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Balancing sedation and ICU delirium management for better patient outcomes

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A growing body of evidence suggests that patients treated in intensive care units (ICUs) are not only at risk of suffering from the severity of their underlying condition, but also from harmful and potentially iatrogenic problems, namely intensive care delirium and weakness [1]. This may be associated with an unfavourable long-term prognosis leading to physical, functional, cognitive and emotional breakdown after discharge from the ICU, as well as increased mortality and morbidity [2, 3]. The majority of critically ill patients are at risk of leaving the ICU incapable of independent living and become a burden to their families and society. Therefore, the aim for an intensivist should be to provide critically ill patients with the maximum level of humane care and the minimum number of necessary interventions [4, 5]. In practice, this means adequate pain control, goal-directed sedation, assessment and adequate treatment of delirium, early mobility and the proper amount of overnight sleep [6].

In this issue of AIT, the findings of an observational cohort study, reported by Frawley *et al.* [7], provide an important piece of evidence regarding assessment-guided sedation practices. In this study, performed on a group of 714 ventilated ICU patients, the investigators compared the outcome of two patient populations — those from before (359 patients) and after (355 patients) the introduction of a new sedation policy. The sedation protocol was aimed at increasing awareness and assessment of sedation depth, as well as reducing sedation use. The authors introduced the new sedation policy as part of a quality improvement project aimed at changing standard ICU care, as outlined by international guidelines (2013 PAD Guidelines) [3], by making three major changes, namely: 1) shifting first-line analgesia/sedation agents from morphine/midazolam to alfentanil/propofol; 2) introducing sedation monitor-

ing by means of the Richmond Agitation Sedation Scale (RASS), with required monitoring every 4 hours and aimed to achieve an RASS score of between −2 and 0 (light sedation) and; 3) introducing delirium monitoring with the use of the Confusion Assessment Method-ICU (CAM-ICU). The primary outcome of the study was the duration of mechanical ventilation. The authors concluded that the new sedation protocol led to a significant improvement in the time spent on the ventilator (a statistically significant decrease by 1.45 days) and a non-significant reduction in the mean duration of the ICU length of stay. The results of the study by Frawley *et al.* [7] are also in line with the PADIS guidelines released in the year 2018 by the SCCM.

The 2013 PAD Guidelines issued by the SCCM concentrated on targeting sedation levels by using validated assessment tools and subsequently led to the development of the ABCDEF bundle which is a high-quality coordinated care approach concentrated on adequate management of pain, agitation and delirium [3]. The basis of the ABCDEF bundle has been built upon improvement in communication between members of the ICU team, providing standardised protocols and depends on the avoidance of excessive sedation and prolonged mechanical ventilation that has been linked to delirium and weakness [2]. They have put the emphasis on goal-directed analgesia and sedation delivery in order to avoid over-sedation, shorten mechanical ventilation time and promote earlier extubation. The ABCDEF intervention package is an evidence-based set of guidelines that includes single, clearly defined components that strengthen multidisciplinary cooperation between clinicians and families in the joint care of critically ill patients and which bring about the organisational changes needed to optimise patient recovery [8, 9].

Sedation has always been an essential part of ICU practice, providing comfort to patients and facilitating mechanical ventilation [8]. The majority of acutely ill patients require an analgesic and/or sedative at some point during their treatment in the ICU, with various combinations of drugs acting on the brain, including benzodiazepines, hypnotics, antipsychotics and opioids. The major body of evidence has linked ICU-acquired delirium with the use of benzodiazepines. As with any other medical procedure, both sedation and analgesia may be associated with the occurrence of adverse events including bradycardia, hypotension, respiratory depression, renal failure, muscle weakness or opioid dependence. To avoid these complications, sedation should be guided by regular assessment of its depth with a validated tool (i.e. RASS) and targeted in order to achieve a pre-defined goal [3]. It has been shown that both the introduction of the no sedation approach [10] and the implementation of sedation protocols aimed at achieving an RASS score of 0 (a calm, cooperative patient, responding to the caregiver) improve patient outcomes [11]. Monitoring sedation with RASS takes no more than 20 seconds to perform, even with minimal training, requires no additional costs and has demonstrated a high inter-rater reliability in adult ICU patients [9].

Protocol-driven sedation is a useful strategy used to reduce the exposure of critically ill patients to potentially harmful medications. Over twenty years ago, Brook *et al.* [12] performed a randomised, controlled trial, and reported that protocol-directed sedation during mechanical ventilation not only reduced mechanical ventilation time and decreased hospital and ICU length of stay (LOS), but also lowered tracheostomy rates as compared with non-protocol directed sedation [12]. The benefits of sedation protocols include less agitation, less pain, reduced continuous sedation infusion, less patient-ventilator asynchrony and a lower rate of ventilator-associated pneumonia [8, 13, 14].

The protocolised sedation policy introduced by Frawley *et al.* [7] also emphasised the role of delirium monitoring in critically ill patients. Delirium is characterised by impaired cognition with nonspecific manifestations and may develop secondary to multiple predisposing and precipitating causes [15]. In critically ill patients, delirium is often under-recognised and under-reported leading to inappropriate management [16]. Moreover, the mainstay of treatment for ICU delirium is coordinated non-pharmacological care, whereas pharmacotherapy should be regarded as the last resort as it does not improve patient outcomes [3, 4, 17]. Although it may be transient and reversible, its occurrence in ICU patients may be associated with long-term cognitive dysfunction and disability in patients of all ages [15].

Despite the fact that the ABCDEF bundle was introduced in the year 2013 by the SCCM and reinforced in 2018, it has not been fully adopted, neither in Poland [16] nor worldwide [18]. As the language specific problems have been addressed and the tools for the assessment of sedation depth (RASS), delirium monitoring (CAM-ICU) and pain assessment in non-verbal, mechanically ventilated patients (CPOT, BPS) have been translated into Polish and validated in a Polish population, they should be used in all ICUs in our country in order to increase the quality of care and improve patients' outcomes [15, 19, 20].

ACKNOWLEDGEMENTS

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