



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.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## Invited Perspective

# Electroconvulsive Therapy During COVID-19-Times: Our Patients Cannot Wait

**Pascal Sienaert, M.D., Ph.D., Simon Lambrichts, M.D., Leen Popleu, M.D., Elke Van Gerven, M.D., Satya Buggenhout, M.D., Filip Bouckaert, M.D., Ph.D.**

## ARTICLE INFO

*Article history:*

Received April, 10 2020

Revised April, 16 2020

Accepted April, 17 2020

Now is a crucial time for us to stand up  
for our patients' right to continued access to ECT

Randall T. Espinoza, Charles H. Kellner, & William  
V. McCall, 2020

The rapidly evolving pandemic of coronavirus disease 2019 (COVID-19) is a major challenge for health services and drastic measures have been taken to contain this global crisis. Anticipating a shortage of health-care providers, in particular anesthesiologists, hospitals around the world did not hesitate to close down their electroconvulsive therapy (ECT)-units. In Flanders, a region in Belgium with

6,596,000 inhabitants, 70% of the ECT-units stopped treatments from the start of the pandemic. The remaining have put treatments for older patients residing in nursing homes on hold. Reasons cited are unavailability of anesthesiologists rescheduled to work in intensive care units, shortage of muscle relaxants needed for mechanical ventilation of COVID-patients, and fear of virus transmission through bag-mask-ventilation during the ECT-procedure. Another reason for closing down the ECT-service is that ECT is considered an elective intervention, and that, moreover, "*psychiatry can wait.*" It is not unusual for patients with a psychiatric disorder to experience poor access to health care compared with people without a psychiatric disorder.<sup>1</sup> But, as eloquently argued by Espinoza et al.,<sup>2</sup> in

From the KU Leuven, Academic Center for ECT and Neuromodulation (AcCENT) (PS, SL, VG, and SB), University Psychiatric Center, KU Leuven, Leuven, Belgium; UHasselt, Center of anatomical sciences and education UHasselt (LP), Diepenbeek, Belgium; KU Leuven, Department of infection control (LP), University Psychiatric Center, KU Leuven, Leuven, Belgium; KU Leuven, Department of Anesthesiology (EVG), University Hospitals Leuven, Leuven, Belgium; and the KU Leuven, Old-Age Psychiatry (SB and FB), University Psychiatric Center, KU Leuven, Leuven, Belgium. Send correspondence and reprint requests to Pascal Sienaert, M.D., Ph.D., KU Leuven, Academic Center for ECT and Neuromodulation (AcCENT), University Psychiatric Center, KU Leuven, Leuvensesteenweg 517 3070 Kortenberg, Belgium.  
e-mail: [Pascal.sienaert@upckuleuven.be](mailto:Pascal.sienaert@upckuleuven.be)

© 2020 American Association for Geriatric Psychiatry. Published by Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.jagp.2020.04.013>

this COVID-era, "ECT is a lifesaving gem," an often essential medical procedure that should not be discarded as an elective intervention.

---

## OUR PATIENTS CANNOT WAIT

In this challenging time, the need to deliver care for older adults experiencing serious mental illness is higher than ever. ECT not only yields high remission rates in older patients,<sup>3</sup> it is often life-saving in patients refusing food and fluid intake, or those with psychotic depression, catatonia, and suicidality.<sup>4</sup> In considering the implications of COVID-19 for ECT, it is important for psychiatrists to carefully review the treatment needs in consultation with patients and their families. If ECT is stopped, the 6-month relapse rate with continuation pharmacotherapy will mount up to 37%.<sup>5</sup> Relapse rates after discontinuing an ongoing maintenance-ECT (M-ECT) are similar.<sup>6,7</sup> Moreover, it is of note that, apart from the burden caused by a depressive relapse, in this particular pandemic context, a depressive relapse might make older patients more vulnerable to infectious diseases. It is known that depression is associated with immunological impairments, especially in older adults,<sup>8</sup> and that in stressful situations, mortality from viral respiratory infections is higher.<sup>9</sup> Therefore, when M-ECT is withheld, or the intertreatment interval is lengthened, a close follow-up is of utmost importance. A protocol of using rescue ECT-sessions based on monitoring of psychiatric symptoms through televisits,<sup>10</sup> using validated rating scales, and providing ECT only in case of early signs of relapse,<sup>11</sup> should be considered standard clinical care in these exceptional times. This practice was shown to be feasible in a large trial on flexible M-ECT in older patients.<sup>12</sup>

In an attempt to contain the epidemic, the Belgian government issued on April 3th 2020 all day hospitalizations for persons over 65 years of age to be closed temporarily. As a consequence, M-ECT for outpatients was kept to a strict minimum. More specifically, older patients residing in nursing homes could not be treated on an outpatient basis, in order to protect their fellow-patients from infection. On a weekly basis, assessments were performed via telephone consultations with patients and/or care-providers. If possible, a standardized rating scale was used. Furthermore, cases were discussed on a weekly (video) ECT-team

meeting. If signs of relapse were emerging, or in case of increasing suicidality, patients were readmitted to apply rescue ECT starting with ECT twice a week. Readmission was organized in a 7-day quarantine-regime, with close follow-up of clinical signs and screening for COVID through polymerase chain reaction (PCR) testing.

---

## PROTECTING PATIENTS AND STAFF

To safely administer ECT, protecting staff and patients from exposure to respiratory droplets, our unit, situated in a tertiary psychiatric hospital, adopted a number of additional safety measures.

A nasopharyngeal swab for PCR-testing was performed the day before ECT. Hospitalized patients were monitored daily for symptoms of fever, coughing and dyspnea; PCR-testing was repeated once a week. Outpatients had PCR-testing the day before a treatment-session. Patients with a positive PCR-test were treated at the end of the program to prevent contamination of the treatment room and to enable rigorous cleaning afterwards.

The treatment room was adequately ventilated ensuring ventilation with air flow of 5 air changes per hour,<sup>13</sup> and all medical devices and high touch surfaces were disinfected with a chlorine solution after every treatment. After treating a patient with a positive PCR-test the entire treatment room, including the floor, was cleaned with a chlorine solution.

The number of persons present in the treatment room was kept to the absolute minimum required for the patient's care (ECT-nurse, ECT-psychiatrist, anesthesiologist and assistant-anesthesiologist). Appropriate personal protective equipment was used, including a standard "filtering face piece" 2-respirator, eye protection, a fluid-resistant long-sleeved gown and gloves, as prescribed by the World Health Organization<sup>13</sup> (Fig. 1). Filtering face piece 2-respirators were worn for a whole treatment day. Gloves were changed according to the 5 WHO indications for hand hygiene. Gowns were changed every treatment day, after a treatment of a COVID-positive patient, or in case of accidental contamination.

Glycopyrrolate was used routinely<sup>14</sup> to prevent salivation, thus reducing the risk of producing aerosol. It is suggested that glycopyrrolate also prevents cerebral deoxygenation during ECT.<sup>15</sup> A minor drawback

**FIGURE 1.** ECT-team wearing personal protective equipment, including FFP2-respirator, eye protection shield, fluid-resistant long-sleeved gown and gloves.



of its use is the fact that patients may experience dry mouth upon recovery.

ECT-anesthesia typically involves manual ventilation through a tight mask connected with an open Bain circuit. Manual ventilation is an aerosol-generating procedure, shown to pose an increased risk of coronavirus transmission to healthcare workers.<sup>16</sup> Oxygen-therapy, however, does not increase droplet count.<sup>17</sup> On the other hand, it is suggested that hyper-ventilation, using a bag-mask, might increase seizure length and improve seizure adequacy.<sup>18</sup> Nevertheless, in our unit, bag-mask-ventilation was avoided and patients were pre-oxygenated using a simple oxygen-mask (5 L/min).

Re-organizing ECT-care necessitates a re-allocation of resources. Trained practitioners are needed to

perform telephone or video-assessments. Weekly supervision is necessary to assess the need of readmission and rescue ECT. Practitioners and policy makers of nearby regional ECT-units should combine forces to centralize ECT-care and continue treatments in a limited number of centers. Although this approach may cause inconvenience for some patients, it will increase expertise and limit the amount of personnel and resources needed to enable continued access to ECT.

In these exceptional times, in which we must all arm ourselves against the coronavirus-pandemic, treating the most vulnerable of our patients is of major importance. Within the limits imposed on us during this pandemic, ECT should be seen as an essential medical procedure and made available in order to prevent long-term mental health consequences in older adults already experiencing serious mental illness. The caveats and measures described here, can guide ECT-practitioners in the context of this viral pandemic.

### **AUTHOR CONTRIBUTION**

Pascal Sienaert: Conceptualization, Investigation, Writing—review & editing. Simon Lambrichts: Writing—review & editing. Leen Popleu: Review & editing. Satya Buggenhout: Review & editing. Elke Van Gerven: Review & editing. Filip Bouckaert: Writing—review & editing.

### **DISCLOSURE**

*The authors have no disclosures to report.*

### **References**

1. Henderson C, Noblett J, Parke H, et al: Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry* 2014; 1:467–482
2. Espinoza RT, Kellner CH, McCall WV: ECT: an essential medical procedure. *J ECT* 2020;doi:10.1097/YCT.0000000000000689
3. Meyer JP, Swetter SK, Kellner CH: Electroconvulsive therapy in geriatric psychiatry. *Clin Geriatr Med* 2020; 36:265–279
4. Kellner C, Obbels J, Sienaert P: When to consider electroconvulsive therapy (ECT): an expert review with clinical recommendations. *Acta Psychiatrica Scand* 2020; 141:304–315
5. Jelovac A, Kolshus E, McLoughlin DM: Relapse following successful electroconvulsive therapy for major depression: a meta-analysis. *Neuropsychopharmacology* 2013; 38:2467–2474
6. Huuhka K, Viikki M, Tammentie T, et al: One-year follow-up after discontinuing maintenance electroconvulsive therapy. *J ECT* 2012; 28:225–228
7. Martinez-Amoros E, Serra P, Goldberg X, et al: Clinical outcome after discontinuation of maintenance electroconvulsive therapy. A retrospective follow-up study. *Rev Psiquiatr Salud Ment* 2020; 13:5–10
8. Glaser R, Kiecolt-Glaser JK: Stress-induced immune dysfunction: implications for health. *Nat Rev Immunol* 2005; 5:243–251
9. Nielsen NR, Kristensen TS, Schnohr P, et al: Perceived stress and cause-specific mortality among men and women: results from a prospective cohort study. *Am J Epidemiol* 2008; 168:481–491, discussion 492–486
10. Hollander JE, Carr BG: Virtually perfect? Telemedicine for Covid-19. *N Engl J Med* 2020;doi:10.1056/NEJMp2003539
11. Lisanby SH, Sampson S, Husain MM, et al: Toward individualized post-electroconvulsive therapy care: piloting the Symptom-Titrated, Algorithm-Based Longitudinal ECT (STABLE) intervention. *J ECT* 2008; 24:179–182

12. Kellner CH, Husain MM, Knapp RG, et al: A novel strategy for continuation ECT in geriatric depression: Phase 2 of the PRIDE study. *Am J Psychiatry* 2016; 173:1110-1118
13. World Health Organization P: Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected., 2020. [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125). Date last updated: 25 January, 2020. Date last accessed: 8 April, 2020.
14. Swartz CM, Saheba NC: Comparison of atropine with glycopyrrolate for use in ECT. *Convuls Ther* 1989; 5:56-60
15. Rasmussen P, Andersson JE, Koch P, et al: Glycopyrrolate prevents extreme bradycardia and cerebral deoxygenation during electroconvulsive therapy. *J ECT* 2007; 23:147-152
16. Tran K, Cimon K, Severn M, et al: Aerosol-Generating Procedures and Risk of Transmission of Acute Respiratory Infections: A Systematic Review. edited by Available at <https://www.ncbi.nlm.nih.gov/books/NBK174437/CafDaTiHNESaf> Ottawa (ON). Date last accessed: 8 April, 2020
17. Simonds AK, Hanak A, Chatwin M, et al: Evaluation of droplet dispersion during non-invasive ventilation, oxygen therapy, nebuliser treatment and chest physiotherapy in clinical practice: implications for management of pandemic influenza and other airborne infections. *Health Technol Assess* 2010; 14:131-172
18. Gomez-Arnau J, de Arriba-Arnau A, Correias-Lauffer J, et al: Hyperventilation and electroconvulsive therapy: A literature review. *Gen Hosp Psychiatry* 2018; 50:54-62