

Bundle of Care in Pre-Hospital Settings for Septic Shock?

Septik Şok için Hastane Dışı Bakım Demeti?

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In 2001, Rivers et al. (1) first evaluated and emphasised the positive impact on mortality of early goal directed therapy (EGDT) for the treatment of septic shock, leading to a major achievement in the paradigm of sepsis. Conversely, after this first and promising study, later trials (ARISE, ProCESS, ProMISe and PRISM) did not support the inclusion of EGDT in the protocolised therapy for sepsis care (2-5), but this remains under debate because of controversial results between studies (6-8) and discussions regarding results observed in different studies (2-5). These discrepancies were probably explained mainly by differences in the mortality rates in control groups related to a decrease in sepsis mortality due to quality improvements initiatives, implementation of technologies, differences in the severity of sepsis and length of stay in ICU of patients included in the studies and successive changes in sepsis definition over years (9, 10). Indeed, the improvement in both knowledge and therapeutics has progressively induced changes in clinical practices, enabling a decrease in the mortality rates of patients with sepsis over years but paradoxically making it more difficult to highlight the benefit of a unique and specific therapeutic.

In fact, more than a therapeutic-based strategy, Rivers et al. (1) evaluated and emphasised the concept of EGDT in sepsis. Beyond the therapeutic elements (antibiotherapy, fluid expansion, corticotherapy and red blood cell transfusion) included in EGDT for sepsis, the authors highlighted two key-points to reduce mortality: the early identification of sepsis and the time-lapse to therapeutics initiation. Interestingly, besides these two parameters, recent trials have also highlighted the positive effect of both early antibiotic administration and haemodynamic optimisation (fluid resuscitation and catecholamine infusion, if necessary) (11). These two parameters should be integrated in an individualised approach (5).

Finally, the EGDT concept has now evolved to the 'bundle of care' concept, describing global management, and not just single therapeutic that must be undertaken within a time scale of 6 h to decrease mortality (11). Consequently, till date, the fulfilment of the initial bundle of care during the first hour and that of a management bundle in the intensive care unit appeared as major prognosis factors in the management of septic shock to decrease mortality (12).

In a recent study published in the Lancet Respir Med Journal, Alam et al. (13) failed to demonstrate an increase in the survival rate after pre-hospital antibiotic administration in the ambulance. However, most patients included in this study were finally diagnosed with sepsis and not with septic shock. Actually, in pre-hospital settings, a mobile intensive care unit (MICU) is dispatched to the scene in cases of severe medical situations, i.e. septic shock and not for only 'simple' sepsis.

Considering all aforementioned arguments, we believe that reducing the mortality rate in septic shock highly depends on early, i.e. during the first hour, pre-hospital implementation of the individualised bundle of care, the first step being an early identification of sepsis.

Despite the existence of many scoring systems (qSOFA MRST, MEWS and PRESEP) validated for in-hospital management, the diagnosis of septic shock remains complex; moreover, these scores usually lack specificity to correctly identify patients with sepsis requiring MICU intervention and thereafter intensive care unit admission. Furthermore, it has been observed that community-acquired severe sepsis represents 25% of severe sepsis, indicating that its pre-hospital identification is crucial (14).

In France, pre-hospital emergency management begins with a call to the public pre-hospital emergency medical service (PHEMS), characterised by systematic analysis of each case by an emergency physician at the dispatch centre. Each time a life-threatening emergency is suspected, an MICU staffed with an emergency physician is immediately sent to provide patient care. The efficiency of this organisation, based on medical regulation and MICU intervention, has been demonstrated in various life-threatening emergencies, such as severe trauma, myocardial infarction and cardiac arrest.

As bundle of care has to be implemented as soon as possible, the French PHEMS organisation, based on emergency physician involved in call analysis and, if necessary, in the MICU care provided to the patient in pre-hospital field, should play a key role in pre-hospital management of septic shock.

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