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Intravenous colistimethate administration and colistin lung tissue concentrations

Accepted: 30 May 2010
Published online: 23 July 2010
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An author's reply to this comment is available at:
doi:[10.1007/s00134-010-1961-y](https://doi.org/10.1007/s00134-010-1961-y).

Dear Editor,
In their article showing that nebulized colistimethate is superior to intravenous (iv) colistimethate in the treatment of experimental pneumonia caused by *Pseudomonas aeruginosa*, Lu et al. [1] reported that colistin was undetectable in lung tissue after iv infusion of colistimethate. The authors concluded that “therefore it is hazardous to expect that combining nebulized and iv colistin might increase tissue lung concentrations.” Their findings are, however, in contrast to those of two articles published previously [2, 3], a discrepancy that could be due to the different treatment of lung tissue samples before

colistin measurement. In fact, Ziv et al. [2] measured both the free and bound forms of colistin in rabbit lung tissue after a single iv injection of colistin sulfate. Tissue-bound colistin was retrieved by chloroform-ethanol extraction. They found that colistin was present in lung tissue, with the concentration of the bound form being considerably higher than that of the free form. Kunin and Bugg [3] showed that after multiple iv administration in rabbits, colistimethate accumulated in lungs in the bound form. Therefore, tissue binding, rather than low tissue penetration, could be responsible for the apparent absence of colistin in lung reported by Lu et al. [1]. We recently showed that after iv administration of colistimethate, colistin was undetectable in bronchoalveolar lavage [4]. Although our finding is consistent with those obtained by Lu et al. [1], we draw different conclusions, believing that the correct interpretation of the results lies in the tissue binding of colistin.

References

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