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Antibiotic de-escalation in neutropenic patients with Enterobacterales bacteraemia: An important antimicrobial stewardship program strategy in the multi-drug resistant era.

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on behalf of ROCAS Study Group - **Argentina**

Background

Antibiotic de-escalation is recommended in neutropenic patients (NP) as an antimicrobial stewardship program strategy to reduce antibiotic resistance.

However, adherence to this practice should be improved.

Methods

Prospective multicentre study in 8 centres in Argentina (Jun 2014 – Sep 2024).

Inclusion criteria: all first episodes of monomicrobial Enterobacterales bacteraemia (EB) in adult NP +

- ✓ appropriate empirical treatment (AET) with carbapenems or piperacillin-tazobactam +/-aminoglycosides,
- ✓ no resistance mechanisms detected,
- ✓ no clinical source,
- ✓ de-escalation until 96h.

Patients managed with (DE) and without (ND) de-escalation were compared.

RESULTS: 100 patients (45 ND vs 55 DE)

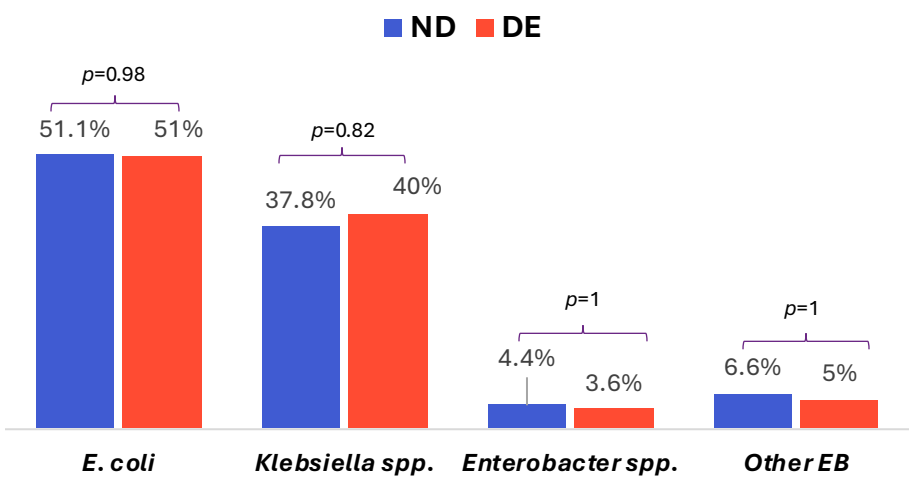
Baseline Characteristics

Variable	ND	DE	*p*
Age (years)- Median (IQR)	51 (40-62)	49 (38-64)	0.91
Haematological malignancies Acute leukaemia Lymphoma	95.6% 57.8% 20%	96.4% 69.1% 18.2%	0.98 0.36 0.82
Solid tumors	4.4%	3.6%	1
HSCT Allogeneic	28.9% 8.9%	30.9% 18.2%	0.89 0.25
High-risk neutropenia	82.2%	94.5%	0.05
Duration of neutropenia Median (IQR)	12 (7-19)	18 (10-35)	0.06

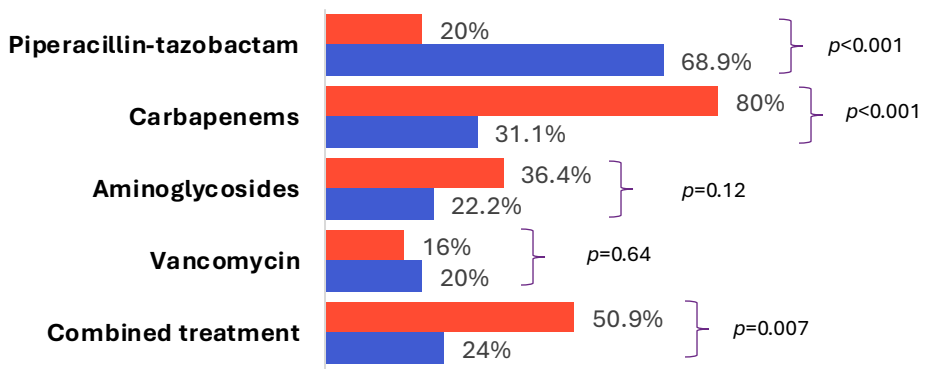
Clinical Presentation

Variable	ND	DE	*p*
Hypotension	33.3%	25.4%	0.38
Septic shock	8.9%	12.7%	0.75
APACHE II Score - Median (IQR)	16 (12-17)	16 (14-20)	0.11
PITT Score - Median (IQR)	0 (0-2)	1 (0-2)	0.65

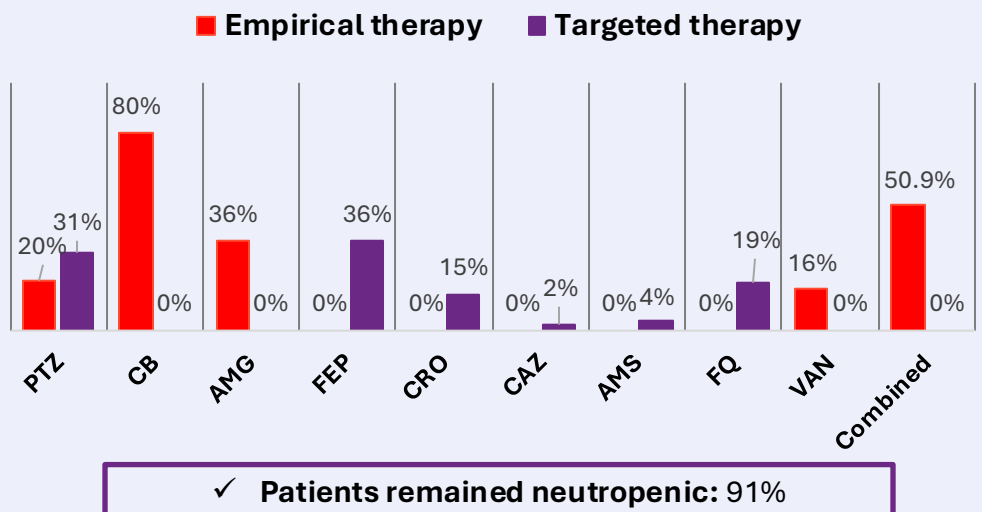
Aetiology



Antibiotic Empirical Treatment



De-escalation Cohort



- ✓ **Patients remained neutropenic:** 91%
- ✓ **Switch from intravenous to oral route:** 12.7%
- ✓ **Time to de-escalation (hours):** 48 (IQR 48-72)

PTZ: piperacillin-tazobactam, CB: carbapenems, AMG: aminoglycosides, FEP: cefepime, CRO: ceftriaxone, CAZ: ceftazidime, AMS: ampicillin – sulbactam, FQ: fluoroquinolones, VAN: vancomycin

Outcomes

Variable	ND	DE	*p*
7-day Mortality	0%	0%	-
30-day Mortality	6.7%	5.5%	1
Infection-related Mortality	4.4%	0%	0.12

CONCLUSION

Our results show that de-escalation for NP with EB is a safe and useful strategy for reducing carbapenem use, with a subsequent decrease in costs and potentially lower antibiotic resistance. Thus, it should be part of the antimicrobial stewardship program in NP.

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