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## Wake up your patients!

### *Acorde seus pacientes!*

*“... But what I see these days are paralyzed, sedated patients, lying without motion, appearing to be dead, except for the monitors that tell me otherwise.”*

*Thomas L. Petty, Chest, 1998*

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In 1998, Thomas L. Petty expressed his concern about deep sedation and suggested a new link between sedation and severe complications.<sup>(1)</sup> His phrasing emphasized that it is not the underlying disease, but the physicians themselves that cause the gloomy situation he experienced in his intensive care unit (ICU).

As more evidence supporting his theory has emerged, Petty's editorial seems even more visionary today than during the time it was published.

In 2012 and 2013, Shehabi et al. demonstrated for the first time that deep sedation within the first 48 hours of intensive care treatment results in significantly higher 180 day mortality and that every individual event of over-sedation led to significantly prolonged mechanical ventilation.<sup>(2,3)</sup> The results of these observational studies were impressive and snowballed a discussion about sedation, sedation-practice and related outcomes.

In 2000, a study investigating daily interruptions of sedation-infusion published by Kress et al. showed that daily awakening trials are associated with 2.4 fewer days of mechanical ventilation.<sup>(4)</sup> Eight years later, Girard et al. conducted a randomized clinical trial on awakening and breathing versus solely breathing and showed that the combination led to a 32% lower 1-year-mortality.<sup>(5)</sup>

In 2010, the working group around Thomas Strøm published the “no-sedative” approach. Patients received a protocol of “no-sedation”, which actually meant a morphine, haloperidol, propofol based step-regime that avoided sedatives wherever possible to keep the patient awake.<sup>(6)</sup> Patients had a lower time of ventilation, ICU length of stay and in-hospital length of stay, and his publication became one of the most discussed papers in intensive care medicine in that year.

There is profound evidence that critically ill patients benefit from being awake. Today, it seems likely that any type of sedation is associated with a worsened outcome; therefore, it is limited to very few and specific indications (e.g., increased intracranial pressure in patients with traumatic brain injury, prone-positioning in acute respiratory distress syndrome patients).

International guidelines recommend a goal-directed approach: a target for sedation has to be defined at least once per day, and the level of sedation should be assessed frequently to avoid over-sedation.<sup>(7,8)</sup> The definition and the assessment should be conducted with a validated scoring system.

Regarding recent evidence, the “Richmond-Agitation-and-Sedation-Scale” (RASS) should be the standard for sedation-monitoring in ICU patients.<sup>(7,8)</sup> This 10 point scale allows practitioners to distinguish between different stages of sedation and agitation.<sup>(9)</sup> It is easy to use, utilizes objective criteria (arousal to verbal stimulus or tactile stimulus), has been validated in different languages,

**Conflicts of interest:** None.

Submitted on October 21, 2014  
Accepted on November 17, 2014

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**Responsible editor:** Jorge Ibrain de Figueira Salluh

DOI: 10.5935/0103-507X.20140050

and is therefore broadly accessible. A RASS-Score of 0 (awake and calm) or -1 (arousal to verbal stimulus, keeping eye-contact for more than 10 seconds) should be the standard goal for the level of alertness.

Although the evidence seems overwhelming, surveys show that sedation practice in clinical routine is still far behind from what is considered to be safe for our patients.<sup>(10)</sup> Nobody has comprehensively answered the question of why physicians still over-sedate their patients so frequently.

Maybe sedation is perceived as stress-relief. The same argument is used for the use of nocturnal sedation if patients suffer from wakefulness.

Surveys of ICU-stressors revealed that wakefulness is the second most severe stressor in critically ill patients, just after pain.<sup>(11)</sup> There is very little data available on objective sleep architecture in critically ill patients. However, these studies underline the significance of patients' experiences: sleep architecture, in general, is bad in an ICU and becomes even worse when using sedatives. Propofol, for example, leads to less slow-wave-sleep and less rapid eye movement sleep,<sup>(12)</sup> both of which are important for physical and mental recovery. We should reconsider our

perceptions in light of the evidence and recognize that sedation is an extreme amount of stress for the brain.

What should we do if we do not sedate the patient? We should conduct a symptom-orientated treatment of hallucinations, agitation, stress, and maybe most important, pain. Adequate analgesia seems to be the most important key feature of a successful "no-sedation-approach".<sup>(8)</sup>

In addition, a patient who is awake should benefit from cognitive and physical stimulation tailored to the individual situation. The direct environment may as well play an important role in this context. In the past, the ICU-environment was solely influenced by technical demands. This resulted in an ICU-environment that is almost unbearable for alert patients. Even a window-view remains the exception. Noise, inadequate lighting, and lack of privacy define the standard that can be observed in ICUs. We should know better, as there are studies older than Thomas L. Petty's editorial demonstrating that the hospital-environment has influences patients' experience and perception.

In summary, it is no longer visionary to keep our patients awake, but it is what evidence tells us to do. Wake up doctors, and wake up your patients!

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