

Characterization and management of cognitive and emotional alterations in COVID-19 critically ill patients after ICU discharge



Caracterización y abordaje de las alteraciones cognitivas y emocionales en el paciente crítico COVID-19 al alta de UCI

Dear Editor:

In the viewpoint article "Psychiatry and COVID-19" published in the *JAMA* journal, Öngür et al.¹ highlight the impact of the COVID-19 pandemic on the mental health of SARS-CoV-2 infected patients, the general population, health care professionals and vulnerable people with major psychiatric disorders.

Focusing in COVID-19 patients, is known that SARS-CoV-2 infection affects both the peripheral and the central nervous systems and is associated with a broad spectrum of neurological syndromes.² Although rates of psychiatric morbidity associated with COVID-19-related brain dysfunction remain unknown, early reports suggest that non-critical SARS-CoV-2 patients suffer from attention deficits, processing speed difficulties and anomia after overcoming the disease. COVID-19 patients admitted in the Intensive Care Unit (ICU) can be particularly vulnerable to develop Post-Intensive Care Syndrome (PICS). Thus, cognitive impairment is another challenge that must be addressed in COVID-19 post-ICU patients, particularly in those of working age.

Critical illness itself and its management can generate a burden of sequelae related to PICS, which includes cognitive impairment and emotional disturbances during the weeks and months following ICU discharge. Recent findings reveal three different phenotypes of cognitive status one month after ICU discharge in patients who underwent mechanical ventilation (MV) and suggest the existence of different brain-dysfunction patterns in ICU survivors. Specifically, 47% of patients presented moderate-to-severe cognitive deficits, with executive functions, processing speed and memory being the most altered cognitive domains.³

Critically ill COVID-19 patients requiring prolonged MV are prone to develop delirium during ICU stay, which is also a robust precipitating factor for long-term cognitive impairment in critical non-COVID-19 patients.⁴ Furthermore, most hospitals caring for critically ill patients with COVID-19 have been forced to adopt emergency measures, disrupting the routine management of ICU patients. Prohibition of family visits, isolation to prevent further spread of the disease and changes in the nurse/patient ratio are some of the restrictions that may hinder recovery from delirium and increase mental health problems in COVID-19 post-ICU patients.

Beyond the cognitive impairment associated with COVID-19 critical illness, stress, anxiety and depression may *per se* worsen the cognitive function of ICU survivors. Therefore, the characterization of cognitive phenotypes in COVID-19 ICU survivors, and the establishment of protocols to address PICS-related cognitive impairment are of the utmost interest.

In agreement with Öngür et al.,¹ during the pandemic we have incorporated different tools for monitoring patients in a non-presential and continuous way throughout their recovery process after ICU discharge. Patients perceive these resources as facilitators for recovery, whereas clinicians trace patient's evolution and obtain a valuable follow-up data that allows a quick detection of alterations, and the implementation of early tailored interventions. Furthermore, the incorporation of innovative digital therapies aimed at providing cognitive stimulation during the ICU stay⁵ could also be considered a viable and safe alternative to prevent the cognitive and emotional alterations in the COVID-19 post-ICU survivor. Therefore, what we have learned from the pandemic is that ICU extended support based in telemedicine and digital therapies have come to stay.

Funding

The work was supported by the Instituto de Salud Carlos III (grant COV20/00595 of the Convocatoria extraordinaria para la investigación sobre el SARS-CoV-2 y la enfermedad COVID19, con cargo al Fondo-COVID19, Ministerio de Ciencia e Innovación, Gobierno de España).

References

- Öngür D, Perlis R, Goff D. Psychiatry COVID-19. *JAMA*. 2020;324:1149, <http://dx.doi.org/10.1001/jama.2020.14294>.
- Paterson RW, Brown RL, Benjamin L, Nortley R, Wiethoff S, Bharucha T, et al. The emerging spectrum of COVID-19 neurology: clinical, radiological and laboratory findings. *Brain*. 2020;143:3104–20, <http://dx.doi.org/10.1093/brain/awaa240>.
- Fernández-Gonzalo S, Navarra-Ventura G, Bacardit N, Gomà Fernández G, de Haro C, Subirà C, et al. Cognitive phenotypes 1 month after ICU discharge in mechanically ventilated patients: a prospective observational cohort study. *Crit Care*. 2020;24:618, <http://dx.doi.org/10.1186/s13054-020-03334-2>.
- Girard TD, Jackson JC, Pandharipande PP, Pun BT, Thompson JL, Shintani AK, et al. Delirium as a predictor of long-term cognitive impairment in survivors of critical illness. *Crit Care Med*. 2010;38:1513–20, <http://dx.doi.org/10.1097/CCM.0b013e3181e47be1>.
- Turon M, Fernandez-Gonzalo S, Jodar M, Gomà G, Montanya J, Hernando D, et al. Feasibility and safety of virtual-reality-based early neurocognitive stimulation in critically ill patients. *Ann Intensive Care*. 2017;7:81, <http://dx.doi.org/10.1186/s13613-017-0303-4>.

G. Navarra-Ventura^{a,b,*}, J. López-Aguilar^{a,b}, L. Blanch^{a,b}, S. Fernandez-Gonzalo^{a,c}

^a *Critical Care Center, Parc Taulí Hospital Universitari, Institut d'Investigació i Innovació Parc Taulí-I3PT, Universitat Autònoma de Barcelona, Sabadell, Barcelona, Spain*

^b *Centro de Investigación Biomédica en Red de Enfermedades Respiratorias (CIBERES), Instituto de Salud Carlos III, Madrid, Spain*

^c *Centro de Investigación Biomédica en Red de Salud Mental (CIBERSAM), Instituto de Salud Carlos III, Madrid, Spain*

* Corresponding author.

E-mail address: gnavarra@tauli.cat (G. Navarra-Ventura).

0210-5691/ © 2020 Elsevier España, S.L.U. y SEMICYUC. All rights reserved.