

## Letter

# Procalcitonin to guide duration of antibiotic therapy in intensive care patients: some research questions

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See related research by Hochreiter *et al.*, <http://ccforum.com/content/13/3/R83>

The article by Hochreiter and colleagues on the use of procalcitonin to guide duration of antibiotic therapy in intensive care patients is timely and significant, but it raises a number of unresolved issues [1].

First, it was entirely appropriate that the physician in charge of the surgical intensive care ward had the option to proceed with or to adjust the antibiotic treatment if there were clinical reasons to do so. Whether such adjustments were made either in the control group or in the procalcitonin-guided antibiotic therapy group, however, is not clear.

Second, Table 1 in their article indicates a longer number of days in intensive care for those patients in the control group than for those undergoing procalcitonin-guided antibiotic therapy [1]. Since 36% of the patients in each group did not

survive, however, the length of stay in intensive care for both groups may be confounded by death.

Finally, again in Table 1 [1], were there differences in outcome for those patients diagnosed with pneumonia and those diagnosed with peritonitis in either the control group or the procalcitonin-guided antibiotic therapy group?

Despite more than 10 years of research into the usefulness of procalcitonin therapy, Hausfater is right to point out that 'its exact place in the diagnostic process remains to be defined' [2]. Both the articles of McLean and of Christ-Crain and Müller have proposed further study of alternative novel biomarkers [3,4]. Early diagnosis of sepsis linked to timely but limited use of antibiotics remains paramount, whichever biomarkers make it possible to save more patients' lives in intensive care.

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## Author's response

Stefan Schroeder

Included in our investigation were surgical intensive care patients who were receiving antibiotic therapy for confirmed or suspected high-grade bacterial infections. Irrespective of the study arm and at any time point, the physician in charge had the option to proceed with or to adjust the antibiotic treatment, if there were clinical reasons to do so [1].

Beyond a reduction in the length of antibiotic treatment, procalcitonin guidance also had a favourable effect on the length of the intensive care stay – a stay 2 days shorter, on average, compared with control individuals. This result may possibly be influenced by increased vigilance and continuous monitoring of patients with shortened duration of antibiotic therapy. Our results, however, showed that the clinical outcomes of the procalcitonin group were at least as good as those of the control group since the survival rate of 73.6% was comparable in both groups. These findings are in accordance

with a recent publication [5]. We therefore do not believe that the length of stay in intensive care was biased by the mortality rate in our study. Both treatment groups were comparable in terms of diagnoses and disease severity. In addition, we found no significant differences in outcome for those patients diagnosed with pneumonia and those patients diagnosed with peritonitis, on comparing the treatment groups.

Monitoring procalcitonin is a valuable tool for therapeutic decision-making concerning the length of antibiotic treatment. Adequate interpretation of procalcitonin concentrations, however, always requires background information concerning the clinical course and symptoms. Moreover, further research is needed: Procalcitonin-guided antibiotic therapy must still be tested in heterogeneous groups of patients, particularly for safety. Cut-off points for antibiotic termination have to be defined uniquely.

## Competing interests

SS has received payments from BRAHMS AG for speaking engagements.

## References

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