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O1187 Impact of addition of aminoglycosides to empiric therapy on mortality in Gram-negative bloodstream infection

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Background: Aminoglycosides are widely used as additive antibiotic treatment in patients with sepsis. Yet, benefits and harm of this approach are not accurately quantified. In a recent study among 648 patients in intensive care units (Ong et al, CID 2017) with severe sepsis and septic shock, the risk of 14-day mortality in patients treated with aminoglycosides was increased (OR 1.41, 95%CI 0.94 – 2.12). In this study, we determined the effect of addition of aminoglycosides in empiric therapy on the 30-day mortality in patients with Gram-negative bloodstream infection (GN-BSI).

Materials/methods: This is a sub-study of a larger study to quantify the attributable burden of antibiotic resistance in Gram-negative bacteria in the Netherlands (GRAND-ABC), which included 1,954 Gram-negative infections, prospectively collected in 8 hospitals. This sub-study included all patients with GN-BSI. .

GN-BSI was defined as the first positive blood culture containing Gram-negative pathogens. Empiric therapy was the first antibiotic therapy prescribed for this infection. Aminoglycosides considered were tobramycine and gentamicine, prescribed on the day of blood culture and/or the day thereafter. The outcome was 30-day mortality.

We performed logistic regression analysis with 30-day mortality as outcome and aminoglycoside use as exposure. We calculated a propensity score to adjust for confounding, with demographics, site, sepsis severity and septic shock, Charlson comorbidity score, abdominal infection, kidney failure (before infection), treatment restriction, and infection origin as variables.

Results: 690 patients with GN-BSI were included of which 164 (23.7%) received empiric treatment with aminoglycosides on day 0/1. Patients receiving aminoglycosides were younger (69.3y vs 72.6), had a lower Charlson comorbidity score (median 2, IQR 0-3 vs 2, IQR 1-4), were more acutely ill (septic shock 18.3% vs 8.2%) and had less often treatment restrictions (18.9% vs 31.2%). Resistance to aminoglycosides was observed in 8% and 9% of the patients receiving and not-receiving aminoglycosides.

30-mortality was 19.5% and 15.0% for patients receiving and not-receiving aminoglycosides (crude OR = 1.37, 95% CI 0.86-2.14). The adjusted OR was 1.44 (CI: 0.87-2.34).

Conclusions: In this cohort of 690 patients with GN-BSI addition of aminoglycosides to empiric antibiotic therapy was not associated with a statistically significant difference in 30-day mortality.