

Cássia Righy Shinotsuka<sup>1,2</sup>, Rodrigo Bernardo Serafim<sup>2,3,4</sup>

## Sedation and memories in critical care

### *Sedação e memórias em terapia intensiva*

1. Instituto Estadual do Cérebro Paulo Niemeyer - Rio de Janeiro (RJ), Brazil.
2. Instituto Nacional de Câncer - Rio de Janeiro (RJ), Brazil.
3. Hospital Copa D'Or - Rio de Janeiro (RJ), Brazil.
4. Hospital Universitário Clementino Fraga Filho, Universidade Federal do Rio de Janeiro - Rio de Janeiro (RJ), Brazil.

Sedation strategies in intensive care units (ICU) have changed over the past decade towards daily wake-up calls, less sedation and even no sedation.<sup>(1-3)</sup> Furthermore, new ventilatory modes were designed to promote better patient synchrony with the ventilator and fewer sedation requirements. It is well known that the strategies used to reduce sedation reduce the length of mechanical ventilation and hospital stay.<sup>(1-3)</sup> However, there is increasing concern about which is the best sedation strategy regarding memory recall and post-traumatic stress disorder (PTSD) after ICU discharge.<sup>(4)</sup>

There is growing evidence of poor mental health and quality of life among survivors of intensive care. Many studies have evaluated patients' ICU memories at varying periods after ICU discharge with conflicting results. Some studies have described little or no memory for real events during their ICU stay<sup>(5,6)</sup> or only the remembrance of pain, suctioning, or lack of sleep.<sup>(7)</sup> Others have described memories of vivid nightmares, hallucinations, and paranoid delusions.<sup>(5,8)</sup> These experiences are often very frightening, which may predispose patients to form vivid and durable memories. Studies suggest that even relatively unpleasant memories of real events (factual recalls) during a critical illness may provide some protection from anxiety and the later development of PTSD-related symptoms compared with prominent delusional memories.<sup>(5)</sup>

It is not yet clear to what extent the trauma of life-threatening illness, associated drugs and treatments, or patients' psychological reactions during intensive care contribute to poor psychosocial outcomes. Many processes can interact and ultimately lead to the memory problems reported in ICU patients.<sup>(9)</sup> First, critically ill patients are more likely to develop metabolic or septic encephalopathy, which manifest as confusion or coma and can be exacerbated by sleep disturbance, sensory and social isolation. Second, the sedation strategy can strongly influence the recall of ICU events. Opiates, benzodiazepines, adrenaline, and corticosteroids, which are commonly used in critical care, can all have a profound influence on memory. In addition, the abrupt interruption of previously used drugs, such as benzodiazepines, can cause extensive withdrawal reactions, which may contribute to delirium.

The article by Costa et al., in this issue of *Revista Brasileira de Terapia Intensiva* (RBTI), provides new clinical information regarding sedation and memories in mechanically ventilated patients.<sup>(10)</sup> This study describes a higher incidence of delusional memories in mechanically ventilated patients deeply sedated for a longer period of time. The majority of patients (84.4%) reported

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**Corresponding author:**

Cássia Righy Shinotsuka  
 Rua do Rezende, 156 - Centro  
 Zip code: 20231-092 - Rio de Janeiro (RJ), Brazil  
 E-mail: cassiarighy@gmail.com

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some memories about the ICU; however, only 39.1% had factual memories. Interestingly, the authors show that a low level of sedation seems to have little impact on memory recall, and more deeply sedated patients did not refer to memories about procedures during their ICU stay. Deeper levels of sedation were associated with delusional memories after ICU discharge. Whether sedation was an independent risk factor for delusional memories or was a confounding factor for the severity of critical illness could not be ascertained.

In conclusion, more research is needed to examine ways of reducing delusional memories from the ICU and increasing factual recall. Simply reducing sedation is unlikely to achieve that aim. Reducing delusional memories likely means acting at multiple intervention levels beyond sedation, such as providing good analgesia, reducing noxious stimuli, and retaining mental clarity. Until we better understand the processes of memory formation in the ICU, we are unlikely to reduce the delusional memories recalled by critical care patients.

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