INTRODUCTION AND PURPOSE

Candidaemia is generally nosocomially acquired and genotyping of Candida spp. isolates can unravel the presence of clusters (identical genotypes infecting different patients) in order to study the patient-to-patient transmission or a common source for infection. We genotyped a collection of candidaemia isolates from patients admitted to tertiary hospitals located in greater Copenhagen, Denmark, to gain more insight into the genotypic relationship between isolates.

MATERIAL AND METHODS

161 patients with candidemia admitted to tertiary hospitals in greater Copenhagen (HI, GE, BBH, HE, RH, FRH, GL, HV) from January 2014 to December 2015

C. albicans (n=139)
C. parapsilosis (n=14)
C. tropicalis (n=14)

Genotyping with species-specific microsatellite markers

Overall, 33% and 23.3% of C. albicans and C. tropicalis isolates, respectively, were in clusters. Sequential isolates from 7 patients were studied (5 with C. albicans [2-34 days between isolates], 1 with C. parapsilosis [35 days between isolates], and 1 with C. tropicalis [365 days between isolates]). Of note, the sequential isolates were isogenic in all cases (Figure, grey boxes). Additionally, we found 9 clusters (C. albicans, n=7), and C. tropicalis, clusters (CT, n=2). CA clusters involved 18 patients (2-5 patients each) whereas CT clusters involved 2 each (Figure, depicted boxes); most of the clusters (8/9) involved patients admitted to different hospitals. The remaining cluster (CA-1) involved two patients admitted to the same hospital but at two different wards (Thorax-Surgery and Gastro-Surgery) and obtained 143 days apart (Table).

RESULTS

A total of 147 unique genotypes (C. albicans n=120, C. parapsilosis n=13 and C. tropicalis n=14) were found (Figure).

CONCLUSION

- All sequential isolates from individual patients were isogenic, suggesting long-term colonisation/infection in those patients
- No obvious geographic/temporal links among most of patients involved in clusters were found suggesting:
  a) Clusters probably reflect ubiquitous genotypes rather than patient-to-patient transmission among patients at Copenhagen hospitals.
  b) Alternatively, although microsatellite genotyping is a well-established genotyping method, insufficient discriminatory power cannot be ruled out.