

EDITORIAL

Cognitive stimulation in ICU patients: should we pay more attention?

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Advances in ICUs have raised survival rates, but they have highlighted the need to reduce the morbidity of ICU patients and improve their short- and long-term functional outcomes. Frequently these patients, especially with acute respiratory distress syndrome, present neurocognitive impairments [1] that extend beyond their acute phase and hospital stay and lead to significant deficits in quality of life [2,3]. These neurocognitive sequelae generate health and economic problems related to the dependency of survivors. Neurocognitive impairments may be understood as a manifestation of occult brain damage secondary to underlying pathophysiological mechanisms related to critical illness [4]. Therefore, it might be interesting to consider these patients as brain damaged patients and apply therapeutic tools, such as cognitive stimulation, that have proven effective in treating neurocognitive impairments in acquired brain injury patients [5].

A number of considerations must be taken into account with regard to when and how cognitive intervention is applied. After hospital discharge we must consider the rehabilitation or amelioration of cognitive impairments that ICU survivors show in their daily lives. However, cognitive interventions during hospitalization should be focused on nonspecific stimulation of overall cognitive functions, in order to prevent the occurrence of these long-term sequelae or reduce their severity.

Virtual reality (VR) is a useful therapeutic tool that allows patients to experience virtual environments that appear and feel similar to the real world through natural interaction. VR has been applied to acquired brain injury patients using a supermarket environment to treat executive dysfunctions [6] or a virtual office to assess learning and memory [7]. Finally, some studies have explored the possibilities offered by VR in assessing and treating attention deficits [8]. There are no experiences of this

type in the ICU, except for the use of interactive video games in early physical rehabilitation [9].

Critically ill patients are in a state of sensory deprivation during their ICU stay and VR can physically and cognitively stimulate the patient in a safe and controlled environment. The use it or lose it principle posits that neuronal activation can enhance cognitive function and results in improved neuronal survival in acquired brain injury [10]. In the ICU context, this concept suggests that cognitive stimulation, as similar to the patient's daily life as possible, can have a beneficial effect on cognitive function, preventing the emergence of neurocognitive impairments or improving cognitive and functional outcomes after discharge. It is time to consider cognitive stimulation as a challenging future intervention for critically ill patients.

Abbreviations

VR, virtual reality.

Competing interests

MT, SFG, VGS and LB are investigators of the project Early neurocognitive rehabilitation in critically ill patients with acute acquired brain injury funded by La Fundació Marató TV3 2010. LB has developed patented inventions related to monitoring ventilator signals. The license for these patents belongs to Corporació Sanitària Parc Taulí (Spain). LB owns 10% of BetterCare SL, a research and development spin-off of Corporació Sanitària Parc Taulí (Spain). MJ declares that she has no competing interests.

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