or who are taking medications that may potentially interact with voriconazole.

Brian A. Potoski and Jack Brown
Department of Pharmacy, The Ohio State University Medical Center, Columbus, Ohio

References


Assessment of Procalcitonin Levels in Emergency Department Patients

Sir—In a recent issue of Clinical Infectious Diseases, Hausfater et al. [1] reported a prospective study of the usefulness of procalcitonin as a marker of systemic infection in emergency department patients. We consider this to be a very important topic, and we agree with the authors that it is crucial for patient triage. However, should procalcitonin be a criterion in making decisions about whether to initiate antimicrobial treatment for emergency department patients, as Dr. Hausfater and colleagues imply in their article? Systemic infections that require immediate antimicrobial treatment are rare. The usual indications for emergency initiation of antimicrobial therapy are severe infectious diseases, such as meningitis, or infections that occur in a specific context, such as septic shock or fever during cytopenia. Therefore, it may be more legitimate to consider procalcitonin as a criterion for determination of disease severity.

The report of Hausfater et al. [1] is of great interest because it is the first to study prospectively the use of a procalcitonin test in an emergency department. The authors demonstrated that procalcitonin is a marker of systemic infectious disease, a fact that had already been established for critically ill patients. However, the poor sensitivity of the procalcitonin test means that the test falls short of detecting infectious diseases in emergency department patients. By lowering the procalcitonin cutoff point (to <0.2 ng/mL), the authors increased the sensitivity of the procalcitonin test. In the Discussion section of their report, the authors emphasized the usefulness of assessment of procalcitonin levels in emergency department patients, but they specified that further studies would be required (in particular, to validate the procalcitonin cutoff point for the adult population of an emergency department).

Several issues are raised by this study. As the findings of Hausfater et al. [1] suggest, intensive care unit patients and emergency department patients are not so different with regard to markers of systemic infectious disease. Results of studies of procalcitonin levels in critically ill patients therefore could probably be applied to patients in the emergency department. Our experience shows that the results of procalcitonin tests can be obtained in a few hours, but we do not know whether this timing is realistic in an emergency department. A rapid, simple, semiquantitative method may therefore be more suitable in the emergency department [2]. Most importantly, we are not sure that the cutoff point can be lowered to <0.2 ng/mL, because a procalcitonin test result of <0.5 ng/mL usually is considered to be normal [3], and because functional sensitivity was 0.33 ng/mL in the study of Hausfater et al. [1]. We were also surprised by the mortality rate for patients with a procalcitonin level of >1 ng/mL, a rate that greatly exceeds our own findings (severe sepsis in >28 patients and a mean procalcitonin level of 7.1 ng/mL among survivors) as well as the results of previous studies [3, 4]. Finally, the difficulty in establishing a valid procalcitonin test cutoff point for prognosis has been previously demonstrated [5].

Thibaud d’Escrivan, Eric Kipnis, and Laurent Robriquet
Département de Réanimation et Maladies Infectieuses, Centre Hospitalier, Tourcoing, France

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with sepsis probably are admitted to the intensive care unit on the basis of a more intensive systemic inflammatory response to infection. In the emergency department, there usually are no difficulties in identifying patients with obvious signs of severe sepsis (e.g., tachypnea, deterioration in mental status, and a decrease in systolic blood pressure). Such patients should be admitted to the intensive care unit solely on the basis of clinical data. On the other hand, a major challenge for emergency department physicians is to accurately identify infected patients who do not have severe clinical signs at the time of admission but who are at high risk for worsening of their clinical condition. For this group of infected patients, no current biological marker was available. Assessment of the procalcitonin level probably could help in determining the appropriate management of such patients. This is a major reason to propose lowering the procalcitonin cutoff point in the emergency department population, although we agree that a cutoff of 0.2 ng/mL should be further validated by other studies. We think that earlier identification of infected patients who have an intraclinical systemic inflammatory response, as indicated by slightly increased procalcitonin levels, should argue for rapid initiation of antimicrobial treatment and eventually should lead to a better outcome. However, this hypothesis has not been confirmed to date.

Finally, d’Escrivan et al. [1] questioned the mortality rate reported by our study for emergency department patients who had high levels of procalcitonin. This perfectly reflects the discrepancies between management of infected patients in emergency departments and management of infected patients in intensive care units. Two of 4 patients who ultimately died of systemic infection initially had not been admitted to the intensive care unit. Because procalcitonin test results were not available in real time during our study, we cannot exclude the possibility that knowing the procalcitonin level would have changed the initial patient assessment, the schedule for first injection of antimicrobial agents, and, finally, fatal outcome. However, this argues for the usefulness of procalcitonin levels determined in real time for emergency department patients. This could be achieved with currently available analyzers that give quantitative procalcitonin results in <1 h, rather than with the semiquantitative method.


Pierre Hausfater and Bruno Riou
Service d’Accueil des Urgences, Centre Hospitalo-Universitaire Pitié-Salpêtrière, Assistance Publique Hôpitaux de Paris, Université Pierre et Marie Curie, Paris, France

References


correspondence: Dr. Pierre Hausfater, Service d’Accueil des Urgences, CHU Pitié-Salpêtrière, 47-83 Blvd. de l’Hôpital, 75015 Paris cedex 13, France (pierre.hausfater@psi.ap-hop-paris.fr).

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correspondence: Dr. Pierre Hausfater, Service d’Accueil des Urgences, CHU Pitié-Salpêtrière, Assistance Publique Hôpitaux de Paris, Université Pierre et Marie Curie, Paris, France

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correspondence: Dr. Pierre Hausfater, Service d’Accueil des Urgences, CHU Pitié-Salpêtrière, Assistance Publique Hôpitaux de Paris, Université Pierre et Marie Curie, Paris, France

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correspondence: Dr. Pierre Hausfater, Service d’Accueil des Urgences, CHU Pitié-Salpêtrière, Assistance Publique Hôpitaux de Paris, Université Pierre et Marie Curie, Paris, France

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