Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Letter to the Editor: "Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) and Traumatic Cervical Acute Spinal Cord Injury: An Appraisal"

Letter:

In 2020, coronavirus disease has emerged and manifested into an unforgettable pandemic. The initial outbreak was caused by a virus of the *Coronaviridae* family, currently called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] It produces a severe inflammatory syndrome involving multiple organs. It has been established this pathogen also affects the central nervous system, including the spinal cord.[2] It has been acknowledged that approximately 60%–70% of the world population will be infected.[3] The cervical spine is susceptible to traumatic injury. It is estimated that approximately 4 per 100,000 people have a spinal injury. In the United States, approximately 12,000 new cases of spinal injuries are reported every year, and a representative sample develops neurologic sequelae.

The neurotropic potential of the coronavirus has been suggested previously.[4] Demyelination areas have been found in the spinal cord using magnetic resonance imaging.[5] It has been suggested that the virus triggers a neurotoxic hypoxic injury that can aggravate deficits in patients infected with SARS-CoV-2 with history of traumatic spinal injury.

As we have found, a spinal cord injury is a dynamic process, where a cascade of events in the pathophysiology is critical in the deterioration of the clinical scenario of a patient. There is a great importance of neurogenic shock, defined as autonomic dysregulation due to the sudden loss of control of the sympathetic tone and the overlapping of a parasympathetic response that appears in the context of a spinal cord injury. It seems that patients with trauma above the level of T4 are at greater risk of triggering the appearance of this shock than in other segments of the spinal column.[6,7] Initial management at the site of a traffic accident using rigid collars and spine immobilization is a recommended step by Advanced Trauma Life Support algorithms to prevent cervical spine displacement causing more damage and irreversible sequelae.[8] Due to the decrease in systemic vascular resistance preventing vital organs from obtaining their requirements of blood, early identification followed by aggressive treatment is the key to avoiding secondary spinal injury.[9]

SARS-CoV-2 can contribute to neurologic abnormalities during infection. Their severity depends on the disease staging.[10] There is a link between the response of the immune system in spinal cord injury and how it contributes to neuronal and oligodendrocyte apoptosis and axonal demyelination.[11] Regarding the latter, the actual role of the virus during the pathophysiology of acute spinal cord injury and how it can affect the outcomes should be thoroughly investigated, in addition to the prognosis of the patient.

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REFERENCES

1. Zhu N, Zhang D, Wang W, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med*. 2020;382:727-733.
2. Frohna WJ. Emergency department evaluation and treatment of the neck and cervical spine injuries. *Emerg Med Clin North Am*. 1999;17:739-791. v.
3. Bennhold K, Eddy M. Merkel Gives Germans a Hard Truth About the Coronavirus. The New York Times. Available at: https://www.nytimes.com/2020/03/11/world/europe/coronavirus-merkel-germany.html. Accessed March 11, 2020.
4. Conde Cardona G, Quintana Pájaro LD, Quintero Marzola ID, Ramos Villegas Y, Moscote Salazar LR. Neurotropism of SARS-CoV 2: mechanisms and manifestations. *J Neurol Sci*. 2020;412:116824.
5. Zanin L, Saraceno G, Panciani PP, et al. SARS-CoV-2 can induce brain and spine demyelinating lesions. *Acta Neurochir (Wien)*. 2020;162:1491-1494.
6. Stein DM, Roddy V, Marx J, Smith WS, Weingart SD. Emergency neurological life support: traumatic spine injury. *Neurocrit Care*. 2012;17:102-111.
7. Taylor MP, Wrenn P, O'Donnell AD. Presentation of neurogenic shock within the emergency department. *Emerg Med J*. 2017;34:157-162.
8. American College of Surgeons. *Committee on Trauma. Advanced Trauma Life Support®, ATLS®. Student Course Manual*. Chicago, IL: American College of Surgeons; 2018.
9. Kessler TM, Traini LR, Welk B, Schneider MP, Thavaseelan J, Curt A. Early neurological care of patients with spinal cord injury. *World J Urol*. 2018;36:1529-1536.
10. Fotuhi M, Mian A, Meysami S, Raji CA. Neurobiology of COVID-19. *J Alzheimers Dis*. 2020;76:3-19.
11. Kasinathan N, Vanathi M, Subrahmanyam V, Rao J. A review on response of immune system in spinal cord injury and therapeutic agents useful in treatment. *Curr Pharm Biotechnol*. 2015;16:26-34.