

Neurosonology during the COVID-19 pandemic (Editorial commentary from the chairs of the ultrasound panel of the European Academy of Neurology)

See paper by C. Baracchini et al. on page 1776

doi:10.1111/ene.14410

The COVID-19 pandemic is seriously affecting the lives of billions of people around the world, especially in the healthcare systems [1]. Although the impact of the pandemic on health services is mostly negative, there is still a chance to use this situation as an opportunity for positive changes.

Neurosonological examination involves direct contact between the patient and the sonographer, often for several tens of minutes. Thus, this examination should be included in procedures with a potentially high risk of COVID-19 transmission.

To prevent the spread of viral infection, the Management Group of the Scientific Panel on Neurosonology of the European Academy of Neurology [2] and the European Society of Neurosonology and Cerebral Hemodynamics (ESNCH) [3] published their recommendations for neurosonology laboratories and the performance of neurovascular ultrasound, based on general international ultrasound/neuroimaging investigation guidelines during the pandemic [1,4–8].

In contrast to elective neurosonology examination, the acute examination cannot be postponed, especially in acute stroke patients. To diminish the risk of viral infection transmission during neurosonological examination, Baracchini *et al.* are providing practical recommendations of the ESNCH for the performance of neurovascular ultrasound investigations with the aim of protecting both patients and ultrasound providers [9]. The recommended detailed pre-hospital and intra-hospital assessments, regular effective cleaning of ultrasound equipment and using compatible disinfectants after each patient are necessary to diminish the spread of viral infection. The indication for neurosonological examination becomes even more crucial now.

Nevertheless, the correct assessment of neurosonological examination is not only a question of image evaluation as in other neuroimaging methods but it is ‘state of the art’, highly dependent on sonographer experience [10]. Thus, hands-on courses are necessary to provide adequate education and practice for neurosonographers. The COVID-19 pandemic has also seriously affected these educational activities. It is an urgent challenge for


authorities (ESNCH, European Academy of Neurology Scientific Panel on Neurosonology and Neurosonology Speciality Group of the World Federation of Neurology) to create a suitable, safe, effective and modern system of neurosonology education able to protect participants but to continuously deliver up-to-date neurosonology information.

Facing the COVID-19 pandemic, currently various new digital educational concepts are being developed for distance learning and we should therefore share these broad experiences for future courses, but this is yet another demanding task for the neurosonology community. It is an ultimate goal to increase the use of interactive video conferencing in remote neurosonology education as well as in the delivery of acute stroke care, known as telestroke/teleneurosonology, also feasible and very efficient during the crisis. Among the first steps, sonographers should complete infection control and protection training using these interactive remote modalities.

The major goal of all relevant recommendations of neurosonology societies or authorities is to protect both patients and sonographers but keeping great attention on stroke as an emergency condition always strictly adhering to treatment guidelines for patients to ensure appropriate stroke care. The introduction of published recommendations on clinical practice may also mitigate the negative effects of new pandemics in the future.

Disclosure of conflicts of interest

The authors declare no financial or other conflicts of interest.

D. Školoudík^{a,b}  and M. Mijajlović^c Co-Chairs of the Neurosonology Scientific Panel of the European Academy of Neurology

^aDepartment of Neurology and Center of Clinical Neuroscience, First Faculty of Medicine, Charles University and General University Hospital in Prague, Prague; ^bDepartment of

Neurology, University Hospital Ostrava, Ostrava, Czech Republic and ^cNeurology Clinic, Clinical Center of Serbia and Faculty of Medicine, University of Belgrade, Serbia
(e-mail: skoloudik@hotmail.com)

References

1. World Health Organization coronavirus disease (COVID-19) pandemic. www.who.int/emergencies/diseases/novel-coronavirus-2019 (accessed 21.05.2020).
2. Mijajlovic M, Skoloudik D, Kaps M, Baracchini C. Management group of the scientific panel on neurosonology recommendations during COVID-19 pandemic. www.eanpages.org/2020/04/09/management-group-of-the-scientific-panel-on-neurosonology-recommendations-during-covid-19-pandemic/ (accessed 21.05.2020).
3. Baracchini C, for the ESNCH. ESNCH guidance for neurosonology laboratories during COVID-19 pandemic. <https://esnch.org/esnch-guidance-for-neurosonology-laboratories-during-covid-19-pandemic/> (accessed 21.05.2020).
4. Abramowicz JS, Basseal J, on behalf of the WFUMB Safety Committee. WFUMB position statement: how to perform a safe ultrasound examination and clean equipment in the context of COVID-19. https://wfumb.info/wp-content/uploads/2020/03/WFUMB-covid19-document_FINAL2.pdf (accessed 21.05.2020).
5. American Institute of Ultrasound in Medicine (AIUM). Quick guide on COVID-19 protections – patient and ultrasound provider protection. https://aium.s3.amazonaws.com/covid19/Covid19_Quick_Guide_PUPP.pdf (accessed 21.05.2020).
6. Center for Disease Control and Prevention (CDC). Interim infection prevention and control recommendations for patients with suspected or confirmed coronavirus disease 2019 (COVID-19) in healthcare settings. Update May 18, 2020. www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html (accessed 21.05.2020).
7. National Center for Immunization and Respiratory Diseases (NCIRD). Environmental cleaning and disinfection recommendations. Cleaning and disinfection for community facilities. Interim Recommendations for U.S. Community Facilities with Suspected/Confirmed Coronavirus Disease 2019 (COVID-19). www.cdc.gov/coronavirus/2019-ncov/community/organizations/cleaning-disinfection.html (accessed 21.05.2020).
8. United States Environmental Protection Agency (EPA). List N: disinfectants for use against SARS-CoV-2. www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2 (accessed 21.05.2020).
9. Baracchini C, Pieroni A, Kneihsl M, *et al.* Practice recommendations for the neurovascular ultrasound investigations of acute stroke patients in the setting of COVID-19 pandemic: an expert consensus from the European Society of Neurosonology and Cerebral Hemodynamics. *Eur J Neurol* 2020; **27**: 1776–1780.
10. Walter U, Behnke S, Eyding J, *et al.* Transcranial brain parenchyma sonography in movement disorders: state of the art. *Ultrasound Med Biol* 2007; **33**(1): 15–25.