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EDITORIAL

Quicker, faster, better?

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It may happen any day in a hectic department of emergency care. Critically ill patients with, for example, sepsis, respiratory insufficiency, heart failure and gastrointestinal bleeding present simultaneously to the residents and staff of the Department of Internal Medicine. The nurses on the emergency department are busy arranging diagnostic procedures and the initial care of these patients. Suddenly, the trauma alarm rings, announcing the arrival of a traffic accident victim in ten minutes. All the nurses and staff on the emergency department immediately drop whatever they were doing and start preparing for the arrival of the unfortunate victim of the car collision, correctly according to preset protocols that precisely dictate the immediate and highly organised management of trauma patients, since it has been well established that early and immediate intervention leads to a better outcome in these patients. When the traffic accident patient arrives, it appears that she is totally stable and although being unfortunate enough to present with a humerus fracture as a consequence of the car collision, there are no other injuries. In the mean time, the patients who had presented with sepsis, respiratory insufficiency, heart failure, and gastrointestinal bleeding had been left unattended.

Obviously, this anecdote does not serve to disqualify the adequate and immediate attention that is given to trauma patients. However, it is rather strange that we have not implemented similar protocols for medical patients who present with potentially life-threatening conditions. In fact, it is time that we as internists intensify our work on better systems for rapid identification and more immediate treatment of patients with severe medical conditions who arrive in our departments of emergency care. Patients with severe medical conditions, with (potentially) threatened vital parameters, need the best medical care they can get and initial treatment without any delay. In fact, the traditional medical work-up of history-taking, physical examination, (differential) diagnosis and laboratory testing and/or imaging may not be appropriate for the acutely ill medical patient. Immediate safeguarding of vital signs and initiation of important treatment of the most probable diagnoses, even before they are confirmed by traditional means, may require a shift in our current thinking and our usual way of working with these patients. This paradigm has long been recognised by traumatologists, leading to the uniform and successful implementation of advanced life support protocols (ATLS). However, this has only recently been adopted by some major medical institutions for medical patients, for example by practising and teaching the 'MedicALS' for acutely ill medical patients.

Immediate management of critically ill patients means that we should be able to recognise these patients, which requires adequate training of our residents.[1] There are many strategies available that are helpful in identifying these patients, as has also been published in this Journal,[2,3] and we should consider implementing these measures in our daily practice. In addition, we should be willing to start treatment even before we have definitively established the diagnosis. Some people will argue that this may lead to 'overtreatment' and, for example, administration of pharmaceutical agents to patients who turn out not to need them. However, the potential 'risk' of this strategy is not always very high and should be balanced against the risk of delaying treatment to patients who really need it. There is sufficient evidence from various areas in acute medicine that supports the idea of immediate treatment ameliorating the eventual clinical outcome. The concept of door-to-needle time (or recently door-to-balloon time) directly comes from the treatment of patients with acute myocardial infarction and has repeatedly been shown to significantly improve the outcome in individual patients.[4] Similarly, and to the surprise of many hospital doctors, we now also see neurologists running through the corridors of the hospital to administer thrombolytics to stroke patients as rapidly as they can.[5]

Also for patients with infections, it has repeatedly been shown that the sooner the first dose of antibiotics is administered, the better the outcome, for example in terms of morbidity and duration of hospital stay. In addition, rapid onset of antibiotic treatment was shown to independently reduce in-hospital and 30-day mortality

in three very large retrospective Medicare studies in 297 US hospitals, 14,069 hospitalised pneumonia patients and 18,209 in-patients aged ≥65 years, respectively, even after correction for disease severity and comorbidity.[6] The advantage of early administration of antibiotics has been shown in numerous studies regardless of the type of infection and was confirmed in patients with sepsis, pneumonia, meningitis, or urinary tract infections.[7-10] Also Dutch studies have shown the appropriateness of rapid antibiotic treatment in patients who present in the emergency department and ways to implement this practice.[11]

In this issue of the *Netherlands Journal of Medicine*, van Tuijn *et al*. present the evaluation of various implementation strategies to improve the door-to-needle time (i.e. the time between arrival to the emergency department and the first dose of antibiotics) in patients with various types of severe infections.[12] Having sufficient doctors present in the emergency department at peak hours, not waiting for extensive laboratory analyses before initiating treatment, and administration of the first dose of antibiotics in the emergency department and not on the ward all shortened the door-to-needle time in their patients. The authors were also able to show that their combined interventions significantly reduced the duration of hospital stay by 17%.

Although intuitively logical, it is not totally clear why rapid administration of the first dose of antibiotics is so important. Hypothetically, each patient with an infection has a unique point in their disease course after which the potential of antibiotics to rapidly and advantageously change the course and outcome of the infection and even prevent death is lost. It is estimated that on average four to eight hours after arrival would represent the average of those points over thousands of cases.[6]

Rapid initiation of antibiotic treatment is just one example of appropriate caring for critically ill medical patients who present at the emergency department. For integral improvement of the care in these patients, adequate education of residents and staff is required and up-to-date and practical protocols are needed as well. In the Netherlands, all teaching hospitals have contributed to national guidelines for the emergency treatment of patients with more than 100 medical conditions, which have now been published by the Netherlands Association of Internal Medicine (NIV) in the form of a small booklet and will soon be available for hospital websites and personal digital assistants. We will have to work very hard to improve the care of acutely presenting patients with severe medical illness and follow the example of traumatologists, cardiologists and other specialists who have developed systems to appropriately deliver immediate care to their patients and thereby improve their outcome. The broadness of internal medicine and the complexity of the presentation of some patients with acute medical illness should thereby not be viewed as an impediment but rather as a challenge for our profession and as a great opportunity to further improve the quality of our care.

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