

# Let's change our behaviors: From bed rest and heavy sedation to awake, spontaneously breathing and early mobilized Intensive Care Unit patients

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Huge progress has been made in the management of critically ill patients, translating to a better outcome in trauma, sepsis, respiratory failure. However, recent data have demonstrated that there may be a long term cost after Intensive Care Unit (ICU) stay.<sup>[1]</sup> Long term ICU survivors may suffer from physical disability; a legacy of ICU acquired weakness. Several factors favor ICU acquired weakness, among which are systemic inflammation, bed rest and immobilization, sedation, muscular relaxant. If modulation of inflammation and prevention of multiple organ failure can only come from a better management of shock,<sup>[2]</sup> the other factors may be affected by physician's behaviors. Several trials suggest that early mobilization is feasible and result in shorter ICU and hospital length of stay.<sup>[3,4]</sup> What are the barriers to implementing less sedation practices and early mobilization?

In this issue of the Journal, a survey of the Indian Society of Critical Care Medicine (ISCCM)<sup>[5]</sup> provides some interesting insight on this topic. In a web-based survey conducted among members of the ISCCM and Indian Society of anesthesiologists, the authors received answers from 659 participants on their practice of mobilization, anesthesia, muscle relaxants and sedation. In addition they also evaluated which methods were used to evaluate sedation depth, monitor analgesia and delirium. Even though surveys are often limited by their relatively low response rate (and this was effectively the case in this survey where a 11% response rate was observed) and by the fact that often physician are quite optimistic when reporting their practice (with higher reported than

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effective incidence of some interventions, especially when the intervention is perceived as positive or recommended by guidelines), this survey nevertheless provided some important information. For sedation, midazolam was the most frequently used agent, followed by propofol and dexmedetomidine while the Ramsay score was used in the majority (56%) of responders. For analgesia, fentanyl was the most frequently used agent, followed by tramadol, paracetamol and morphine. Visual analog score was used for monitoring of sedation in 48% while 20% of respondents did not use any score. To paralyze patients, vecuronium and atracrium were the most frequently used agents. Most (66%) of the respondents did not use any score to detect delirium. Interestingly, the respondents also felt that delirium is very seldom occurring in their patients, which may be both a justification for not using scores and a good reason for not finding delirium.

The most interesting part of the questionnaire addressed the issues of weaning and mobilization. Even though weaning was initiated in most instances by physicians, 80% of the weaning trials were nevertheless preceded by a spontaneous awakening trial. Weaning was initiated early (within 48 h of initiation of ventilation) and daily trials were often used. These data suggest that weaning was conducted according to current guidelines in most instances.

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On the contrary, practice of mobilization was less in accordance with current guidelines. Even though, most respondents (92%) consider that the mobilization has a role in the management of critically ill-patients and 85% order some form of mobilization, 80% of these respondents also believed safe mobilization cannot be achieved on a respirator and/or equipped with invasive monitoring. This suggests that mobilization was restricted to the less severely critically ill-patients. An additional restriction to mobilization consisted in the absence of trained staff.

Are these barriers justified? Is it safe to mobilize patients equipped with lines and tubes? Morris *et al.* reported no line removal during physical therapy in a series of 165 mechanically ventilated patients submitted to early mobilization.<sup>[3]</sup> In another trial, only one inadvertent removal of an arterial line was reported during 498 mobilization procedures while no tracheal extubation or significant hypotension occurred.<sup>[4]</sup> In a series of 77 patients equipped with femoral lines, accidental line removal did not occur.<sup>[6]</sup> Mobilization is even feasible very early in the course of the patient with respiratory failure, as it was performed at variable levels (seating at bed edge in 70% but standing in 30%, and even walking in half of the latter) within 2 days of intubation.<sup>[7]</sup>

Should specialized trained staff be present? Presence of at least one physiotherapist seems mandatory.<sup>[3,7]</sup> A dedicated mobility team consisting of a critical nurse, nursing assistant and physical therapist is sometimes used.<sup>[3]</sup> In our department, no dedicated team is required but physiotherapists are continuously present. Usually, mobilization of a critically ill patient involves one physiotherapist (+ eventually one student) and one or two nurses. While one of the nurses specifically pays attention to the tubes and lines, the physiotherapist is mostly acting as exercise coach.

Are there populations in whom early mobilization may be undesired? There are a few obvious contra-indications

such as unstable fractures and intracranial hypertension. While patients in shock should not be mobilized, the use of vasopressor agents in a stabilized patient is not always a contra-indication. In patients receiving low doses vasopressor agents, changing position can be safely obtained if progressive (20° increments every 5-10 min). What are the maximal ventilator conditions that should not be exceeded before mobilizing a patient? This was not specifically addressed in the published trials. In our department, we usually do not actively mobilize patients ventilated with FiO<sub>2</sub> above 0.6 and positive-end expiratory pressure levels of 10 cm H<sub>2</sub>O and higher.

What is the next frontier? We probably have to change from a culture of bed rest and heavy sedation to a new age of awake spontaneously breathing patients and prioritizing early mobilization.

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