

Prolonged infusion of β -lactams for Enterobacterales bacteremia in high-risk neutropenic patients: Does it improve outcomes?

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Background

No evidences have been reported on the clinical benefits of prolonged infusion of β -lactams in febrile neutropenic patients (FNP) with *Enterobacterales* bacteremia (EB).

Methods

Prospective, observational, and multicenter study (9 referral academic centers) in Argentina.

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The first episodes of EB in high-risk FNP who received appropriate empirical treatment (AET) with piperacillin-tazobactam, cefepime, or meropenem were included.

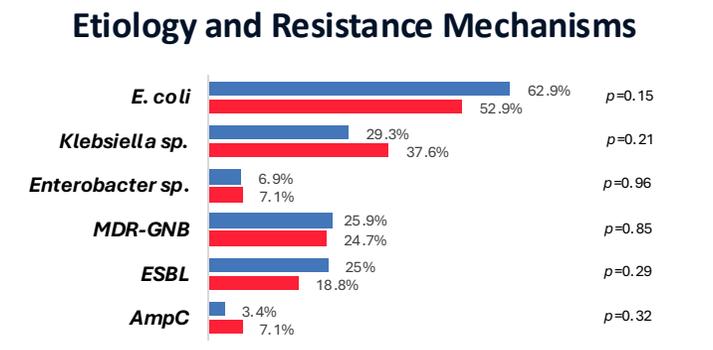
Clinical, epidemiological, and outcome variables were compared in patients receiving either standard infusion (SI) or prolonged infusion (PI) AET.

A propensity score (PS) to balance baseline covariates was used.

Adjusted conditional multivariate logistic regression analysis to PS was used to identify independent risk factors for 30-day mortality.

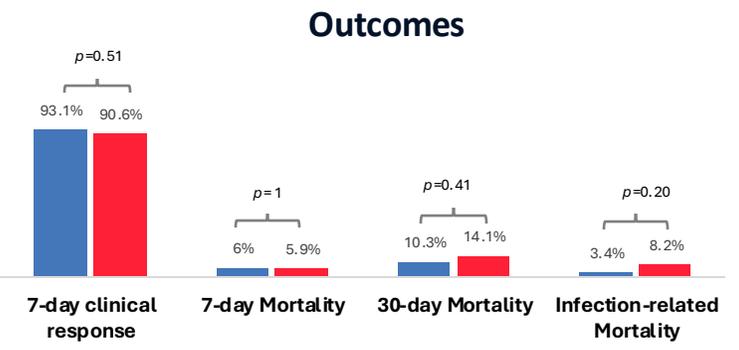


Baseline Characteristics	Results		p
	SI	PI	
Male sex	64.7%	54.1%	0.13
Age (years) Median (IQR)	48 (30-60)	55 (40-65)	0.007
Acute leukemia	59.5%	64.7%	0.45
Lymphoma	18.9%	18.8%	0.98
HSCT	35.3%	27.1%	0.21
Allogeneic	16.4%	16.5%	0.98
Chemotherapy	82.8%	85.9%	0.55
Corticosteroids	25%	16.5%	0.15
Anti-lymphocyte and biologic drugs	22.4%	28.2%	0.35
Charlson Score Median (IQR)	2 (2-2)	2 (2-3)	<0.001
Clinical source	55.2%	58.8%	0.61
Abdominal	11.2%	27.1%	0.004
Catheter	17.2%	12.9%	0.40
Urinary	6.9%	8.2%	0.72
Mucositis	5.2%	7.1%	0.58
Perianal	7.8%	3.5%	0.25
Respiratory	4.3%	3.5%	1
Skin and soft tissue	9.5%	3.4%	0.16



Severity and Antibiotic Treatment

	SI	PI	p
Septic shock	14.7%	17.6%	0.57
ICU admission	12.1%	18.8%	0.18
Multi-organ failure	11.2%	16.5%	0.28
APACHE II Score	15 (12-18)	15 (12-18)	0.47
PITT Score	0 (0-2)	0 (0-20)	0.84
Meropenem	22.4%	70.6%	0.003
Cefepime	32.8%	1.2%	<0.001
Piperacillin-tazobactam	44.8%	28.2%	0.017



Propensity Score-Adjusted Multivariate Analysis for 30-Day Mortality

	OR	95% CI	p
Refractory disease	4.25	0.83-21.83	0.083
Prolonged infusion	1.78	0.54-5.79	0.341
Septic shock	11.65	3.68-36.91	<0.001
7-day clinical response	0.06	0.01-0.24	<0.001

Conclusion: In our cohort of high-risk febrile neutropenic patients with *Enterobacterales* bacteremia, prolonged infusion of empirical antibiotic therapy did not improve outcomes. However, randomized trials are needed to confirm these findings.