Fungi isolated in blood cultures in Ege University Medical Faculty, Childrens Hospital between 2008-2017

Zümrüt Şahbudak Bal¹, Gizem Güner¹, Dilek Yeşim Metin², Ferda Özkinay¹, Zafer Kurugöl¹, Süleyha Hilmioğlu Polat²

¹Department of Pediatrics, ²Department of Medical Microbiology, Faculty of Medicine, Ege University, Izmir, Turkey.

Although the spectrum of fungi causing bloodstream fungal infections continues to expand, *Candida* spp. remains responsible for the majority of these cases. The distribution of *Candida* species varies according to countries, regions and also institutions.

In this study, we evaluated retrospectively the distribution of *Candida* species yielded from blood cultures of hospitalized patients in Ege University, Childrens Hospital between the dates.

The frequency of fungi among agents growing in blood culture was evaluated. In case of the recurrent positive cultures from the same patient, only one strain was taken into consideration. Besides, after 15 days of negativity in blood culture, a positive culture was considered as a new candidemia episodes.

Fungi were isolated from the blood cultures using the BacktAlert system (bioMérieux, France). They were identified with conventional mycological methods and their assimilation profiles were determined with ID 32 C (bioMérieux, France) between 2008-2014; and identified by MALDI TOFF MS (bioMérieux, France) between 2014-2017.

A total of 281 fungal species from 252 patients were evaluated. 58.4% of the patients were male, 41.6% were female and the mean age was 4.5 (0.01-20.08). Candidemia was common in pediatric surgery unit followed by pediatric intensive care, gastroenterology and oncology services (Table 1).

Two hundred seventy five of these strains (97.8%) were *Candida* species, while six were other fungi. The most common species of *Candida* was *C. parapsilosis*. Of the isolates, 32.4 % (91/281) were *C. albicans* and 65.4% (184/281) were non-*albicans Candida*; *C. parapsilosis* (41.6%), *C. glabrata* (6.4%), *C. tropicalis* (5.3%), *C. krusei* (2.8%), *C. kefyr* (2.1%) and other *Candida* species (7.2%) (Table 2).

Table 1. Distribution of fungi by pediatric units

Units	Number	%
Surgery	64	22.8
Intensive care	48	17.1
Gastroenterology	46	16.4
Oncology	29	10.9
Haematology	25	8.9
Newborn	17	6
Bone Marrow Transplantation	15	5.3
Immunology	5	1.8
Cardiology	5	1.8
General pediatri	5	1.8
Endocrinology	4	1.4
Chest Disease	4	1.4
Neurology	4	1.4
Infectious disease	3	1.1
Nephrology	3	1.1
Metabolism	2	0.7
Rheumatology	2	0.7
Total	281	100

Table 2. Frequency of fungi isolated from blood cultures in pediatric patients during 2008-2017

Isolated Fungi	Number of isolated strains	%
<i>Candida parapsilosis</i>	117	41.6
<i>Candida albicans</i>	91	32.4
<i>Candida glabrata</i>	18	6.4
<i>Candida tropicalis</i>	15	5.3
<i>Candida krusei</i>	8	2.8
<i>Candida kefyr</i>	6	2.1
<i>Candida spp.</i>	6	2.1
<i>Candida guilliermondii</i>	5	1.8
<i>Candida inconspicua</i>	2	0.7
<i>Candida lusitanae</i>	2	0.7
<i>Candida pelliculosa</i>	2	0.7
<i>Candida dubliniensis</i>	1	0.7
<i>Candida famata</i>	1	0.4
<i>Candida sake</i>	1	0.4
<i>Cryptococcus neoformans</i>	1	0.4
<i>Geotrichum candidum</i>	1	0.4
<i>Geotrichum capitatum</i>	2	0.4
<i>Trichosporon asahii</i>	1	0.4
<i>Zygosaccharomyces spp.</i>	1	0.4
Total	281	100

As a conclusion, although *C. albicans* was the most common species in the first two years of this period, *C. parapsilosis* took the first place in the following years.

Taking infection control measures into consideration can reduce the incidence of candidemia due to *C. parapsilosis*