

# Early recognition of critically ill patients

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The field of intensive care medicine has moved forward with the implementation of several new therapies and strategies tested in numerous clinical trials. Implementation of new interventions in the daily practice of caring for critically ill patients, however, is a major challenge. Common factors associated with failure to implement new therapies and strategies in intensive care practice include simple translation problems ('we do not know how'), potentially biased expert opinions ('we do not believe it'), concerns about possible side effects ('we are afraid of doing harm'), costs associated with implementation ('we cannot afford it'), but maybe most of all problems with the (early) recognition of patients who might actually benefit from a new therapy or strategy ('we did not recognise it').

Simple interventions that have a high potential to benefit critically ill patients include, but are not restricted to, early infusion of sufficient amounts of fluids for sepsis<sup>1</sup> and lung-protective mechanical ventilation for acute lung injury/acute respiratory distress syndrome (ALI/ARDS).<sup>2,3</sup> Timing of fluid therapy for sepsis is crucial for its beneficial effects.<sup>4</sup> Indeed, the latest trial on fluid therapy showed that early optimisation of oxygen delivery (by means of early infusion of sufficient amounts of fluids) was able to decrease mortality in patients with septic shock.<sup>1</sup> Early therapy means early recognition. However, the location of patients in the early phase of their critical illness varies among institutions. Although most critically ill patients should be treated in the intensive care unit, a good many of them may spend a significant part of the early phase in the emergency department or the hospital ward. Obviously, early recognition of patients who may benefit from early fluid therapy should thus be done by physicians working outside the intensive care unit, and in most cases these physicians are the residents.

In this issue of the *Netherlands Journal of Medicine*, Tromp *et al.* report on the effects of a regional education programme on residents' knowledge about sepsis.<sup>5</sup> Their main finding was that residents level of knowledge about 'assessment of symptoms of sepsis' was less than about

'diagnosis and treatment'. Following education, knowledge about 'assessment of symptoms of sepsis' increased. This finding underlines the above-mentioned problem of under-recognition: residents are very aware of what to do, but do less well in recognising patients in whom they should act early. Continuous education may be warranted, since over time assessment of symptoms of sepsis tended to decline. Similar problems may exist with the early recognition of ALI/ARDS. Indeed, under-recognition of ALI/ARDS was (and continues to be) one of the most important barriers to the implementation of lung-protective mechanical ventilation.<sup>6</sup> Even physicians who are well trained in the field of intensive care medicine at times miss this important diagnosis, thereby possibly subjecting patients to mechanical ventilation strategies that may be harmful. But this problem may be even bigger: ALI/ARDS is rarely present at the time of hospital admission and it may be more important to be able to identify patients who may develop ALI/ARDS (instead of recognition of patients who already have ALI/ARDS). Indeed, subsequent ('second hit') hospital exposures modify the development and expression of this life-threatening syndrome in patients with predisposing conditions. Several studies suggest that early treatment of shock and infection<sup>7</sup> and avoidance of ventilator-related lung injury<sup>8-10</sup> and transfusion-related acute lung injury<sup>11</sup> may reduce the incidence of hospital-acquired ALI/ARDS. From this we may conclude that ALI/ARDS, at least in part, is a potentially preventable healthcare-acquired complication.

In this issue of the *Netherlands Journal of Medicine*, Ahmed *et al.*<sup>12</sup> report on progress on the early recognition of patients with or at risk of ALI/ARDS. Automated electronic screening tools and novel scoring systems may facilitate care of patients at risk for ALI/ARDS. 'ALI/ARDS sniffers' may be helpful in the early recognition of ALI/ARDS, and high-resolution monitoring may help in the timely identification of patients who develop ALI/ARDS during the course of their illness.

The interest of these two papers<sup>5,12</sup> lies in the possible combined effect of education and application of electronic

screening tools in the early recognition of the many disease states of critically ill patients. Many interventions should find their way into daily practice: implementation through education and early recognition of so-called bundles of care<sup>13</sup> have the potential to improve the outcome of these patients.<sup>14</sup>

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