Colistin Use in Critically Ill Patients

In Search of the Optimal Dosing

To the Editor:

We read with interest the recent article in CHEST (December 2010) by Imberti et al., which described steady-state serum pharmacokinetics and BAL concentration of colistin after IV administration of colistin methanesulfonate (CMS) in adult patients with ventilator-associated pneumonia caused by gram-negative bacteria. After having administered the recommended daily CMS dose of 6 million International Units, divided into three doses, colistin levels in BAL were undetectable, whereas the ratio of the area under the plasma concentration-time curve to the minimum inhibitory concentration (AUC/MIC) (MIC = 2 mcg/mL) was suboptimal (17.3 ± 9.3 without considering unbounded colistin fraction). As a comparison, a recent in vitro model showed that optimal bactericidal effects of colistin against Pseudomonas aeruginosa were observed when the ratio of the area under the unbound concentration-time curve to MIC was around 30. The results of Imberti et al.1 are consistent with those of Markou et al.3 and Plachouras et al., who showed that even administration of colistin methanesulfonate in adult patients with ventilator-associated pneumonia caused by gram-negative bacteria.

Unfortunately, suboptimal antibiotic concentrations favor the development of drug-resistant bacterial strains. Because bacterial species against which colistin is used are already multidrug resistant and since no new antibiotics against gram-negative bacteria are expected to be available in the next few years, we think that further studies aimed to define the optimal CMS/colistin dosing regimen are urgently needed.

© 2011 American College of Chest Physicians.

REFERENCES


Response

To the Editor:

We thank De Pascale et al for their interest in our article in CHEST (December 2010).1 Our study (and those by other companies/organizations whose products or services may be discussed in this article).