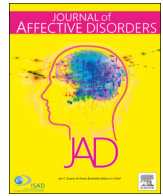




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## Research paper

## Electroconvulsive therapy protocol adaptation during the COVID-19 pandemic



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## ABSTRACT

**Background:** During the COVID-19 pandemic, electroconvulsive therapy units have had to confront challenges such as the infectious hazard due to aerosol-generating ventilation, or the lack of staff and material resources. Our objective was to elaborate a protocol to make ECT during the COVID-19 pandemic a safer procedure for patients and professionals.

**Methods:** A multidisciplinary workgroup (including mental health, anesthesia, preventive medicine, and occupational risk professionals) was formed in the Hospital Clínic de Barcelona, in March 2020. A core group conducted a review of the scientific literature and healthcare organizations' guidelines and wrote a protocol draft. Then, a discussion with the workgroup was made until consensus was reached. The protocol has been continuously updated. Discussions were made by group e-mailing and video conferencing.

**Results:** The protocol includes the following main areas: (1) ECT unit's structural and functional considerations; (2) SARS-CoV-2 screening protocol; (3) ECT clinical practice adaptation (personal protective equipment, airway management, recovery room, and maintenance of the facilities); (4) management of COVID-19 cases; and (5) protocol assessment.

**Limitations:** The literature review was not systematic; the consensus was not based on a structured methodology. For other ECT units, local advisories may not be valid, and resource shortages (such as anesthetist availability, or the lack of respirators and PCR tests) may impede or prevent their implementation.

**Conclusions:** During the COVID-19 pandemic, ECT should continue to be advocated as an essential medical procedure. It is recommended that each ECT unit develop its own protocol. This proposal may be used as a reference.

**Abbreviations:** ECT, electroconvulsive therapy; FFP, filtering face piece; PCR, polymerase chain reaction; PPE, personal protective equipment

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## 1. Introduction

COVID-19, caused by SARS-CoV-2, was declared a pandemic by the World Health Organization on March 11, 2020 (World Health Organization, 2020). It has challenged every healthcare system in the world, so that they have had to prioritize and distribute resources as fairly and efficiently as possible. Mental health departments have adapted to the situation, dealing with the need to reduce psychiatric ward admissions (Garriga et al., 2020; Vieta et al., 2020), relocating their staff, adapting to COVID-19 patients, and functioning under extreme pressure (Arango, 2020; Xiang et al., 2020b). To complicate matters, mental health needs during and after the crisis are expected to rise (Pfefferbaum and North, 2020; Zheng, 2020), and there is a special concern about the risk of an increase in suicide rates (Gunnell et al., 2020; Reger et al., 2020).

Electroconvulsive therapy (ECT) is a core part of the treatment of some patients with schizophrenia, schizoaffective disorder, bipolar disorder, and major depressive disorder (Lally et al., 2016; Lévy-Rueff et al., 2010; Samalin et al., 2020). It is used both to treat severe episodes (as acute ECT, which is usually performed for inpatients) and to prevent relapses (as continuation-maintenance ECT, mostly performed for outpatients). In the current global crisis context, ECT should continue to be understood as an essential procedure (Espinoza et al., 2020) because of its contribution in preventing some severe patients' relapses, reducing psychiatric admission rates, and alleviating patients' mental suffering, which occasionally may lead to suicide attempts. The case of the suicide of a patient with recurrent depression and previous ECT response has already been reported in the context of ECT delay due to the COVID-19 pandemic (Tor et al., 2020).

However, most ECT units have closed or reduced their activity as a result of the COVID-19 crisis (Sienart et al., 2020). The distribution of these limited healthcare resources depends on chief medical and healthcare personnel as well as political authorities. It has been proposed that in several hospitals and medical contexts, the closing of ECT units has been a decision taken without enough information concerning their relevance as an urgent and life-saving procedure for some patients (Espinoza et al., 2020). Thus, it seems an ethical duty for mental health professionals to provide clear scientific evidence and clinical advisories to the authorities, so they can be better informed and can make decisions based on fairness and medical appropriateness. Furthermore, these situations sometimes occur in social contexts when mental health patients but also ECT as a medical therapy have been subjected to long-lasting stigma (Bernardo and Urretavizcaya, 2015).

Considering the transmission mechanism of SARS-CoV-2, multiple aspects of the usual procedures for ECT may be related to an increased risk of infection (Tor et al., 2020). First of all, the features of the ECT unit structure and location must be analyzed. At least two rooms are needed: one for the therapy and one for patient recovery. Patients and staff share these small rooms during clinical hours, with neither specific ventilation nor insulation systems. For instance, in our pre-pandemic ECT unit, up to eight patients used to share the waiting/recovery room for five hours. Another issue is that psychiatric patients may have an increased risk of being infected by SARS-CoV-2, compared to the general population (Xiang et al., 2020). Different circumstances may explain this: they have a higher risk of homelessness, reduced social support, and difficulties in accessing healthcare systems (Druss, 2020); they often live in crowded wards or institutions; and they may have difficulties in maintaining social distancing and other preventive measures (Tor et al., 2020). Moreover, in some ECT units, standard operations include high staff rotation, so multiple psychiatrists, anesthesiologists, and nurses rotate through the ECT unit while they work in other hospital locations as well. This may increase the risk of both introducing SARS-CoV-2 to the ECT unit and also exporting it to other units and facilities of the hospital (Tor et al., 2020). Furthermore, there is a global shortage of health resources: on the one hand, there is a lack of diverse health-related equipment, such as PCR tests to determine SARS-CoV-2

status, face masks, hydroalcoholic gel, and filter respirators (FFP2, N95, or higher filtration masks), which are an essential part of personal protective equipment (PPE) for medical personnel; on the other hand, anesthesiologists are being largely relocated to support intensive care units. As a result of both circumstances, since the onset of the crisis in Spain, most of the ECT units completely stopped their activity. Finally, it is necessary to note that contemporary ECT is always performed with the proper anesthetic procedure, consisting of a short period of sedation and muscular relaxation, supported with manual (hyper-)ventilation, using a bag valve mask. Manual bag ventilation is the highest-ranked airway procedure in terms of generating aerosols, so this procedure has a high risk of coronavirus transmission (Cook et al., 2020; Flexman et al., 2020).

To our knowledge, at the time of our protocol development there had been no reports in the scientific literature describing the application of ECT in confirmed COVID-19 patients, nor was there scientific evidence of an increased risk of complications associated with ECT in COVID-19 patients. It is known, however, that preexisting pulmonary diseases increase the risk of post-ECT adverse outcomes (Fernández-Candil et al., 2020). A higher risk of complications and mortality has been reported for other surgical and interventional procedures in COVID-19 patients (Aminian et al., 2020). It should be noted that ECT patients tend to be elderly and have comorbid medical conditions, such as hypertension or diabetes (Blumberger et al., 2017; Flexman et al., 2020; Momen et al., 2020; Tor et al., 2020), which are related to worse outcomes for COVID-19 patients (Zhou et al., 2020). Considering the high risk of transmission due to the aerosol-generation procedure, the Society for Neuroscience in Anesthesiology & Critical Care (SNACC) recommends against performing ECT in COVID-19 patients, even if PPE is available (Flexman et al., 2020). As far as we know, no other organizations or authors have made different recommendations.

We aimed to develop a protocol to make ECT a safer procedure for patients and healthcare professionals during the COVID-19 crisis. Because it is expected that the current pandemic threat will last for months, or even more than a year (Anderson et al., 2020; Mahase, 2020), health systems have to adapt, develop, and incorporate every precaution and measure that may be useful. Protocols also help to improve the organization and management of healthcare systems, which is crucial in the present crisis. As argued above, ECT should continue to be an essential procedure, but it is subject to specific risks and challenges in the pandemic; thus it has to adapt, and specific functional protocols may be developed for that purpose (Colbert et al., 2020).

## 2. Methods

The methodology used during the protocol development was shaped by the current healthcare system crisis. Accelerated elaboration and implementation of the protocol were needed to immediately guarantee patients' and professionals' safety. Additionally, the time that professionals were able to dedicate to the protocol was limited by their extra clinical activity, so straightforward and nonstructured methods to reach consensus were chosen. Every group discussion was made by group e-mailing and by group video conferencing to reduce meeting-related exposure. The elaboration process followed five steps:

- (1) A multidisciplinary workgroup was gathered in the *Hospital Clínic de Barcelona*, in Catalonia, Spain. It included the ECT unit's usual staff (two psychiatrists, an anesthesiologist, a mental health nurse, and a nursing assistant), three psychiatrists and a mental health nurse from the psychiatry ward, the head physician and the head nurse of the Department of Psychiatry, a preventive medicine specialist, and a technician in occupational risk prevention.
- (2) The main features of the protocol were defined by a consensus of the workgroup, following the *Hospital Clínic de Barcelona* protocols and guidelines during the COVID-19 pandemic. They are based on

the scientific literature and on global and local healthcare organizations' recommendations, they include implementation guidelines specific to this hospital, and they are continually updated. It was agreed that the ECT unit protocol had to follow the hospital's own guidelines because of clinical, implementation, and legal reasons. These guidelines and protocols consider specific updated features of the hospital, in terms of infrastructure, healthcare professionals' availability, material availability, the COVID-19-related burden, and the changing legal and regulatory context (*Sub-direcció General de Vigilància i Resposta a Emergències de Salut Pública*, 2020). Furthermore, for a given hospital's units, developing its own protocol enhances multidisciplinary work and enables coordination. Finally, such a protocol may also facilitate the unit's access to PPE and PCR tests. More specifically, the COVID-19 protocols from the surgical procedures of the *Hospital Clínic de Barcelona* were taken as a reference, due to the similarity of some organizational and logistic features, and due to the lack of specific literature concerning ECT and coronavirus. However, ECT differs from surgical functioning in various aspects. For example, ECT units are usually located and structured differently than surgical facilities, and ECT patients come periodically to receive the therapy. In our unit, for acute ECT, patients come 2–3 times a week, and for continuation-maintenance ECT, they come in a range varying from 7 to 60 days. These features were taken into consideration during the protocol elaboration process.

- (3) The core group, formed by an ECT psychiatrist (JGB), the anesthesiologist (RV), and the preventive medicine specialist (MJB), conducted a review of the scientific literature and healthcare organizations' guidelines, each one focusing on that individual's main focus of expertise. The aim was to find information concerning ECT-related risks and threats during the COVID-19 pandemic and to find strategies to manage them. Core group members then provided the reference list to the rest of the workgroup.
- (4) JGB, RV, and MJB wrote the protocol draft. The sections of the protocol were chosen considering the different functional features of the ECT unit, and current pandemic risks and cautions. For each section, a clear and detailed definition of its procedures and activities was elaborated. The protocol included scientific justification from the literature synthesis supporting these procedures.
- (5) The protocol draft was sent to the workgroup, and it was reviewed by each group member. Suggestions and corrections were proposed, and debate was conducted until consensus was reached. Following the initial methodology, the protocol has been continuously updated as local and global disease characteristics, the scientific literature, and resource availability has evolved.

The final protocol is presented in five main sections: (1) the ECT unit's structural and functional considerations (concerning staff organization, clinical activity, and communication channels); (2) a SARS-CoV-2 screening protocol; (3) ECT clinical practice adaptation (analyzing PPE, procedure adaptation, functioning of the recovery room and common spaces, and the cleaning and maintenance of the facilities); (4) management of COVID-19 cases; and (5) protocol assessment. Challenges and difficulties of the protocol implementation, as well as practical strategies to manage these issues, which were learned by our group during the process, are reviewed in the discussion.

### 3. Results

The full protocol of the *Hospital Clínic de Barcelona* ECT unit during the COVID-19 pandemic is provided below, divided into sections.

#### 3.1. ECT unit's structural and functional considerations

##### 3.1.1. ECT unit staff organization

To reduce exposure and for organizational reasons, the two

psychiatrists will alternate in their on-site job on the ECT unit (one week each), the number of different anesthetists coming to the unit will be reduced as much as possible, and the mental health nurse and the nursing assistant will not rotate. Staff will be periodically screened for SARS-CoV-2: PCR tests will be conducted every two weeks. If a staff member shows symptoms or have risk contacts, they will stop their on-site work and follow the hospital's protocol for case management.

In awareness of possible quarantine or sickness among the staff, substitutes are defined and trained in ECT functioning and in the use of PPE.

The staff will share spaces only for essential on-site work, always wearing a face mask, keeping a safe distance, and with frequent hand washing.

#### 3.1.2. Clinical activity reduction and priority criteria

Clinical activity will be reduced depending on the hospital's resources at each moment of the crisis. A maximum of 5 patients will receive ECT per day (because of the limited space in our facilities, to guarantee safe distance between patients).

The number of days per week of clinical operation will depend on the availability of anesthetists and accessibility to the material (PPE, PCRs).

Every week, the ECT unit will plan the next week's activity depending on the availability of the resources.

Priority criteria will be based on ECT scientific knowledge (Bernardo et al., 2018) and, if necessary, wartime triage and disaster medicine (Bazyar et al., 2020) principles will be applied.

Prioritized indications: (1) catatonia without pharmacological response; (2) severe persistent agitation without pharmacological response; (3) patients in maintenance ECT with history of severe relapse, especially if history includes suicidal attempts or other violence; and (4) patients in maintenance ECT with history of relapse when ECT was discontinued in the past.

Based on these priority criteria, individualized therapeutic plans will be made for each patient, taking into consideration the patients' and their families' wishes, and their reference psychiatrist's risk perspective.

Acute ECT, previously applied 2–3 times a week, will be applied 2 times a week.

Continuation-maintenance ECT will be individualized following the previous considerations. The frequency of sessions may be maintained, spaced, or stopped until the situation improves.

#### 3.1.3. Communication with patients, families, and mental health professionals

As noted above, priority criteria will be applied in a dynamic way, individualizing and taking into consideration the ECT unit capacity each week, so fluent communication will be needed with patients, families, and their mental health referents. For that purpose, all of these individuals will be provided with the ECT unit phone number or ECT coordinator e-mail address, to contact in case of relapse risk or other concerns.

As the crisis began, every patient was informed of the ECT unit activity reduction and of his or her individualized initial plan, as well as of the communication channels. Later, the mental health nurse and the psychiatrist will make periodic phone calls to the patients and their referents, to assess their status, to inform of the unit's activity, and to discuss their individualized plan.

The ECT Committee (including ECT staff, psychiatric ward staff, and related colleagues) previously met once a week on-site. During this crisis, it will reunite as a group video conference every two weeks if not more frequently, planning to return to a weekly frequency as soon as staff will be available.

### 3.2. SARS-CoV-2 screening protocol

The scientific literature suggests that, for SARS-CoV-2 infection, there is a high percentage of patients (20–30%) who are asymptomatic or who present with mild symptoms (Mizumoto et al., 2020; Nishiura et al., 2020). These patients may be contagious to other people, contributing to the spread of the virus (Bai et al., 2020). This information is important in understanding why epidemiological screening mechanisms based on symptoms that were successful in controlling SARS in 2003 are not useful for SARS-CoV-2, for which screening methods should be based on tests for viral RNA detection, mostly through PCR (Wilder-Smith et al., 2020). Considering the previous information, to perform aerosol-generating procedures and to allow close contact between patients in an epidemic region, a screening protocol should be established, and it has to include systematic PCR tests.

The screening procedure has to be applied to every patient before every ECT session. For patients in acute ECT, the PCR test will be done just once a week (although the rest of the screening procedure should be applied for every session).

The test will be SARS-CoV-2 PCR on nasopharyngeal and oropharyngeal swabs.

For outpatients, PCR determination will be done at the Preventive Medicine Department facilities of the *Hospital Clínic de Barcelona*. For inpatients, it will be performed at the Psychiatry Ward of the *Hospital Clínic de Barcelona*.

The flowchart describing the screening procedure is available in Fig. 1.

Even with application of the screening protocol, these procedures will not ensure 100% coronavirus-free status, as the tests do not have 100% sensitivity. In fact, our hospital's tests have 80% sensitivity, depending on the technique to obtain the samples and the stage of the infection. Considering this possibility of not detecting a SARS-CoV-2 case with current screening and the serious consequences of the disease, every measure and procedure design for COVID-19 patients that are compatible with the functioning of the ECT unit must be included in the protocol. For instance, this includes the use of full PPE for every ECT (Flexman et al., 2020), but also other considerations of infrastructure and patient flow.

### 3.3. ECT clinical practice adaptation

#### 3.3.1. Personal protective equipment

All the staff delivering ECT will wear PPE during the sessions. The hospital's guidelines and protocols concerning PPE will be strictly followed. The staff will be trained by written and video instructions, and audited by an expert colleague.

For an aerosol-generating procedure in patients who do not represent COVID-19 cases, the PPE consists of a double glove, a respirator mask FFP2/N95 (or higher), safety goggles, level 3 gown, and surgical cap.

To put on and remove the PPE, the instructions in our hospital's specific procedure will be carefully followed.

For the exceptional case of ECT in individuals who are quarantined or confirmed COVID-19 cases, the PPE would be the same, but further precautions and measures should be applied, as mentioned in Section 4 of this protocol.

#### 3.3.2. Procedure adaptation

The most challenging anesthetic consideration is airway management. Commonly managed mask ventilation and hyperventilation without definitive airway increases aerosolization and represents a significant risk of infection for staff that should be minimized (Flexman et al., 2020). To reduce the risk of viral transmission, the following is recommended:

Every patient will be manually ventilated with different disinfected

bag valve masks. High-efficiency heat- and moisture-exchanging filters are placed between the bag and the mask.

Hyperventilation will be limited to minimize aerosolization.

To minimize hypersalivation, atropine 0.08–0.1 mg/Kg administered intravenously can be safely used prior to induction of anesthesia, unless a formal contraindication exists. Where available, glycopyrrrolate 0.2–0.4 mg administered intravenously may be substituted (Flexman et al., 2020).

A longer period of pre-oxygenation will be established (Flexman et al., 2020), for at least 3 min before anesthesia induction.

Hyperventilation will be limited to minimize aerosolization (Flexman et al., 2020).

The two-person, two-handed technique for mask ventilation will be used to improve mask adjustment (Cook et al., 2020).

The most appropriate airway manager should manage the airway.

Once the mouth guard and the bag valve mask are placed, disposable waterproof plastic and a protective airway box will be placed over the patient's head and the bag valve mask, to reduce aerosol spreading during ventilation. The placement of these devices is shown Fig. 2.

The airway box will be cleaned with surface disinfectant wipes between patients.

Reusable mouth guards will be used. They will be properly disinfected and will not be used twice in the same day.

As soon as the patient recovers spontaneous breathing, a surgical mask will be placed.

The standard drug regimen includes thiopental 3–4 mg/Kg, succinylcholine 0.5–1 mg/Kg, and atropine 0.005–0.01 mg/kg in certain cases. In some patients, thiopental is substituted by propofol. During the pandemic, atropine will be used systematically (except if specifically contraindicated) in every case, which is not standard. Glycopyrrrolate is not currently available in Spain.

For bifrontal electrode placement, the electrodes will be placed in the elastic strip to reduce the ECT practitioner's proximity.

The ventilation system will be switched off. The door connecting to the recovery room and the external windows will be closed during the procedure. Once the patient has recovered spontaneous ventilation and consciousness, he/she will be moved to the recovery room, the door will be closed, and the external windows will be open to allow air clearance for 15 min between patients.

#### 3.3.3. Functioning of the recovery room and common spaces

It should be noted that the ECT unit facilities will be managed as a *clean zone* for patients who are not suspected of being infected with SARS-CoV-2. Confirmed cases, cases under study, or individuals in quarantine should never enter the ECT unit. Further considerations for these situations are in Section 4. Every patient and professional should wear a surgical mask as they enter the hospital, and they will keep it on during their entire stay in the ECT unit, before and after the ECT. Only ECT staff will use the ECT unit facilities.

The capacity of the recovery room will be reduced from 8 to 5 patients. The recovery room measures 22 square feet. The distance between patients will be of two meters. Each bed is isolated with curtains. Air conditioning will be stopped; ventilation will be done through the window. As no aerosol will be generated in the recovery room, staff PPE will consist of a surgical mask. Intensive hand washing will be done after each contact with patients.

#### 3.3.4. Cleaning and maintenance of the facilities

Cleaning, disinfection, and waste management of ECT unit facilities will be intensively done following our hospital's advisories during the current pandemic.

### 3.4. Management of COVID-19 cases

ECT will not be delivered in confirmed COVID-19 cases, study cases,



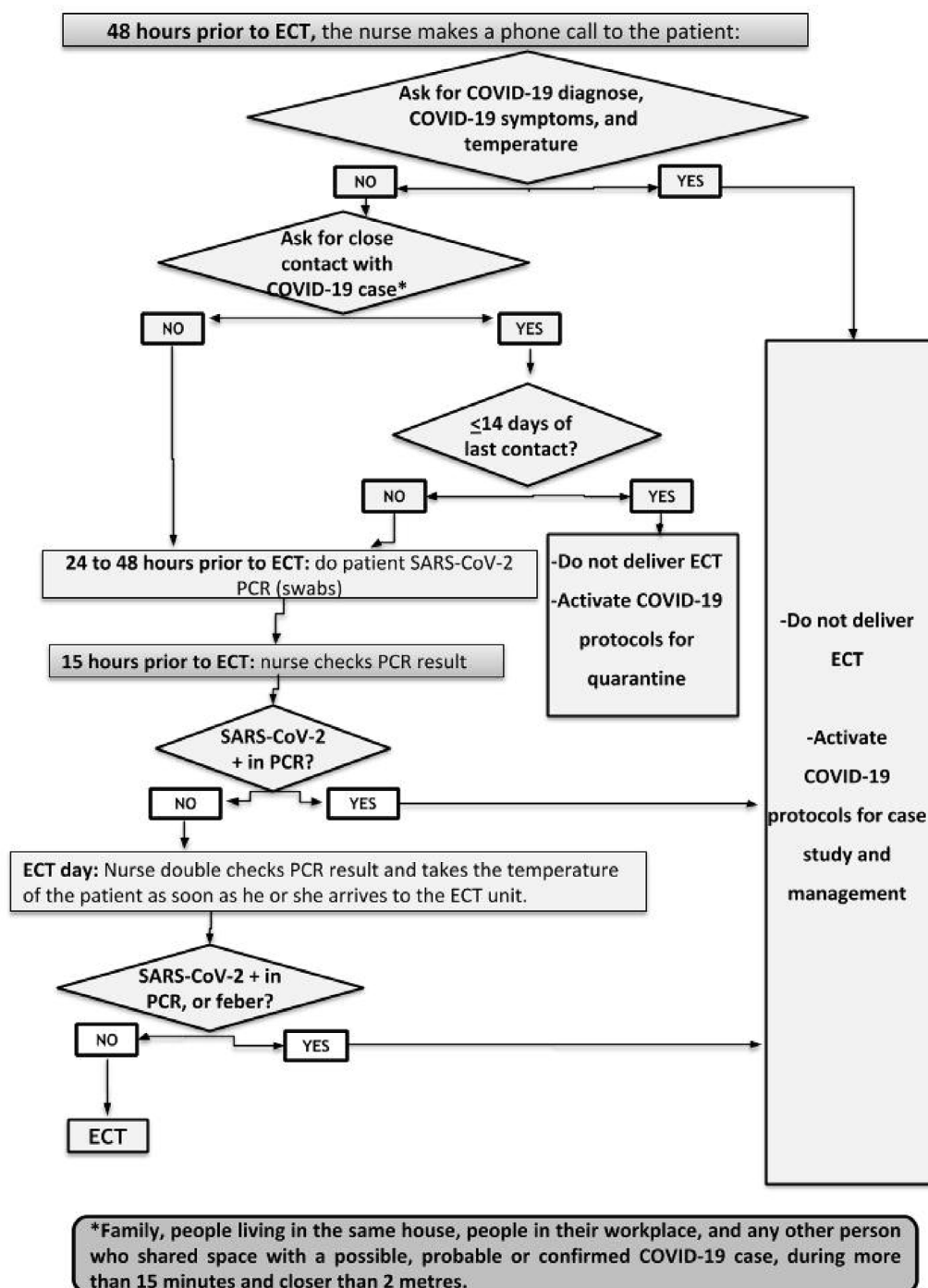


Fig. 1. ECT unit's SARS-CoV-2 screening protocol.

or quarantine cases, mostly due to the contagious hazard for professionals (Flexman et al., 2020) and other patients in the facilities, but also considering the possible increase of post-technique complications.

COVID-19 + cases who recover: After 14 days of being asymptomatic, a PCR test will be made. If negative, ECT may be an option, but this will be considered as a high infectious risk situation, and ECT will be done only if there is a life-threatening condition.

After quarantine, a patient may be eligible again for ECT. If they accomplish 14 days without symptoms and do not have new contact with cases, the screening protocol will be applied again.

In the case of an exceptionally severe condition, one that is immediately life-threatening, and when no other therapeutic options are available, the ECT Committee will discuss the case and will reach an

individualized consensus decision.

These ECTs would be performed in the coronavirus *dirty zone* of the hospital, not in the ECT unit. Hospital guidelines and protocols concerning procedures will be followed, and safety conditions for ECT, airway management (SEDAR, 2020), and ECT recovery will be assured.

### 3.5. Protocol assessment

To assess the validity of the protocol content and its implementation process, continuous review and discussion will be done by the work-group.

Periodic nonstructured assessments will be made to check staff compliance.



Fig. 2. Airway box placed to reduce aerosol generation during manual ventilation.

In case a COVID-19 patient is not detected by the protocol, an in-depth assessment will be made, and, if necessary, the protocol will be modified.

#### 4. Discussion

The main objective of our project was to develop a tool to make ECT a safer procedure during the COVID-19 pandemic. The Spanish government declared a state of alarm on March 14, 2020. A few days later, as ECT was considered an essential procedure, we started to work on this protocol and to progressively incorporate its procedures. On April 5, 2020, we finished the first version of the protocol, and two weeks later it was fully implemented, so the ECT unit and its patients may benefit from it.

The strengths of the project remain the dynamic development and update of a multidisciplinary, evidence-based protocol, which has been successfully implemented. The content of this article is meant to provide a review and an analysis of the scientific evidence covering this topic, and the basic structure for each ECT unit to develop its own protocol.

The main protocol limitations derive from its elaboration in a short period of time during the healthcare crisis. The literature review was not systematic; some of the references are prepublished versions; the multidisciplinary consensus was not based on a structured methodology, such as the Delphi method or nominal group technique (Jones and Hunter, 1995); and the assessment section does not include any quantitative measure. At the time of writing, the protocol has been fully implemented for only three weeks. As for the relevance and usefulness for other ECT units, the fact that the protocol is based on local guidance and recommendations may be inconvenient. Finally, some hospitals and ECT units may have resource shortages that would prevent the application of several points of this protocol. However, this protocol was developed by experts in their fields and with extensive experience in performing and improving ECT procedures.

The following represent the main challenges and difficulties experienced by our team during the process, together with strategies and considerations that may be useful for others while developing and implementing their own functioning protocol. First, it is crucial to gather a team with usual ECT Committee members but additionally including professionals from preventive medicine and occupational risk prevention. It is also important to have fluid communication with management coordinators and department leaders to have updated information about available resources and to facilitate the protocol implementation. The complex coordination of the group, as well as the effort to implement the changes proposed in the protocol, would not have been

possible without every member's motivation and flexibility.

As with most hospitals nowadays, perhaps the hardest challenge to face was the shortage of resources, mostly SARS-CoV-2 PCR tests and PPE. As for PCR availability, it became possible for our unit to apply the screening procedure four weeks after the emergency was declared. The lack of PCR may be part of the problem, but so is the effort needed to design the logistics to conduct systematic testing. Before we were able to use systematic PCR determination, we applied the rest of the protocol and the screening procedure to treat the most severe patients, trying to minimize the risks. Together with the lack of PCR tests, anesthetists' availability will probably be the most common adversity that other ECT units may have in implementing a similar protocol. In our unit, anesthetists reduced their availability but remain in ECT at least 2 days per week, so our activity has been reduced but has not stopped.

Since the onset of the health emergency in Spain, we have reduced the procedural activity to 25% of typical volume (from up to 40 ECTs per week to 10 ECTs per week during the pandemic). As the situation in our hospital is improving, we plan to recover to 60% of our previous activity in May 2020. While the coronavirus risks remain, we will not be able to increase that activity in order to properly apply the protocol. In April 2020, the protocol was applied to 15 to 20 patients a week. It was detected that one patient had contact with a confirmed case, so ECT was paused during her quarantine, according to the protocol standards. No COVID cases were undetected by the protocol. All PCR tests were negative. No ECT staff member has been infected during the pandemic.

As we had the possibility of implementing the screening procedure, it was considered safe to maintain the coexistence of inpatients and outpatients in the unit. However, it must be considered that if it is not possible to implement similar screening in a given ECT unit, separation of inpatient and outpatient groups may be an effective strategy to minimize risks (Tor et al., 2020).

To point out clinical recommendations, ECT must be considered an essential health procedure even during the COVID-19 pandemic, and its functioning may be safer and more efficient if it is based on a functioning protocol. As previously discussed, for clinical, management, ethical, and legal reasons, we encourage each ECT unit to develop its own protocol, with the support of a multidisciplinary workgroup and based on the scientific literature and on global and local healthcare organizations' recommendations.

Finally, there is a lack of specific scientific literature about ECT during the COVID-19 pandemic. Thus we recommend that future research be focused on adapting the procedure to make it as accessible, safe, and efficient as possible during the pandemic, and on developing clinical priority criteria. For the latter topic, humanistic approaches must be integrated. There will also be a need for knowledge on how to proceed during the de-escalation of the crisis, which hopefully will be soon, meaning that societies and their healthcare systems are overcoming the problem.

#### Declaration of Competing Interest

JGB has received financial support for traveling and educational activities from Adamed, Italfarmaco, Lundbeck, and Janssen. JGB has served as a consultant or provided teaching materials to Sanofi and Casen Recordati.

MV has received research grants from Eli Lilly & Company and has served as a speaker for Abbott, Bristol-Myers Squibb, GlaxoSmithKline, Janssen-Cilag, and Lundbeck.

M. Bioque has been a consultant for, received grant/research support and honoraria from, and been on the speaker/advisory board or has received honoraria from talks and/or consultancy of Adamed, Angelini, Ferrer, Janssen-Cilag, Lundbeck, Otsuka, Pfizer, and Sanofi.

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## Contributors

JGB, RV, and MJB wrote the protocol draft. All authors reviewed it and contributed to its implementation and implementation. JGB, RV, MV, and EM form the ECT unit's regular staff. JGB drafted the paper's manuscript, and all authors revised it and effectively contributed to it. All authors have read and approved the final article.

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