

COVID-19 (SARS-CoV-2) recommendations for surgical procedures. Leadership toward elective surgery

Recomendaciones para procedimientos quirúrgicos durante la pandemia de COVID-19 (SARS-CoV-2). Liderazgo hacia el retorno a lo electivo

Carlos A. Morales-Morales¹, Mauricio González-Urquijo¹, Arturo J. Barahona-Iglesias¹,
Juan M. Abdo-Francis^{2,3}, Sergio R. Sobrino-Cossío^{2,4}, and Francisco J. Bosques-Padilla^{5*}

¹School of Medicine and Health Sciences, Tecnológico de Monterrey, Monterrey, Nuevo León; ²Advanced Center for Endoscopy and Functional Studies, Gástrica, SA de CV, Mexico City; ³Department of Endoscopy, Hospital Ángeles Acoxa, Mexico City; ⁴Endoscopy Department, Hospital Ángeles del Pedregal, Mexico City; ⁵Department of Gastroenterology, Faculty of Medicine and University Hospital, Universidad Autónoma de Nuevo León, Monterrey, Nuevo León, Mexico

Abstract

In late December 2019, COVID-19, a new emerging disease, quickly spread in Wuhan, China. The WHO formally declared it a pandemic and a health emergency on March 11, 2020. The objective of this article is to specify and list key points in relation to the recommendations issued by the different colleges, and global surgical societies, for the benefit of the Mexican medical and surgical community. Based on scientific evidence, we make recommendations for medical consultations, surgical and endoscopic procedures, hospital infrastructure, and surgical services, in addition to a proposal to reopen surgical services and elective procedures related to the COVID-19 pandemic. The time to take leadership in healthcare where the national health system together with academic societies, universities and private initiative join forces to combat the pandemic has arrived. It is convenient to form collaboration groups of experts in the different specialties that through innovation in health and education, with evidence-based medicine, efficiency of operational costs and tools such as telemedicine, allow us to return to daily surgical procedures, reestablishing the surgery services as soon as possible.

Keywords: COVID-19. Pandemic. SARS-CoV2.

Resumen

A finales de diciembre de 2019, la COVID-19, una nueva enfermedad emergente, rápidamente se propagó en Wuhan, China. La Organización Mundial de la Salud la declaró formalmente una pandemia y emergencia sanitaria el 11 de marzo de 2020. El objetivo de este artículo es precisar y enumerar los puntos clave en relación a las recomendaciones emitidas por los distintos colegios, y sociedades quirúrgicas globales, para beneficio de la comunidad médica y quirúrgica mexicana. De acuerdo con la evidencia científica, se realizan recomendaciones para las consultas médicas, los procedimientos quirúrgicos y endoscópicos, la infraestructura hospitalaria y los servicios de cirugía, además de una propuesta a la reapertura para procedimientos quirúrgicos en torno a la pandemia de COVID-19. El momento de tomar el liderazgo en salud en el que el sistema nacional de salud y las sociedades académicas, las universidades y la iniciativa privada sumen esfuerzos para combatir la pandemia ha llegado. Es conveniente formar

*Correspondence:

Francisco J. Bosques-Padilla
Avenida Madero y Gonzalitos, s/n
Col. Mitras
C.P. 64700, Monterrey, N.L. México
E-mail: fbosques58@hotmail.com

Date of reception: 23-06-2020
Date of acceptance: 26-06-2020
DOI: 10.24875/CIRUE.M23000209

Cir Cir (Eng). 2020;88(6):773-777
Contents available at PubMed
www.cirugiaycirujanos.com

2444-0507/© 2020 Academia Mexicana de Cirugía. Published by Permanyer. This is an open access article under the terms of the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

grupos de colaboración de expertos en las distintas especialidades que, por medio de innovación en salud y educación, apego a la medicina basada en la evidencia, eficiencia de costos operacionales y herramientas como la telemedicina, permitan regresar a los procedimientos quirúrgicos cotidianos y la operación de los servicios de cirugía se reestablezca a la brevedad.

Palabras clave: COVID-19. Pandemia. SARS-CoV2.

Introduction

In late December 2019, COVID-19, a new emerging disease produced by SARS-CoV-2, quickly spread in Wuhan, China. The World Health Organization (WHO) formally declared it a pandemic and health emergency on March 11, 2020^{1,2}. Due to the global spread, health systems and their workers have faced challenges that show their vulnerability. Surgery is a cornerstone of healthcare on which the decision to prioritize surgical interventions, establish COVID-19 and non-COVID-19 work areas, put work teams together and guarantee universal protection precautions falls³. Mexico has joined efforts to flatten the curve of infections and hospitalizations for this disease, and although the battle is far from being won, we must not forget that there is also growing suffering of vulnerable patients with chronic diseases.

Objective and approach to the problem

The reports paint a dire picture in the US health-care system, worn out by COVID-19 patients, which will be unable to deal with normal flow of patients with chronic conditions. Let's consider, for example, aortic valve replacement procedures for certain patients with heart failure. As operating rooms and cardiac catheterization laboratories are gradually being closed, and both visits and operations are being canceled, many patients no longer receive or are being evaluated for aortic valve replacement. However, the mortality rate of patients who have to wait for a replacement for 6 months is 23%, and it continues to increase as intervention is delayed⁴.

So far, it has been difficult to quantify the death excess from underlying diseases, but a publication with data from the National Records of Scotland allows looking at this more closely. They define excess as the difference between the number of deaths recorded in 2020 and average deaths in the previous 5 years. The study shows a significant increase of 38 additional deaths from cancer (8.4 per million adults), 103 deaths from circulatory causes (22.8 per million adults) and 100 from other causes, and 83 additional deaths from dementia/Alzheimer's (80 per million in adults older than 65 years)⁵. Postponing surgery for a

cancer patient would cause the average number of life years gained per served patient, which is usually 18 under standard conditions, to be reduced by 9 to 15 with a 6-month delay (an average loss of 2-3 life years per patient)⁶.

Due to the enthusiasm for generating valuable information to fight the pandemic, scientific information and recommendations for surgical procedures during the COVID-19 pandemic have been dynamic and abundant. The purpose of this article is to specify and list real-time key points with regard to recommendations issued by different colleges and global surgical societies, to the benefit of the Mexican medical and surgical community. It should be borne in mind that epidemiological times and intervention timing are different from those of Italy, Spain, or the United States of America.

Medical appointments

First-time appointments and follow-up have had to be rescheduled, and in case of emergency, there is the option of remote consultation by telemedicine or scheduling the appointment with hospital administrative area prior intervention to ask for specific symptoms suggestive of COVID-19, such as fever cough or headache⁷, without losing sight of medical-surgical conditions that require immediate attention.

The need for hospital reconversion to free up beds and ventilators and, consequently, medical and nursing personnel relocation, have decreased the capacity to maintain full surgical staff, which is one of the multiple reasons why suspension of non-urgent and non-oncological surgeries was decreed⁷.

Recommendation to surgery departments

At present, the Society of American Gastrointestinal and Endoscopic Surgeons and the European Association of Endoscopic Surgery recommend that all elective surgical and endoscopic procedures should be postponed, but as we previously mentioned, they should be adapted to local needs. In preparation for COVID-19 cases exponential increase, surgical care should be limited to life-threatening conditions; this includes patients with

rapidly progressing malignancies or with symptoms requiring urgent surgery. Similarly, non-essential health personnel should be protected by sending them home or by working in the modality of telemedicine⁸. The European Society for Trauma and Emergency Surgery recommends for all pre-surgical patients to be tested for COVID-19 with polymerase chain reaction. In case of result delay, patients should be managed as suspected cases in accordance with WHO-established guidelines. Patients with symptoms suggestive of COVID-19 should undergo chest X-ray, ultrasound, or computed tomography looking for bilateral interstitial pneumonitis suggestive of COVID-19⁹. Potential risks of infection and its consequences should be discussed with the patient⁸.

Recommendations during surgical and endoscopic procedures

All members assigned to surgical procedures should have full personal protective equipment (PPE). The use of energy procedures should be minimized due to the risk of aerosol generation since, although it has not shown an association with viral transmission, it remains a reasonable contagion theory⁷. Systems with ultra-small particle filters should preferably be used during minimally-invasive surgery.⁸ If these systems are not available, connecting the pneumoperitoneum system directly to the operating room suction device can be opted for¹⁰.

Due to the presence of viral RNA in feces, gastrointestinal endoscopy procedures are considered of high risk, and health personnel involved in these procedures should follow the same personal protection guidelines as pulmonologists, interventionists, anesthesiologists, and therapists. Gastrointestinal endoscopy services should be restricted only to emergencies, such as bleeding, volvulus, obstructive jaundice, cholangitis, or handling of foreign bodies¹¹. Surveillance and screening of asymptomatic patients, colonoscopies 1 year after removal of a polyp and surveillance endoscopies, as in the case of patients with *Helicobacter pylori*, should be postponed¹².

The recommendations of the European Society of Gastrointestinal Endoscopy in case endoscopies are performed, once candidate patients have been selected include flexible endoscopes' disinfection with disinfectants with virucidal activity. Emphasis is made on not reusing materials under any circumstances¹³. If endoscopies are carried out on patients with suspected or confirmed COVID-19 diagnosis, PPE material should

be at least N95 face masks, surgical gowns, face shields, double gloves and, if possible, boot covers. Ideally, the procedure should be carried out in rooms with negative pressure, with the exception of intensive care patients, in whom the recommendation is to perform them at bedside¹²⁻¹⁴. The American Society for Gastrointestinal Endoscopy suggests carrying out a serological or polymerase chain reaction test for COVID-19 at least 48 h before scheduled endoscopic procedures¹⁵; in addition, it does not recommend the use of topical anesthetics, such as lidocaine, to avoid the risk of aerosol generation, and proposes, in high-risk cases, orotracheal intubation to prevent aerosol leakage¹⁶. Once the intervention is over, surfaces should be disinfected because the virus can linger on them for up to 3 days. The equipment must be decontaminated according to established guidelines, and residual material will be disposed of according to COVID-19 guidelines for the corresponding medical area. Patients on recovery should remain in separate rooms to avoid the risk of transmission. Follow-up of patients should be carried out at 7 days by telemedicine to assess for probable COVID-19 contagion¹⁷.

Infrastructural requirements

It is essential to have a multidisciplinary team in charge of COVID-19 protocols at health units, including medical and nursing personnel trained on COVID-19 guidelines, administrative and logistics team, and academic advisors who modify global recommendations dynamics in real-time to guarantee the following three basic principles:

- An active hospital reconversion system, with COVID-19 and non-COVID-19 designated areas to limit the flow of potentially contaminated staff and patients.
- Making sure that health personnel have the necessary personal protective equipment and the necessary infrastructure to carry out procedures with the least possibility of contagion. Monitoring the correct use and removal of PPE, hand washing, and all guidelines that go beyond the purpose of this article.
- Operational capacity to obtain and use diagnostic tests in all patients undergoing surgical procedures.

In case the above is not available, our recommendation is that the service should be suspended and wait for the times for gradual reopening.

Proposal for reopening

Patients with a chronic disease are not a uniform group. It is imperative to focus first on those at highest risk, considering both socioeconomic and clinical factors:

- Socioeconomic factors: social determinants have been highlighted as a key risk factor for COVID-19. Our health system suffers inequities in quality of care, and this pandemic has significantly exposed these terrible disparities.
- Clinical factors: the profiles or severity of the disease of some patients entail a higher risk of adverse outcomes. Furthermore, patients who are well managed with effective therapies that mitigate these risks face lower risk than those who are not. It is difficult to imagine that a poorly controlled diabetic or hypertensive patient will not do worse with COVID-19 than a patient who, despite being affected by these diseases, has glucose and blood pressure normal values. Optimal management of chronic diseases will mitigate the known clinical risks of these conditions and decrease the collateral damages we are seeing during the pandemic. Ideally, optimal clinical management will translate into better outcomes and fewer hospitalizations for those who are infected.

Considering the above, and based on scientific evidence, we believe that for the return of surgical services routine activities to be achieved, it is necessary for societies and colleges of specialties, in common agreement with the States, to be able to define which procedures are urgent and which are not, as it was accomplished in Massachusetts and Alaska in the United States of America^{18,19}. After this, it is necessary to propose a system for gradual return of non-urgent procedures according to the phase of the pandemic at each locality in particular. This should ensure a correct selection of cases with adherence to patient safety during pre-operative and post-operative periods. An example proposed for the management of high-risk surgical patients, such as bariatric patients, is to perform a triage with regard to the timely moment for a surgical procedure taking into account clinical factors that justify an expeditious intervention: "prioritization of any elective operation should seek to facilitate access according to clinical need, maximize equity of access, and minimize the harm from delayed access"²⁰.

Similarly, it is important to implement forms that facilitate the triage of patients who require surgical

procedures, such as the Medically Necessary, Time-Sensitive (MeNTS) procedures proposed by the American College of Surgeons, which objectively redirects the flow of patients to maintain efficiency in the use of ventilators and intensive care units²¹, or the Elective Surgery Acuity Scale (ESAS) for the management of non-urgent surgeries²².

Conclusions

Undoubtedly, the virus has changed the way we live. The time has come to take the leadership in health, in which the national health system, academic societies, universities, and private initiative, join forces to fight the pandemic.

It is urgent for the flow of national scientific information to be unified and filtered to issue guidelines in the surgical field. It would be appropriate to create collaborative groups of experts in different specialties that, through innovation in health and education, adherence to evidence-based medicine, operational cost efficiency, and tools such as telemedicine, allow to return to daily surgical procedures and for the operation of surgery services to be restored as soon as possible. The WHO has emphasized that health systems must have the capacity to operate along a dual track for them to continue to provide regular health services, while aggressively responding to COVID-19. It is clear that both health services and society as a whole have been put into action to confront COVID-19, and this has had an effect on the provision of other health services and on people accessing those services. We must be alert and open to new ways of providing healthcare. We cannot risk seeing the tragedy of COVID-19 reflected on a second catastrophe of poor health from other causes.

Perhaps the biggest challenge, then, is invisible: how do we help people who are afraid to seek medical care? This becomes a challenge for virtually all specialties and areas of modern medical practice, which is something we will have to solve in an innovative and intelligent way.

The final message for all of us is that COVID-19 is not going away anytime soon. Dual-track health-care systems can offer the flexibility and resilience needed to manage repeated waves of SARS-CoV-2 infections and the growing demand for other services. We must address the health emergency by creating the necessary conditions for the return of routine medical and surgical activities within the framework of a new normality.

Funding

This study did not receive any specific support from funding agencies of the public, commercial or non-profit sectors.

Conflicts of interest

The authors declare that they have no conflicts of interest relevant to the creation of this manuscript.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this research.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

References

- Sohrabi C, Alsafi Z, O'Neill N, Kahn M, Kerwan A, Al-Jabir, et al. World Health Organization declares global emergency: a review of the 2019 novel coronavirus (COVID-19). *Int J Surg*. 2020;76:71-76.
- Yang W, Wang C, Shikora S, Kow L. Recommendations for metabolic and bariatric surgery during the COVID-19 pandemic from IFSO. *Obes Surg*. 2020;30:2071-3.
- Flemming S, Hankir M, Ernestus RI, Seyfried F, Germer CT, Meybohm P, et al. Surgery in times of COVID-19 — recommendations for hospital and patient management. *Langenbeck's Arch Surg*. 2020;405:359-64.
- Malaisrie SC, McDonald E, Kruse J, et al. Mortality while waiting for aortic valve replacement. *Ann Thorac Surg*. 2014;98:1564-71.
- National Records of Scotland. Deaths involving coronavirus (COVID-19) in Scotland week 20 (11 to 17 May 2020). Consultado 30 mayo 2020. Disponible en <https://www.nrscotland.gov.uk/covid19stats>.
- Sud A, Jones M, Broggio J, Loveday C, Torr B, Garrett A, et al. Collateral damage: the impact on outcomes from cancer surgery of the COVID-19 pandemic. *Ann Oncol*. 2020 May 19;S0923-7534(20)39825-2. doi: 10.1016/j.annonc.2020.05.009. Online ahead of print.
- Mowbray NG, Ansell J, Horwood J, Cornish J, Rizkallah P, Parker A, et al. Safe management of surgical smoke in the age of COVID-19. *Br J Surg*. 2020 May 3;10.1002/bjs.11679. doi: 10.1002/bjs.11679. Online ahead of print.
- Francis N, Dort J, Cho E, Feldman L, Keller D, Lim R, et al. SAGES and EAES recommendations for minimally invasive surgery during COVID-19 pandemic. *Surg Endosc*. 2020;34:2327-31.
- Coimbra R, Edwards S, Kurihara H, Bass GA, Balogh ZJ, Tilsed J, et al. European Society of Trauma and Emergency Surgery (ESTES) recommendations for trauma and emergency surgery preparation during times of COVID-19 infection. *Eur J Trauma Emerg Surg*. 2020; 46:505-10.
- Hanbali N, Herrod P, Patterson J. A safe method to evacuate pneumoperitoneum during laparoscopic surgery in suspected COVID-19 patients. *Ann R Coll Surg Engl*. 2020;102:392-3.
- Sinonquel P, Roelandt P, Demedts I, Van Gerven L, Vandenbriele C, Wilmer A, et al. COVID-19 and gastrointestinal endoscopy: what should be taken into account? *Dig Endosc*. 2020 Apr 26;10.1111/den.13706. doi: 10.1111/den.13706. Online ahead of print.
- Furuta T, Irisawa A, Matsumoto T, Kawai T, Inaba T, Kanno A, et al. Clinical questions and answers on gastrointestinal endoscopy during the novel COVID-19 pandemic. *Dig Endosc*. 2020 May 29;10.1111/den.13757. doi: 10.1111/den.13757. Online ahead of print.
- Gralnek IM, Hassan C, Beilenhoff U, Antonelli G, Ebigbo A, Pellissè M, et al. ESGE and ESGENA Position Statement on gastrointestinal endoscopy and the COVID-19 pandemic. *Endoscopy*. 2020;52:483-90.
- Ang TL. Gastrointestinal endoscopy during COVID-19 pandemic. *J Gastroenterol Hepatol*. 2020;35:701-2.
- Hennesy B, Vicari J, Berstein B, Khaykis I, Littenber G, Robbins D, et al. Guidance for resuming GI endoscopy and practice operations after the COVID-19 pandemic. *Gastrointest Endosc*. 2020. In press. doi: <https://doi.org/10.1016/j.gie.2020.05.006>.
- Thompson CC, Shen L, Lee LS. COVID-19 in endoscopy: Time to do more? *Gastrointest Endosc*. 2020;S0016-5107 (20)34126-2. doi:10.1016/j.gie.2020.03.3848.
- Lui RN, Wong SH, Sánchez-Luna SA, et al. Overview of guidance for endoscopy during the coronavirus disease 2019 pandemic. *J Gastroenterol Hepatol*. 2020;35:749-59.
- Menendez ME, Jawa A, Haas DA, Warner JJP, Comand Shoulder Society. Orthopedic Surgery Post COVID-19: An Opportunity for Innovation and Transformation. *Journal of Shoulder and Elbow Surgery*. 2020;29(6):1083-6.
- Mouton C, Hirschmann MT, Olivier M, Seil R, Menetrey J. COVID-19 — ESSKA guidelines and recommendations for resuming elective surgery. *J Exp Orthop*. 2020;7:28.
- Rubino F, Cohen RV, Mingrone G, le Roux CW, Mechanick JL, Arterburn DE, et al. Bariatric and metabolic surgery during and after the COVID-19 pandemic: DSS recommendations for management of surgical candidates and postoperative patients and prioritisation of access to surgery. *Lancet Diabetes Endocrinol*. 2020;8:1-9.
- Prachand VN, Milner R, Angelos P, Posner MC, Fung JJ, Agrawal N, et al. Medically necessary, time-sensitive procedures: scoring system to ethically and efficiently manage resource scarcity and provider risk during the COVID-19 pandemic. *J Am Coll Surg*. 2020 Apr 9;S1072-7515(20)30317-3. doi: 10.1016/j.jamcollsurg.2020.04.011. Online ahead of print.
- American College of Surgeons. COVID 19: elective case triage guidelines for surgical care. Disponible en: <https://www.facs.org/covid-19/clinical-guidance/elective-case>.