E-poster session: **Evolving therapeutic strategies for fungal infections**

Candida tropicalis bloodstream infection: incidence, risk factors and determinants of mortality in a population-based surveillance in Spain

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Contact information:
Mario Fernández-Ruiz, MD
Unit of Infectious Diseases
Hospital Universitario "12 de Octubre", Madrid
mario_fdezruiz@yahoo.es

Mario Fernández-Ruiz[a], José María Aguado[a], Belén Padilla[b], Mireia Puig-Asensio[c], Manuel Almela[d], Ana Díaz-Martín[e], Jesús Rodríguez-Baño[f] and Manuel Cuenca-Estrella[g], on behalf of the CANDIPOP Project.

[a] Hospital Universitario "12 de Octubre", Madrid; [b] Hospital General Universitario "Gregorio Marañón", Madrid; [c] Hospital Universitari Vall d'Hebron, Barcelona; [d] Hospital Clinic-IDIBAPS, Barcelona; [e] Hospital Universitario "Virgen del Rocío", Sevilla; [f] Hospital Universitario "Virgen Macarena", Sevilla; and [g] Spanish National Center for Microbiology, Instituto de Salud Carlos III, Majadahonda, Spain.

INTRODUCTION

Candida tropicalis possesses a diversity of virulence factors that confer higher potential for dissemination and pathogenicity in comparison to other *Candida* species. Previous single-center studies have shown that patients with *C. tropicalis* bloodstream infection (BSI) are older, suffer more frequently from cancer, and have a higher mortality rate than patients with BSI caused by other species. However, the epidemiological and clinical features of *C. tropicalis* BSI still remain poorly defined, as well as its determinants of outcome.

PATIENTS AND METHODS

A prospective population-based surveillance program on *Candida* BSI (CANDIPOP Project) was conducted from May 2010 to April 2011 in 29 hospitals from 5 areas in Spain: Barcelona, Bilbao, Madrid, Seville and Valencia (population 9,498,980, or 20% of the Spanish population). Strains were centrally identified by sequencing the ITS regions from ribosomal DNA. *In vitro* antifungal susceptibility testing was done according to the protocols and clinical breakpoints of the EUCAST. We compared the clinical characteristics and outcome in episodes of BSI due to *C. tropicalis* and those due to other species. Episodes of mixed fungemia were excluded. Predictors for early (0-7 days) and late mortality (0-30 days) were also assessed.

RESULTS

- 57 out of 752 episodes (7.6%) of *Candida* BSI during the study period were due to *C. tropicalis*
- **Annual incidence:** 0.60 cases/10^5 population
  0.065 cases/10^4 admissions
  0.1 cases/10^5 patient-days
- **Source of BSI:** Primary 33 episodes (57.9%)
  Catheter-related 16 episodes (28.1%)
  Urological 5 episodes (8.8%)

Table 1. Demographics and clinical characteristics of patients with *C. tropicalis* and other non-*tropicalis Candida* BSI.

Variable	*C. tropicalis* BSI (n = 57)	Non-*tropicalis* BSI (n = 681)	*P*-value
Male gender	30 (52.6%)	402 (59.0%)	0.346
Age, years	63.0 ± 22.8	53.9 ± 27.8	0.006
Age <1 year	4 (7.0%)	86 (12.6%)	0.214
Outpatient	2 (3.5%)	37 (5.4%)	0.533
Charlson comorbidity index	2 (1 - 3)	2 (0 - 3)	0.116
Malignancy	28 (49.1%)	242 (35.6%)	0.042
Hematological cancer	11 (19.3%)	45 (6.6%)	0.001
Transplantation	5 (8.8%)	43 (6.3%)	0.470
Neutropenia	5 (8.8%)	35 (5.1%)	0.245
Mucositis	6 (10.7%)	34 (5.0%)	0.071
Parenteral nutrition	20 (35.1%)	338 (49.6%)	0.035
Chronic pulmonary disease	12 (21.1.%)	74 (10.9%)	0.021
Diabetes	16 (28.1%)	144 (21.1.%)	0.223
Breakthrough BSI	B8 (14.0)	90 (13.2)	0.861
Fluconazole exposure	5 (8.8%)	92 (13.5%)	0.309
Pitt score	2 (1 - 3)	1 (1 - 4)	0.509

Table 5. Univariate analysis for mortality.

	OR	95% CI	*P*-value
Early mortality (0-7 days)			
Severe sepsis or septic shock	4.43	1.14 - 17.19	0.025
Inadequate initial antifungal therapy	3.88	0.95 - 15.76	0.063
Late mortality (0-30 days)			
Renal failure	4.36	1.17 - 16.23	0.027
Prior immunosuppression	1.90	1.09 - 3.30	0.005

Table 2. *In vitro* susceptibility to fluconazole (EUCAST methodology).

Geometric mean	1.83 mg/L
Mode	0.5 mg/L
MIC_{90}	64 mg/L
Range	≤0.03 - 0.5 mg/L
Non-susceptibility (MIC ≥4 mg/L)	13 isolates (22.0%)

Table 3. Clinical and microbiological outcomes.

Outcome	*C. tropicalis* BSI (n = 57)	Non-*tropicalis* (n = 681)	*P*-value
Persistent BSI	5 (15.6%)	136 (27.6%)	0.139
Early mortality	10 (17.9%)	83 (12.2%)	0.223
Late mortality	18 (15.6%)	206 (30.8%)	0.636

CONCLUSIONS

In this nation-wide study *C. tropicalis* BSI was associated with advanced age and the presence of haematological malignancy, mucositis and respiratory comorbidity. The high rate of resistance to fluconazole in our experience (22% according to the EUCAST methodology) should be considered when deciding empirical antifungal therapy in patients with these predisposing factors.