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Is NEWS2 good news for the early detection of sepsis?

EDITORIAL

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The NEWS2 scoring system for early diagnosis of sepsis may contribute to standardised patient treatment, but it simplifies reality and must be used with caution.

Sepsis is one of the most common causes of death in Norwegian hospitals. It is crucial to detect and treat the condition as early as possible. Several scoring systems are used to identify patients with sepsis at an early stage, including the National Early Warning Score 2, generally referred to as NEWS2.

NEWS2 has been developed for a standardised response to acute illness or acute deterioration in illness (1). Respiration rate, oxygen saturation, systolic blood pressure, pulse rate, level of consciousness (confusion) and temperature are scored with points from 1 to 3. A total score of ≥ 5 appears to be well suited to identify deterioration in acutely ill patients. Until now, the value of NEWS2 has mainly been studied in emergency departments, but in practice NEWS2 is also used for patients admitted to standard wards.

In the Journal of the Norwegian Medical Association, Karlsen, Rønsåsbjørg et al. are now publishing results from a quality study at Haukeland University Hospital. The objective of this study was to investigate how well suited NEWS2 and other scoring systems are to identify sepsis in patients admitted to medical and surgical wards (2). Out of 89 patients, 55 met the criteria for sepsis. A NEWS2 score of ≥ 5 in total and/or of 3 in any one of the parameters identified 53 (96 %) of these patients. The result is consistent with earlier studies that found high sensitivity of NEWS2 in detecting acute deterioration and sepsis (1).

However, the specificity of NEWS2 is relatively low. There may be many different causes of a high score, and 14 of the 34 patients without sepsis had a NEWS2 score of ≥ 5 and/or 3 in at least one of the parameters. Many on-call doctors will recognise that frequent 'false alarms' can lead to decreased alertness and alarm fatigue. In the worst case scenario, there is a risk of not identifying patients who are actually in danger of becoming severely unwell. The use of resources in connection with responding to high scores may also come at the cost of other tasks (3). In many cases, simple supporting information will be useful in assessing a high NEWS2 score and help to rapidly clarify the need for further steps. An example of key information is whether the score has changed compared to previous measurements.

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Most patients with sepsis are older with frailty. They often have a weaker systemic response to infections than younger patients, milder or atypical symptoms and complex disease presentation. In these cases, it is particularly important to bear in mind that scoring systems provide a simplified snapshot and must be used with caution. Routine frailty screening, for example with the Clinical Frailty Scale (CFS), may help raise awareness of the concept of frailty and improve assessments in this patient group (4).

Confusion is the least standardised parameter in NEWS2. Scoring is complicated by the fact that many older patients have cognitive impairment before they become acutely ill, and 30–50 % of older patients in hospital are affected by delirium (5). Infection is one of the most common causes of delirium, which is characterised by disturbance of consciousness or inattention and problems in cognition. In a study of 196 patients admitted with suspected sepsis at Bærum Hospital and Haraldsplass Hospital, we found that half of the patients developed delirium during hospitalisation (6). Of those patients with sepsis, 68 % had delirium. The mean time spent on screening for delirium symptoms with the 4AT test was 2.5 minutes. Delirium often remains undiagnosed and, in my opinion, implementation of the 4AT on more wards would enhance assessments and patient treatment.

Quality studies are suited to the quality assurance of established methods. They can help raise awareness about a particular topic and ideally lead to improved patient safety and treatment. Hopefully, others will follow suit by publishing studies like these so that more people can benefit from local experience. Quality assurance is more straightforward to conduct than research projects. In case of uncertainty as to whether a project should be regarded as health research or quality assurance, prior assessment should be sought from a Regional Committee for Medical and Health Research Ethics.

Clinical scoring systems can contribute to more standardised treatment, and it is good news that NEWS2 seems to be well suited to early detection of sepsis in patients admitted to hospital. However, the value of NEWS2 needs to be

studied further in larger studies and different patient groups. Scoring systems such as NEWS2, the Clinical Frailty Scale and 4AT cannot replace good decision-making based on more comprehensive clinical assessments.

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