

ACTIVE SURVEILLANCE OF CANDIDEMIA IN CHILDREN FROM LATIN AMERICA: A KEY REQUIREMENT FOR IMPROVING DISEASE OUTCOME

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Background

There is limited information on the epidemiology of candidemia in pediatric populations.

Active surveillance is necessary for improving the management and outcomes of patients with candidemia.

Aim

To describe the epidemiologic and clinical features of candidemia in children in Latin America (LA).

Methods

Prospective, multicenter, laboratory-based surveillance study conducted in 23 tertiary care hospitals in eight LA countries, between November 2008 and October 2010.

An episode of candidemia was defined by the isolation of *Candida* species from one or more blood cultures in a patient with clinical signs of infection.

Results

- Three hundred and two cases of candidemia were reported with a mean incidence of 0.81/1,000 admissions. Eighty nine (29%) were neonates (≤ 28 days).
- The median age at candidemia presentation was 16 days (1-28 days) in neonates and 2 years (0.2-18 years) in children
- The median number of days of hospitalization before diagnosis of candidemia was 12 days (0–28) and 14.5 days (0–176) in neonates and children, respectively.

Table 1: Age-specific concomitant conditions in 302 neonates and children with candidemia

	Neonates N (%) N=89	Children N (%) N=213	P value
Prematurity (< 37 weeks)	56 (65)	NA	NA
Admission to an ICU	70 (79)	72 (34)	<0.001
Malignancy	0	54 (25.4)	<0.001
Neutropenia (< 500/cells)	1 (1.1)	41 (19.2)	<0.001
Solid or HSCT transplant	0	4 (1.8)	1.00
Central venous catheter	63 (70.8)	133 (62.4)	0.17
Parenteral nutrition	43 (48.3)	44 (20.7)	<0.001
Cardiovascular disease	18 (20.2)	30 (14.1)	0.18
Neurological disease	6 (6.7)	39 (18.3)	0.01
Respiratory disease	27 (30.3)	34 (16.0)	0.005
Mechanical ventilation	60 (67.4)	64 (30.0)	<0.001
Renal disease	10 (11.2)	32 (15.0)	0.39
Liver disease	2 (2.2)	14 (6.6)	0.16
Recent surgery	26 (29.2)	85 (39.9)	0.08
Abdominal surgery	18 (20.2)	41 (21.6)	0.79
Burns	0	7 (3.3)	0.11
Previous corticosteroids	12 (13.5)	68 (31.9)	<0.001
Previous antibacterial therapy	85 (95.5)	204 (95.8)	1.00
Previous antifungal therapy	17 (19.1)	49 (23.0)	0.45

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Table 2: Species distribution of 302 episodes of candidemia in neonates and children, by age

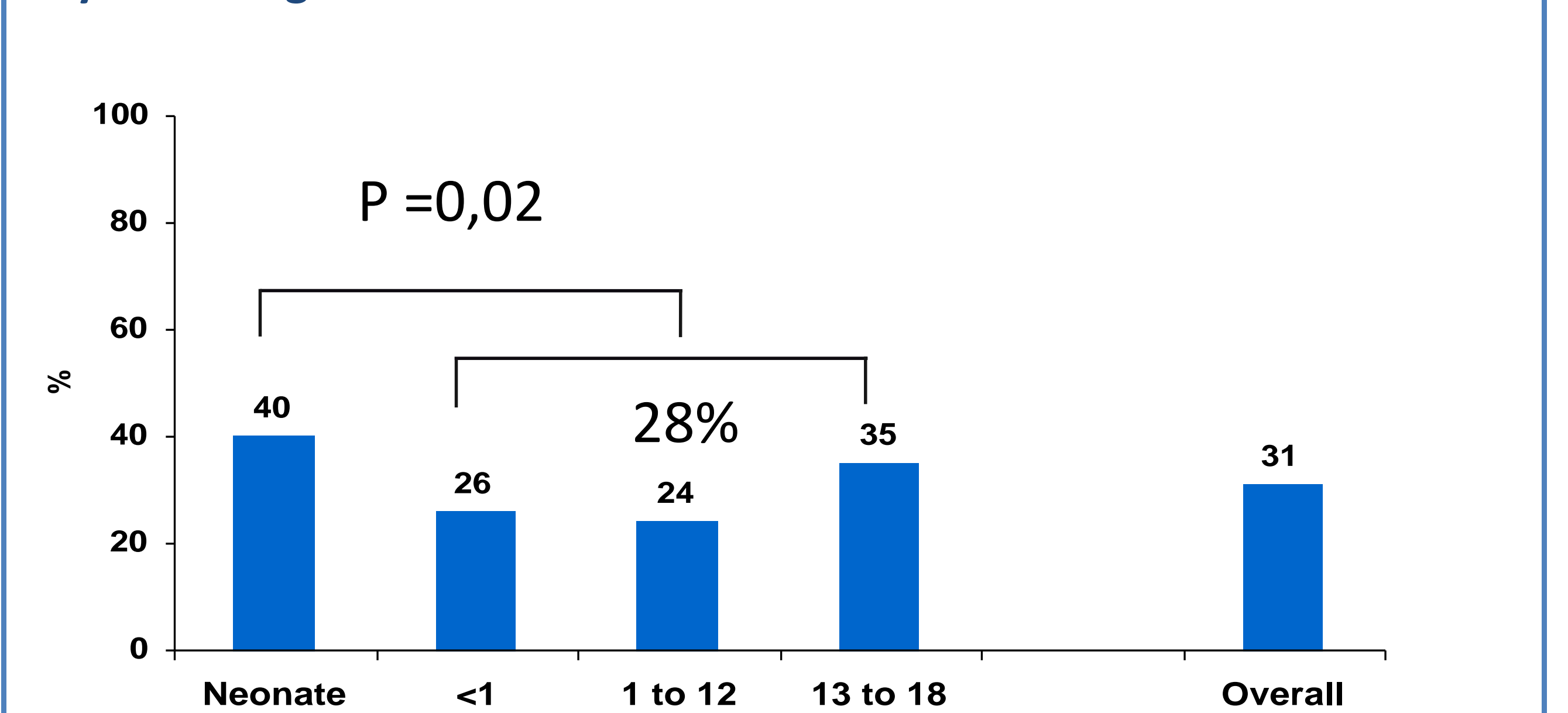
	Neonates N (%) N=89	Children N (%) N=213	Overall N=302
<i>C. albicans</i>	39 (43.8)	76 (35.7)	115 (38.1)
<i>C. parapsilosis</i>	24 (27.0)	56 (26.3)	80 (26.5)
<i>C. tropicalis</i>	13 (14.6)	31 (14.6)	44 (14.6)
<i>C. guilliermondii</i>	4 (4.5)	27 (12.7)	31 (10.3)
<i>C. krusei</i>	4 (4.5)	5 (2.3)	10 (3.3)
<i>C. glabrata</i>	3 (3.4)	7 (3.3)	9 (3.0)
Other*	2 (2.2)	11 (5.1)	13 (4.2)

* Other *Candida* species: Neonates-*C.lusitanae* and *C.intermedia* (1 each) Children-*C.haemulonii* and *C. pelliculosa* (3 each), *C.intermedia*(2), *C. albicans+C.glabrata*, *C.norvegiensis* and *C.lusitanae*

All isolates of *C. albicans*, *C. parapsilosis* and *C. tropicalis* (N=239) were susceptible to fluconazole, with the exception of one SDD, in *C. parapsilosis*. Of 10 isolates of *C. glabrata*, 9 were SDD and one was resistant.

The most frequent antifungal therapy used in neonates and children was deoxycholate-amphotericin-B (43.8% and 29.1%) and fluconazole (28.1% and 53.1%)

30 days – mortality in 302 episodes of candidemia in children ≤ 18 years of age



Survival was significantly higher in treated than in non-treated neonates (72% vs. 24%; P<0.001).

Independent predictors for 30-day mortality in children were renal disease (OR 3.7, 95% CI 1.6 – 8.5, p=0.002), receipt of corticosteroids (OR 2.1, 95% CI 1.1 – 4.3, p=0.04) and candidemia due to *C. tropicalis* (OR 2.5, 95% CI 1.1 – 5.9, p=0.04).

Conclusion

To our knowledge, this is the first prospective, multicenter surveillance study of candidemia in children in LA. This epidemiologic information may provide us with methods to improve preventive, diagnostic and therapeutic strategies in our continent.