

ARE WE PROPERLY DOSING ANTIBIOTICS IN ENTEROCOCCUS FAECIUM BACTEREMIA?

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Background

The incidence of *Enterococcus faecium* infections has increased over the last years and currently is the third major microorganism implicated in nosocomial bacteremia. Nevertheless, the best treatment available is yet to be established, especially in vancomycin-susceptible *E.faecium*. In this setting, a correct dosage is essential as inappropriate dosage has been associated with a higher risk of treatment failure.

Purpose

Our objective was to describe the dosage adequacy of antibiotics used in the treatment of *E.faecium* bacteremia.

Material and methods

Retrospective observational study performed in a 400-bed university teaching hospital from June 2011 through June 2016. Patients with *E.faecium* isolation from at least one positive blood culture were included. Dosage adequacy was assessed by infectious-diseases-trained pharmacists, who reviewed antimicrobial prescriptions daily and recommended an appropriate dose adjustment in the first 24-72h of treatment. Inappropriate dosage was considered if it was out of therapeutic range according to plasmatic levels when available or if an adjustment was needed according to weight or renal function (based on John Hopkins antibiotic guide and data sheet). Categorical variables were presented as percentages and continuous variables as mean (\pm SD).

Results

Seventy patients were included. Sixty (85.7%) men, 17 (24.3%) critically ill, mean age 69.8 (\pm 13.5) years. Thirty (42.3%) patients received an inappropriate dosage, 19 (63.3%) of them under dosed.

	Linezolid (n=18)	Vancomycin (n=29)	Teicoplanin (n=5)	Daptomycin (n=12)	Ampicillin (n=2)	Amoxicillin/clavulanate (n=4)
Inappropriate dosage, n (%)	3 (16.7)	21 (72.4)	2 (40.0)	4 (33.3)	1 (50.0)	0
Underdosage, n (%)	1 (5.6)	13 (44.8)	1 (20.0)	2 (16.7)	1 (50.0)	0
Plasmatic levels, n (%)	3 (16.7)	24 (82.8)	0	1 (8.3)	0	0
Weight-based adjustment, n (%)	0	5 (17.2)	0	4 (33.3)	1 (50.0)	0
Renal function adjustment, n (%)	0	0	2 (40.0)	0	0	0

Conclusion

Almost 43 % of patients were inappropriately dosed in *E.faecium* bacteremia, mainly because of under dosing. These data demonstrate the large proportion of inappropriate doses, which highlight the importance of an adequate review of medication and therapeutic drug monitoring in order to assure efficacy and prevent toxicities.