

Aetiology, resistance patterns and impact on outcome

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Argentinean Bacteraemia in Cancer and Hematopoietic Stem Cell Transplant Study Group (ROCAS Study)

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BACKGROUND

The aetiology and resistance patterns of bacteraemia events may differ according to the time of presentation during neutropenia. These differences could influence mortality.

OBJECTIVES

To describe and compare the characteristics between first and subsequent episodes of bacteraemia during neutropenia.

METHODS

Prospective multicenter study.

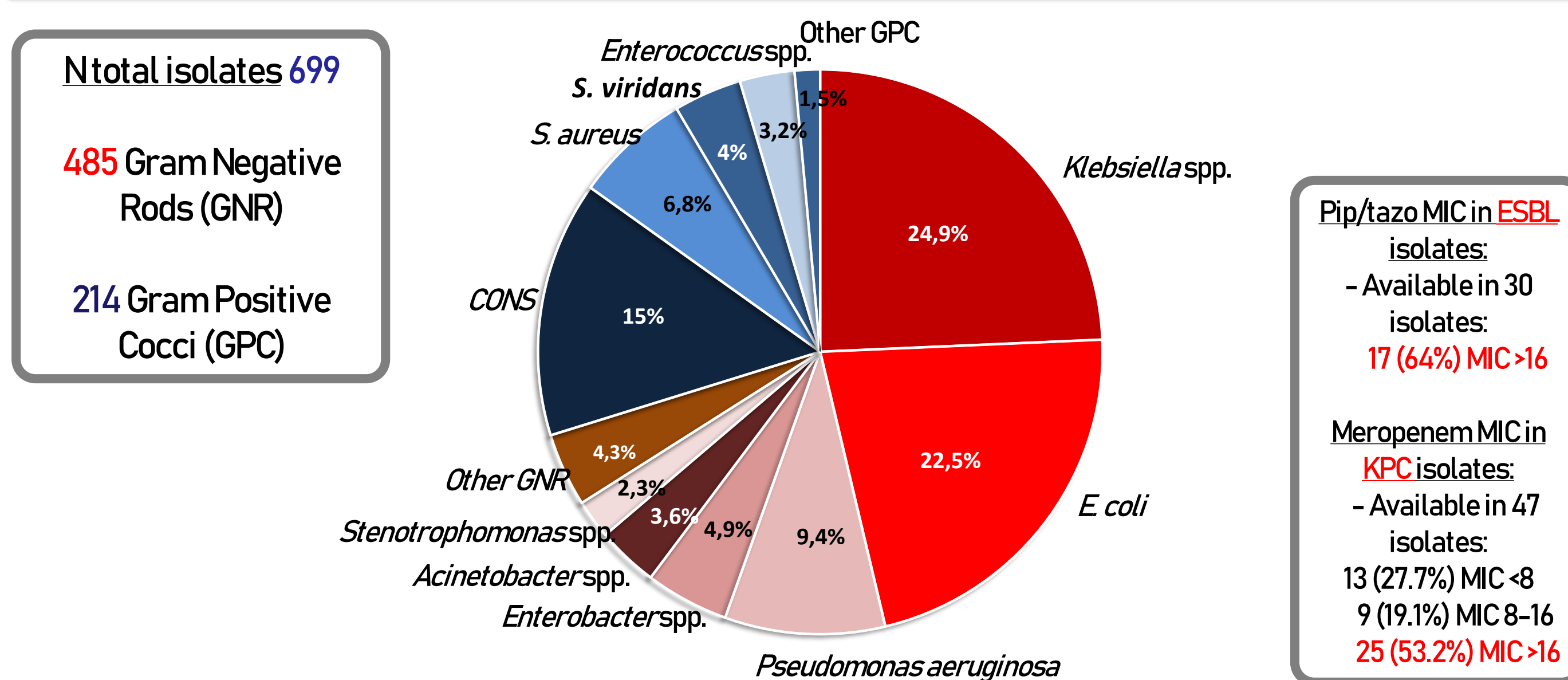
Episodes of bacteraemia in adult neutropenic cancer and hematopoietic stem cell transplant (HSCT) patients were included in 10 centers in Argentina, from May 2014 to January 2018.

We compared characteristics between **first (G1)** and **subsequent (G2)** bacteraemia events during the same neutropenia episodes.

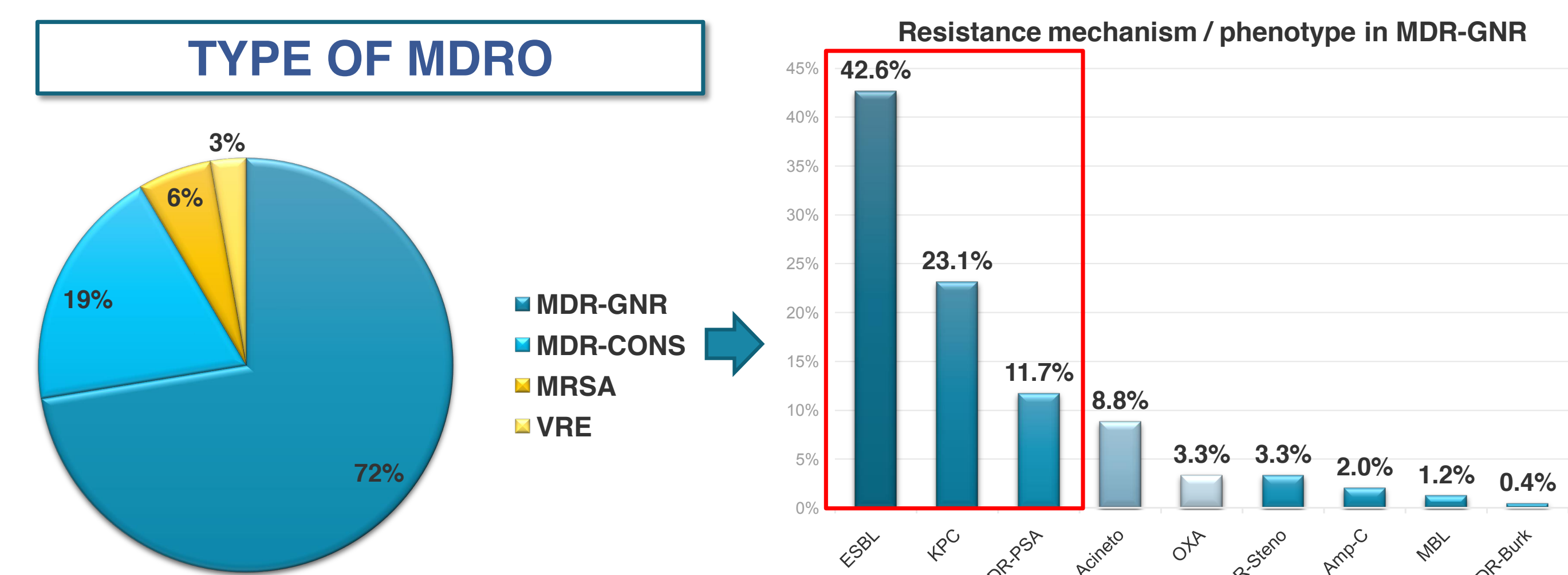
Recurrent events caused by the same initial microorganism were excluded.

To identify factors associated with 30-day mortality, variables with $p < 0.05$ in univariate analysis were included in a logistic regression model for multivariate analysis.

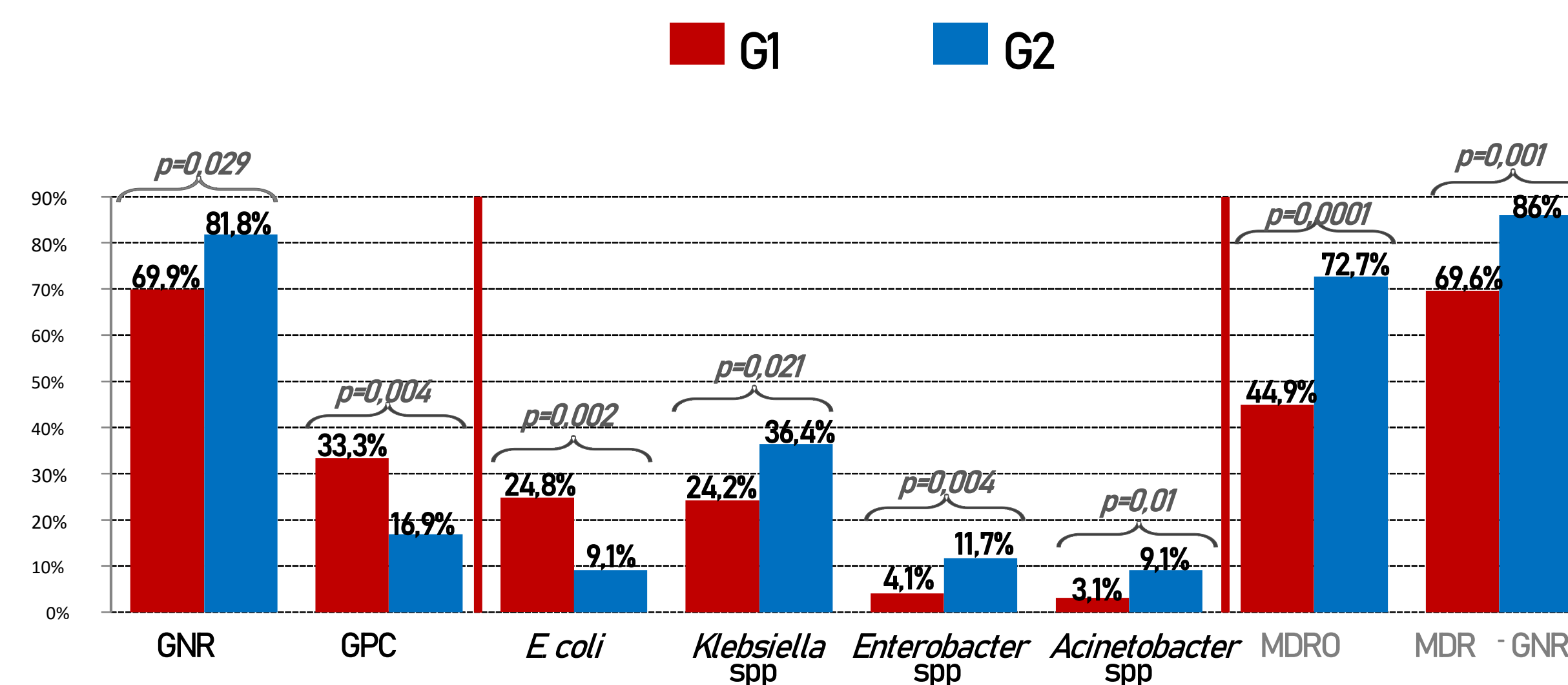
GLOBAL MICROBIOLOGICAL CHARACTERISTICS



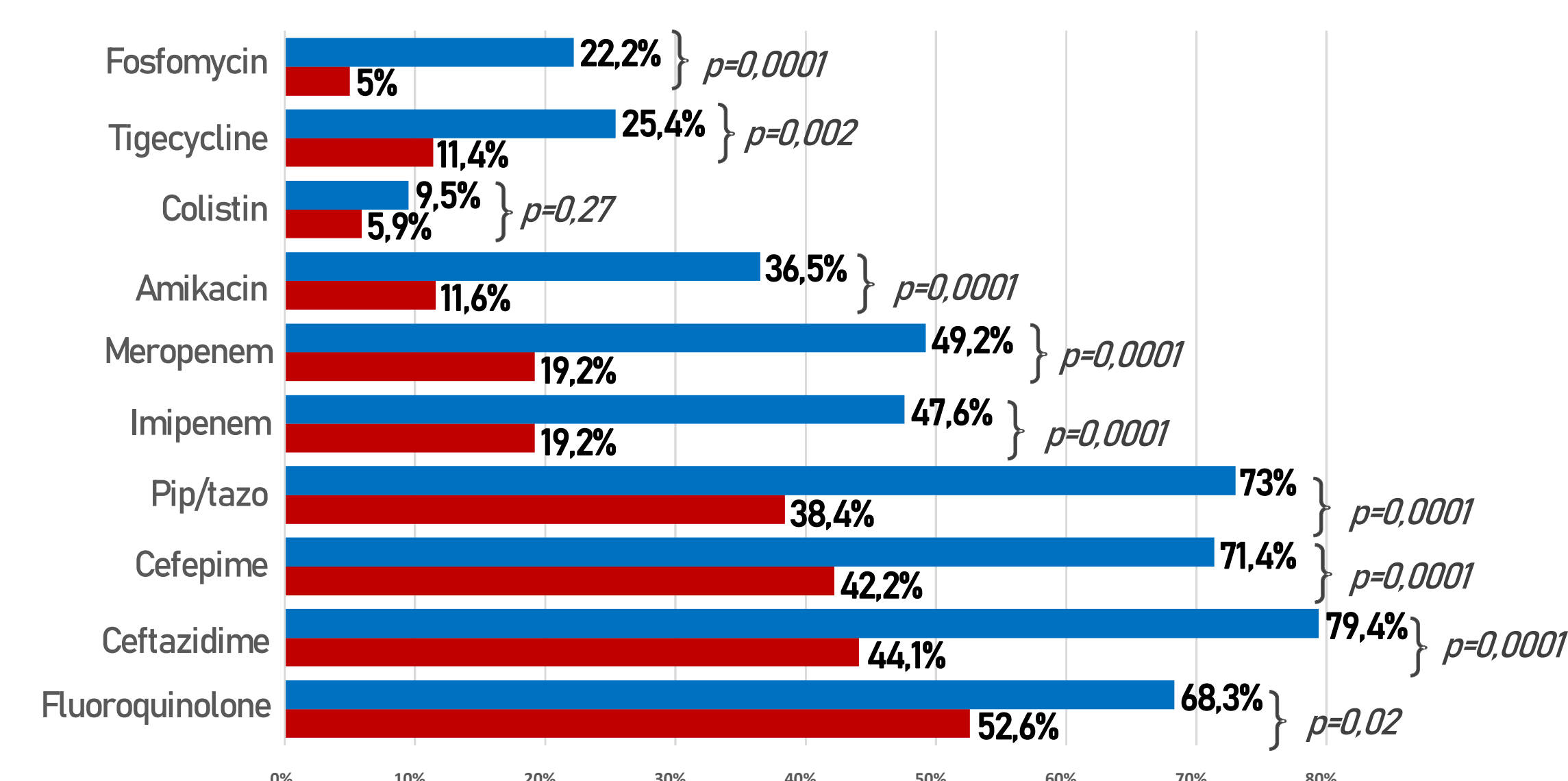
MULTIDRUG-RESISTANT ORGANISMS (MDRO) = 327 (48,02%)



COMPARATIVE MICROBIOLOGICAL CHARACTERISTICS



RESISTANCE PATTERNS GNR (n=485)



CLINICAL FEATURES

Variable	G1	G2	<i>p</i>
Hematological malignancy (not HSCT)	388 (64.2%)	52 (72.7%)	0.163
Hematopoietic Stem Cell Transplant (HSCT)	159 (26.3%)	21 (27.3%)	0.859
Solid tumor	57 (9.4%)	0	0.002
Apache II Score Median (p5–p75)	13 (10–17)	13 (10–18)	0.441
Bacteraemia with clinical source	427 (70.7%)	56 (72.7%)	0.712
Abdominal source	148 (24.5%)	24 (31.2%)	0.205
Central venous catheter source	140 (23.2%)	13 (16.9%)	0.213
Skin and soft tissue source	32 (5.3%)	9 (11.7%)	0.026
Combined empirical antibiotic treatment	191 (31.6%)	44 (57.1%)	0.0001
Appropriate empirical antibiotic treatment	464 (76.8%)	61 (79.2%)	0.637
Breakthrough bacteraemia	57 (9.5%)	33 (43.4%)	0.0001
7–day mortality	89 (14.7%)	21 (27.3%)	0.005
30–day mortality	128 (21.2%)	29 (37.7%)	0.001

30-DAY MORTALITY: RISK FACTORS

Risk factor	UNIVARIATE		MULTIVARIATE	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
High Charlson Score (≥ 4)	2.5 (1.5–4.3)	0.002	2.42 (1.18–4.9)	0.016
Recent steroid use	1.9 (1.3–2.8)	0.0005		
High risk neutropenia	3.9 (1.8–10.2)	0.0003		
High APACHE II Score (>16)	3.8 (2.6–5.7)	0.0001		
High PITT Score (>4)	9.5 (5.3–17)	0.0001		
Subsequent bacteraemia event (G2)	2.2 (1.3–3.8)	0.0012	2.04 (1–4.18)	0.041
Multidrug Resistant Organism (MDRO) bacteraemia	2.1 (1.5–3.1)	0.0001	1.67 (1.01–2.76)	0.043
Respiratory source	5.5 (2.9–10.6)	0.0001	4.25 (1.87–9.66)	0.0001
Breakthrough bacteraemia	3.2 (1.9–5.2)	0.0001	2.31 (1.21–4.40)	0.011
Shock	23.8 (14.7–38.4)	0.0001	10.81 (5.32–21.93)	0.0001
Intensive Care Unit (ICU) admission	16.8 (10.6–26.6)	0.0001	2.47 (1.21–5.04)	0.013

CONCLUSION

Subsequent events of bacteraemia were mostly caused by MDRO, with a higher mortality. These data must be taken into account when choosing empirical antibiotic therapy.