Candida species, the comparison among median values corresponding to positive blood cultures for C. albicans, C. parapsilosis and C. glabrata showed significant differences for CRP (9.9 vs 6.9 vs 15.7 mg/dl; p=0.03) and neutrophil/lymphocyte ratio (6.9 vs 3.5 vs 14.1; p=0.01), respectively. The antifungal susceptibility testing performed by broth microdilution showed a high percentage of C. glabrata isolates resistant to fluconazole: 9/16 (56.2%) in contrast to C. albicans: 3/42 (7.1%); while regarding C. parapsilosis, 6/18 (33.3%) isolates were resistant to anidulafungin and micafungin.

CONCLUSIONI

Early identification of fungi from positive blood cultures reduced turnaround time allowing for a more focused early empirical antifungal therapy. Candida glabrata fungemia was found to be associated with a greater inflammatory state.