VIEWPOINT

Can we help? Our experience as orthopedic surgeons during the COVID-19 pandemic

¿Podemos ayudar? Nuestra experiencia como cirujanos ortopédicos durante la pandemia por COVID

Mariano Balaguer-Castro*, Albert Baduell*, Pere Torner

Presently, Spain is one of the countries most affected by COVID-19 in the world. The total number of cases exceeds 233,000, and deaths have surpassed 27,000[1]. At the end of February, Catalonia registered its first case of SARS-CoV-2. This first patient was admitted to one of the largest university hospitals in Barcelona. At that time, our center had 700 hospitalization beds, 94 of which were for intensive care. However, the number of patients increased exponentially in the region, and the hospital responded quickly, increasing its capacity by 20%, bringing the total number of beds to 847, including 152 critical and semi-critical beds. To achieve this increase in capacity, the hospital's structure was modified: inpatient wards, resuscitation units and operating rooms were transformed into intensive care units (ICU) to treat patients with COVID-19. A home hospitalization system was established and a hotel was converted into several hospitalization rooms, adding 528 beds to the total capacity of the hospital.

The use and handling of personal protective equipment (PPE) has been a great challenge. Recommendations on its use have been constantly reviewed in response to emerging scientific evidence, as well as its limited availability in some cases, generating great confusion among health professionals[2,3]. To the great incidence of COVID-19 in Spain, a high rate of affectation of health personnel was added, most probably due to shortages of PPEs. The number of cases of contagion among health professionals in Spain exceeds 20% of all cases of COVID-19, with more than 50,000 confirmed cases[4-6].

This significant decrease in the number of frontline staff, added to the increase in the demand for hospital capacity, generated a greater need for medical and healthcare personnel from different medical and surgical specialties. The cessation of most of the surgical activity, as well as the relocation and change of format of the consultations, offered the possibility of having the surgical staff available.

The wide range of alterations produced by SARS-CoV-2 infection generates many fronts from which to approach its treatment and requires personnel from different specialties for its management. As orthopedic surgeons and traumatologists (OST) in a trauma center, we are used to dealing with high-pressure care situations, such as the one that occurred in Barcelona with the attacks of August 17, 2017, in which we also worked in a multidisciplinary way. On that occasion, medical specialties were added to the surgical specialties for the stabilization and management of the multiple polytraumatized patients[7].

Our center is a reference in contingency situations such as the one that occurred in August 2014 with the possible cases of Ebola. However, as OSTs, we do not usually handle acute infectious respiratory pathologies. This fact, combined with the uncertain nature of the virus, caused a feeling of general uncertainty and fear throughout our team. On the one hand, we felt the need to help and volunteer and, at the same time, we dealt with the fear of exposing ourselves personally and also indirectly to those around us, to a pathogen that was ravaging other countries like China or Italy and was now reaching ours. Added to this fear was the insecurity of abandoning our great ally, the scalpel, and trading it for a strange stethoscope.

Having overcome the initial doubts, in our center a team of volunteers was formed to join the fight against COVID, which included 13 orthopedic surgeons along with 54 other colleagues from other surgical specialties. This represented about 30% of the OST department and about 20% of the total number of surgeons in the hospital. Our strategy was to create multidisciplinary teams, which allowed us to generate synergies, learn and take advantage of the knowledge of all the specialists involved, and respond dynamically to events as they unfolded.

What can an OST do in a COVID unit? This is probably the most repeated question by the whole medical collective and by us, the traumatologists.

This pandemic has made us change the focus completely. We have integrated ourselves in multidisciplinary teams, in emergency rooms, COVID rooms and intensive care units doing 12 h shifts by day and night. This team of 67 surgeons has represented, in our hospital, about 10% of the COVID units.

Author affiliation: Orthopedic Surgery and Traumatology Department, Hospital Clínic de Barcelona, Spain *They have contributed in the same way to this manuscript.
Contribution of the authors: The authors have confirmed their authorship in the document of responsibilities of the author, agreement of publication and cession of rights to EMERGENCIAS.
Corresponding author: Mariano Balaguer-Castro. Orthopedic Surgery and Traumatology Service. Hospital Clínic de Barcelona. C/ Villarroel, 170. 08036 Barcelona, Spain.
E-mail: mbalaguerc@gmail.com
Article information: Received: 15-5-2020. Accepted: 26-5-2020. Online: 11-6-2020.
Editor in charge: Òscar Miró.

From the first patient at the end of February to the present day, after receiving basic training in PPE management, we have progressively developed increasing skills in the management of the critical COVID-19 patient, going from writing clinical courses, ordering complementary tests or helping to diagnose patients, to learn how to assess oxygenation, as well as ways to improve it, use non-invasive mechanical ventilation (NIMV), high flow oxygen therapy[8], calculate PaO_2/FIO_2 (PAFI) and know how to interpret it, manage ventilator volumes or perform tracheotomy cures. Without leaving aside the need to inform family members about the status of their loved ones.

As surgeons, we feel more comfortable with the tasks that require the use of our hands, as well as any type of intervention, so these cures quickly became part of our daily lives, facilitating the distribution of burdens among the colleagues of these multidisciplinary units. Working in such a new scenario for all of us meant that we had to learn quickly. In addition to the many things that our colleagues taught us, we had to study to understand what we were doing, signing up for online courses in intensive care medicine and reading the literature to keep up to date on this pathology, thus making it a crash course in respiratory pathology and the complications associated with coronavirus. Fortunately, we were received in the COVID teams as equals, which was very comforting.

Currently, we are beginning the "de-escalation" as hospital admissions are dropping and many colleagues who were on the front line at the beginning and became infected with coronavirus are rejoining us. As a result, many of us are returning to our pre-pandemic jobs.

This crisis has made us all have to leave our comfort zone to face an unknown type of pathology. As surgeons, we have had to learn to reinvent ourselves and adapt to this new situation to help fight this virus where we have been needed. There are still many unknowns about the evolution that this pandemic will follow, about the management of our usual patients, about when we will be able to return to our usual surgical activity or if we will be able to do it the same way as before the coronavirus. But it is clear to us, after being integrated in the COVID teams, that we, the orthopaedic surgeons, can help in this pandemic and that only teamwork, well coordinated and with a consensus decision making based on the available evidence, will allow us to succeed in this or any other similar emergency situation.

Our experience in recent months confirms that surgical staff can be an integral part of the response to COVID-19 and should be considered in emergency planning to maximize available healthcare resources.

Conflicting interests: The authors declare no conflict of interest in relation to this article.

Financing: The authors declare the non-existence of external funding in relation to this article.

Ethical responsibilities: All authors have confirmed the maintenance of confidentiality and respect for patients' rights in the author's responsibilities document, publication agreement and assignment of rights to EMERGENCIAS.

Article not commissioned by the Editorial Committee and external peer review.

Acknowledgements: Many people have contributed to the conception and writing of this article. Montsant Jornet-Gibert, Guillermo Balaguer, and Laura Ruiz-Villa have made corrections and comments on it. Sergi Marco and Madeleine Moore contributed to the linguistic correction and adaptation of the manuscript.

We would also like to thank the "Kamikazes OST-COVID team": Anna Carreras-Castañer, Alfonso Alías, Daniel Martín, Marta Sabater, Maria Antonia Vives, Salvador Madariaga, Eduard Tornero, Marina Renau, Clara Chimeno and Carolina Montoya for their hard work, and our colleagues in Anesthesia, Surgery, ICU, Nephrology, Neurology, Pneumology, Internal Medicine and Emergency Medicine.

References

1 Coronavirus disease (COVID-19) Situation Report – 123. World Health Organization (WHO); 2020 May. (Consultado 10 Mayo 2020). Disponible en: https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200522-covid-19-sitrep-123.pdf?sfvrsn=5ad1bc3_4

2 Ashford RU, Nichols JS, Mangwani J. Annotation: The COVID-19 pandemic and clinical orthopaedic and trauma surgery. J Clin Orthop Trauma. 2020 (en prensa). doi: 10.1016/j.jcot.2020.04.002

3 De Miguel Beriain I, Lazcoz Moratinos G, Conal Fuertes I. La adopción de medidas preventivas contra el contagio de gripe en las instalaciones de las administraciones sanitarias debería ser una obligación jurídica exigible. Emergencias. 2018;30:209.

4 Informe no 32. Situación de COVID-19 en España a 21 de mayo de 2020. RENAVE. CNE. CNM (ISCIII); 2020 May. (Consultado 10 Mayo 2020). Disponible en: https://www.isciii.es/QueHacemos/Servicios/VigilanciaSaludPublicaRENAVE/EnfermedadesTransmisibles/Documents/INFORMES/Informes%20COVID-19/Informe%20nº%2032.%20Situación%20de%20COVID-19%20en%20España%20a%2021%20de%20mayo%20de%202020.pdf

5 Trilla A. Transmisión de la gripe en los servicios de urgencias. Emergencias. 2018;30:5-6.

6 Esteve-Esteve M, Bautista-Rentero D, Zanón-Viguer V. Riesgo de transmisión de gripe en un servicio de urgencias hospitalario en periodo máxima incidencia epidémica. Emergencias. 2018;30:7-13.

7 Castro Delgado R, Arcos González P, Cuartas Álvarez T. Atentados terroristas y servicios médicos de emergencia: tiempo para la reflexión. Emergencias. 2016;28:137-8.

8 Brouzet B, Carratalá Perales JM, Noguera Zumbühl A, López Uran AM, Espinosa Fernández B, Senent Jornet B. Terapia de alto flujo en la insuficiencia respiratoria aguda secundaria a Infección por virus de la gripe. Emergencias. 2018;30:360.