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Lung alert

Can procalcitonin have a role in reducing antibiotic selective pressure?

This multicentre, prospective, parallel group randomised trial compared the use of a modified previously published procalcitonin-guided algorithm for antibiotic use with the conventional use of local or national guidelines for antibiotic use over seven intensive care units. A total of 307 patients in the procalcitonin group and 314 in the control group were included. In the intervention group, a decrease in the procalcitonin level by $\geq 80\%$ or a fall to $<0.5 \mu\text{g/l}$ was used as a guide to stopping antibiotics.

At days 28 and 60, mortality in the intervention arm seemed to be non-inferior to that in the control arm. The procalcitonin group had a 23% lower number of days (mean 10.3 days) on antibiotics compared with the control group (13.3 days; $p < 0.0001$). However, this trial did not find any difference in length of inpatient stays between the groups. The final clinical decision for a patient's selection and commencement or completion of antibiotics in either group lay with the physician-in-charge, irrespective of guidelines or procalcitonin concentration, and this led to the algorithm not being followed in 53% of patients in the procalcitonin arm. Relative cost-benefits/disadvantages were not discussed.

This study demonstrates that the use of a procalcitonin-guided strategy for treatment with antibiotics in non-surgical patients may well reduce length of antibiotic use and thereby reduce antibiotic selective pressure, with potential benefits in considering the emergence of multiresistant strains with no apparent adverse outcomes, but further studies to rule out potential adverse effects are needed.

► **Bouadma L**, Luyt CE, Tubach F, et al. Use of procalcitonin to reduce patients' exposure to antibiotics in intensive care units (PRORATA trial): a multicentre randomised controlled trial. *Lancet* 2010;**375**:463–74.

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