

Epidemiology and Risk Factors for Invasive Fungal Infections among patients with Hematological Malignancies in Colombia



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Background

Invasive fungal infection (IFI) is a potentially lethal complication in patients with hematological malignancies (HM).

Purpose: The current study aimed to investigate the epidemiology of IFI in patients with HM hospitalized in non-HEPA-filtered rooms (resource-limited settings) in a reference center in Colombia.

Methods

A cross-sectional, retrospective study was conducted involving HM patients and pulmonary infection hospitalized in a tertiary hospital in Bucaramanga, Colombia, between 2015-2020.

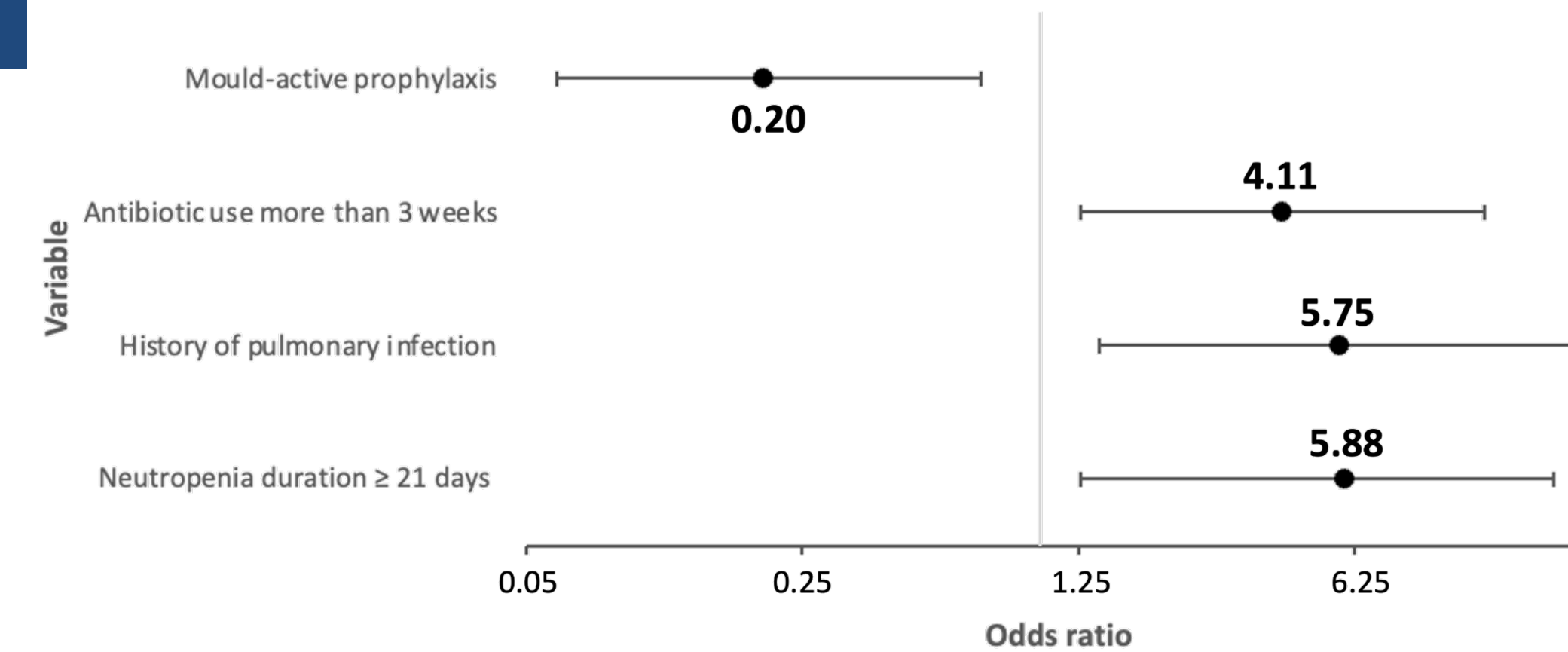
The primary outcome was proven/probable IFI according to the EORTC/MSGERC criteria. A descriptive and group comparison analysis was performed between patients with IFI and those with non-fungal infections. Multivariate stepwise logistic regression analysis identified the main risk factors for the development of IFI.

Results

- In 201 patients, the prevalence of proven/probable IFI was **21.39% (43 cases)**.
- The most common IFI was caused by *Aspergillus spp.* (41.8%), followed by *Candida spp.* (34.8%), *Mucor spp.* (6.9%), *Penicillium spp.* (4.6%) and *Cryptococcus neoformans* (4.6%).
- In hospital-mortality was 77.1% (155 cases).

Variable	Total (n=201; 100%)	Invasive fungal infection (n=43; 21.39%)	Non-fungal infection (n=158; 78.61%)	p value
Prior history of pulmonary infection, n (%)	23 (11.44%)	11 (25.58%)	12 (7.59%)	0.001
In-hospital chemotherapy, n (%)	105 (52.5%)	29 (67.44%)	76 (48.41%)	0.027
Febrile neutropenia, n (%)	109 (54.23%)	29 (67.44%)	80 (50.63%)	0.050
Duration of neutropenia (days), median (IQR)	14 (5-25)	25 (15-39)	10 (4-19)	0.000
Profound neutropenia, n (%)	70 (34.83%)	25 (58.14%)	45 (28.48%)	0.000
Septic shock, n (%)	109 (54.23%)	31 (72.09%)	78 (49.37%)	0.008
Lactate-dehydrogenase U/L, median (IQR)	353 (231-671)	490 (324-954)	313 (217-583)	0.000
Total serum protein g/dL, mean ± SD	5.97 (5.01-6.71)	5.4 (4.85-6.1)	6.03 (5.31-6.86)	0.027
Serum albumin level g/dl, mean ± SD	2.98 (0.69)	2.79 (0.67)	3.04 (0.69)	0.04
Total bilirubin mg/dl, median (IQR)	0.66 (0.43-1.37)	0.95 (0.6-1.55)	0.6 (0.41-1.33)	0.012
Platelets x103/μL, median (IQR)	55 (21-142)	33 (16-93)	68.5 (24-160)	0.016
Mould-active prophylaxis, n (%)	45 (22.38%)	3 (6.97%)	42 (26.58%)	0.000
Antibiotic use more than 3 weeks, n (%)	48 (24%)	22 (51.16%)	26 (16.56%)	0.000
Hospital length of stay (days), median (IQR)	35 (17-56)	43 (33-78)	30 (15-53.5)	0.001
Bacteremia, n (%)	88 (43.78%)	25 (58.14%)	63 (39.87%)	0.032

Table 1. Univariate analysis of patient characteristics compared between patients with invasive fungal infection and patients with non-fungal infection.



Associated factors to develop invasive fungal infections (IFIs) in patients with HM in the multivariate analysis.

Conclusions

- Patients with HM in resource-limited settings have a high prevalence of IFI with elevated mortality.
- The use of mould-active prophylaxis is associated with a significantly lower occurrence of IFI.
- Cost-effective strategies for prevention and early diagnosis of IFI are required to improve survival in patients with HM.

