Bacteremia in Patients with Solid Tumors: Epidemiology, Clinical Features and Risk Factors for Mortality. Results from a Multicenter Study in Argentina.

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BACKGROUND

Current information regarding bloodstream infections (BSI) in patients with solid tumors is scarce. In previous series, the presence of comorbidities, shock at presentation, receipt of steroids, inadequate empiric antibiotic therapy and advanced neoplasms were independent risk factors for overall mortality.
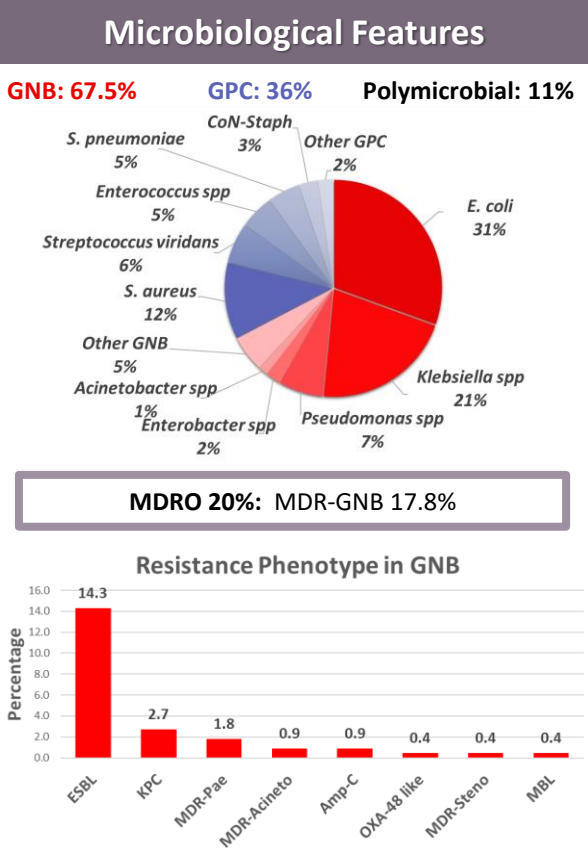
OBJECTIVES

To assess the etiology, clinical features and outcome in patients with solid tumors and bacteremia, and to identify risk factors for mortality.

METHODS

Prospective multicenter study.
Episodes of bacteremia in adult cancer patients in 9 centers, from May 2014 to February 2021, were recorded.
To identify factors associated with 7 and 30 day-mortality, variables with p < 0.05 in univariate analysis were included in a logistic regression model.

RESULTS: **332** episodes were included

Clinical Characteristics

Female Gender – n (%)	170 (51.2%)
Age – Median (IQR)	59 (47-68)
Diseases status – n (%)	
Relapse	95 (28.6%)
Remission	90 (27%)
Recent diagnosis	88 (26.5%)
Refractory disease	56 (16.9%)
Previous treatment – n (%)	
Recent chemotherapy	243 (73.2%)
Corticosteroids	84 (25.3%)
Target therapy	48 (14.5%)
Healthcare-related	139 (42%)
Nosocomial acquisition	123 (37%)
Source – n (%)	296 (89%)
Abdominal	115 (34.6%)
Urinary	61 (18.4%)
Respiratory	44 (13.2%)
Neutropenia – n (%)	78 (23.5%)
High risk (MASCC) – n (%)	48 (14.5%)
Duration – Median (IQR)	3 (2-5)

Microbiological Features

GNB: 67.5%   **GPC: 36%**   **Polymicrobial: 11%**

CoN-Staph 3%
Other GPC 2%
S. pneumoniae 5%
Enterococcus spp 5%
Streptococcus viridans 6%
S. aureus 12%
Other GNB 5%
Acinetobacter spp 1%
Enterobacter spp 2%
Pseudomonas spp 7%
Klebsiella spp 21%
E. coli 31%

MDRO 20%: MDR-GNB 17.8%

Resistance Phenotype in GNB

	ESBL	KPC	MDR-Pae	MDR-Acineto	Amp-C	OXA-48 like	MDR-Steno	MBL
Percentage	14.3	2.7	1.8	0.9	0.9	0.4	0.4	0.4

7 day - Mortality: 16% Associated Risk Factors

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	p
Refractory disease	2.2 (1.1-4-5)	3 (1.1-8.2)	0.03
Polymicrobial BSI	3.9 (1.8-8.4)	3.7 (1.4-9.8)	0.009
Respiratory source	3.8 (1.9-7.8)	5.2 (1.7-16)	0.004
ICU admission	5.8 (2.6-9.3)	3.9 (1.4-10)	0.007

30 day - Mortality: 27% Associated Risk Factors

Variables	Unadjusted OR (95% CI)	Adjusted OR (95% CI)	p
Refractory disease	2.5 (1.4-4.6)	4.1 (1.3-13.4)	0.018
Carbapenem-Resistant GNB	2.8 (1.02-7.7)	8.4 (2.1-33.4)	0.002
7 day - clinical response	0.03 (0.01-0.06)	0.02 (0.007-0.06)	0.01
ICU admission	4.5 (2.5-7.8)	4 (1.2-13.1)	0.018

CONCLUSION: Bacteremia was a serious complication in cancer patients, with high mortality. Pulmonary source and polymicrobial BSI were associated with early mortality. Infection caused by GNB resistant to carbapenems was an independent risk factor for 30 day - mortality, while 7 day - clinical response was a protective factor. Refractory underlying disease and the severity of presentation were associated with early and overall mortality. Our results stress the importance of infection control measures and antibiotic stewardship to prevent colonization with multidrug-resistant organisms.