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Paper Poster Session
Fungemia

Genotyping of *Candida albicans* and *Candida parapsilosis* isolates causing fungaemia in neonates: persistent or sporadic clusters?

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Background: *Candida albicans* and *Candida parapsilosis* are common causes of candidemia in neonatal intensive care units (NICUs). Genotyping can detect clusters of *C. albicans* and *C. parapsilosis* causing candidemia. We assessed the frequency of *C. albicans* and *C. parapsilosis* clusters causing candidemia in the NICU and their chronological distribution during the study period.

Material/methods: We studied 78 patients admitted to the NICU of Gregorio Marañón Hospital (Madrid, Spain) with candidemia caused by *C. albicans* (n=47) or *C. parapsilosis* (n=31) between January 2007 and December 2014. The incident isolates were identified using molecular techniques and further genotyped using species-specific highly polymorphic microsatellite markers. Isolates were considered to be identical genotypes when they showed the same alleles for all loci. A cluster was defined as a group of 2 or more patients infected by an identical genotype.

Results: We found 37 *C. albicans* genotypes and 17 *C. parapsilosis* genotypes; overall, 18.5% (10/54) were clustered. We did not find statistically significant differences in the percentage of clusters of *C. albicans* (n=7, 19%) and *C. parapsilosis* (n=3, 18%) ($P=0.8$). Among the 47 patients infected by *C. albicans*, 30 were infected by singleton genotypes; the remaining 17 (36%) patients were infected by 7 clusters (2-4 patients per cluster). *C. albicans* clusters (indicated as CA-XX in the figure) were detected sporadically, and most were found between August and December 2010. Among the 31 patients infected by *C. parapsilosis*, 15 were infected by singleton genotypes; the remaining 16 (52%) patients were infected by 3 clusters (2-12 patients each). Of the 3 *C. parapsilosis* clusters, 1 (CP-121 in the figure) persisted in the NICU from 2007 to 2011 and infected a high number of patients (n=12). The percentage of patients involved in clusters tended to decrease during the study period.

Conclusions: We found a high proportion of *C. albicans* and *C. parapsilosis* clusters causing candidemia in neonates that involved a high number of patients. The chronological distribution of clusters differed between species: *C. albicans* clusters were sporadic, whereas 1 *C. parapsilosis* cluster persisted in the unit for a long period and affected a high number of neonates.

Figure:

