

KEY RECOMMEN- DATIONS FOR THE MANAGEMENT OF PATIENTS WITH SURGICAL TREATMENT DISEASES DURING THE COVID-19 PANDEMIC

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Abstract: The COVID-19 pandemic has become a major challenge for health professionals and hospitals, mainly through the overcrowding of beds, lack of resources and materials. Several areas of health suffered from the reflection of the pandemic, among them, elective and emergency surgeries. In order to prevent the spread of COVID-19 and in an attempt to meet the surgical demand, health agencies have been adopting measures to maintain the safety of patients and professionals. Therefore, this systematic review presents a detailed analysis of studies published in the last two years related to recommendations and precautions for the management of emergency and elective surgeries with the advent of the COVID-19 pandemic. Searches were carried out using the descriptors (surgery) OR (operation) AND (COVID-19), inserted in the “Publish or Perish” platform, considering: Google Scholar, PubMed and Web of Science as search bases. After inclusion and exclusion criteria, 13 publications were selected to compose this review. Studies demonstrate key features of elective and emergency surgery and recommendations in operating rooms during the COVID-19 pandemic. In addition, surgical patients are classified into risk categories for SARS-CoV-2: confirmed and suspected, high and low severity, in order to identify what care must be taken regarding surgical procedures. Thus, the information presented in this review is important for health professionals to have a better understanding of the protocols that must be followed regarding surgical operations during the pandemic period, ensuring safety for patients and health professionals.

Keywords: SARS-CoV-2, “Coronavirus”, Elective surgeries, Health professionals.

INTRODUCTION

COVID-19, also called severe acute respiratory syndrome (SARS-CoV-2), or

simply new “coronavirus”, was discovered in the city of Wuhan, China, in late 2019. With that, COVID-19 spread to all regions of the world, becoming a pandemic. In addition, it was determined by the World Health Organization (WHO) as a case of International Public Health Emergency and Concern (Guan et al., 2020).

The COVID-19 pandemic has become a major challenge for health professionals and hospitals, which, due to the new scenario, face great difficulties and adaptations (Yurassek & Brandão, 2021; Gomes & de Sousa, 2021). In an attempt to meet the surgical demand together with the face of the pandemic, surgeons and other members who make up the multidisciplinary teams are in constant adaptation and regularization.

The management of patients who are sick with the SARS-CoV-2 virus and who need emergency surgery must have prioritized and exclusive treatment (Correia, Ramo & Bahten, 2020). The pandemic caused hospital services to develop new care protocols, reformulating the triage of emergency patients and modifying surgical practices (de Campos Cardoso et al., 2021). Studies show that screenings using out-of-hospital computerized tools can optimize hospital resources, avoiding unnecessary care for less complex patients and providing greater agility in the follow-up of flows (Oliveira et al., 2020). In addition, to meet the demand for surgeries, the National Health Surveillance Agency (ANVISA) published recommendations on the management of these patients, in accordance with international guidelines on the subject (ANVISA, 2020).

Thus, the objective of this review article was to describe the main surgical recommendations, both elective and emergency, for patients with COVID-19, through the literature review of the best findings to detail these recommendations and

alignments, not only for the operating rooms, but also for the used equipments.

METHODOLOGY

The present study presents itself as a systematic review of the literature. Its nature is basic, that is, “it aims to generate new knowledge, useful for the advancement of Science, without foreseen practical application. It involves universal truths and interests” (Gerhardt & Silveira, 2009, p. 34). Within a systematic review, the author’s role is based on raising and bringing, in an orderly and systematic way, the scientific approaches on the proposed topic, seeking to answer a central question (Estrela, 2018).

For the development of this review, some descriptors and inclusion and exclusion criteria were selected. The terms used for the selection of works were: (*surgery* [DeCS/MeSH]) OR (*operation* [DeCS/MeSH]) AND (COVID-19[DeCS/MeSH]) inserted in the platform “*Publish or Perish*”, having as search bases the following: *Google Scholar*, *PubMed* and *Web of Science*, with a time frame from 2020 to 2022.

The accepted languages, both for the descriptors and for the works, were Portuguese, English and/or Spanish. The inclusion criteria accepted were articles or books published between the years 2019 and 2022, which presented one of the descriptors in the title or abstract, available free of charge and in full. Opinion articles, experience reports and explanatory notes, academic works, articles and books duplicated among the search bases, which were not in one of the aforementioned languages and which were not freely available in full, were excluded.

Subsequently, the articles were downloaded so that they could be stored. Then, the articles and academic works were thoroughly analyzed by 3 undergraduates, so that the intimate relationship between the works and

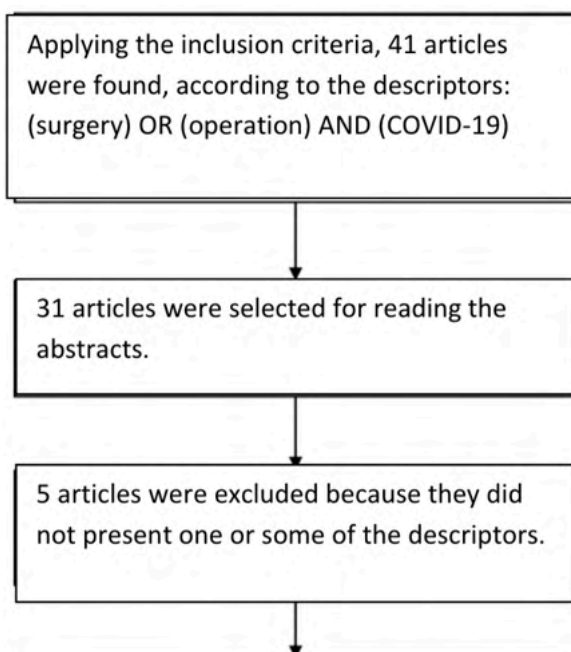
the topic addressed in this article could be verified. Finally, the articles were organized in a Microsoft Excel® spreadsheet, considering only the articles selected according to inclusion criteria.

We also sought additional official information that were available on official websites, so that they could complement the research and discussion of this work, such as information contained in the ANVISA databases.

RESULTS AND DISCUSSIONS

RESULTS

41 articles were found. After excluding duplicate articles from the same database and between different databases, a total of 31 articles was reached for reading the abstracts. After reading the abstracts, 5 articles were excluded because they did not present one or some of the descriptors previously selected and mentioned in the item “Methodology”. After critical reading, 13 articles were excluded because they did not present content relevant to the topic. In the end, a total of 13 articles were included in this literature review, as shown in Figure 1.



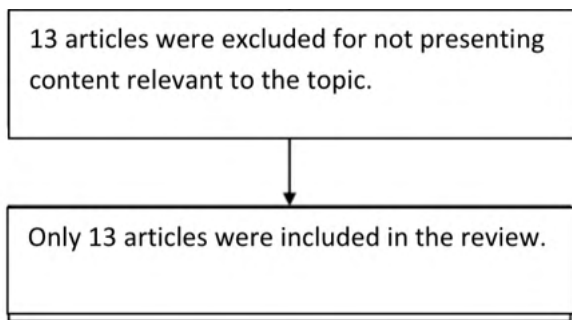


Figure 1. Representation of the selection process of studies resulting from the search on the platform: Publish or Perish.

Note: the authors

DISCUSSIONS

Main characteristics of emergency and elective surgeries with the advent of the pandemic

With the COVID-19 pandemic, several restrictions emerged in order to prevent the spread of the virus, among them, social isolation was the one that most impacted in several sectors. In health, there was a notable decrease in essential surgeries, resulting in a reduction in costs related to them, both in public and private systems. From February to July 2020, approximately BRL 2,357,524,724.91 was spent at the national level, this amount represents a difference of BRL 99,491,769.55 less than the amount spent in the same period in 2019. The state and municipal spheres showed even more expressive reductions (de Campos Cardoso et al., 2021).

Surgical practice was directly affected by the prioritization of essential urgent and emergency surgeries, aimed at reserving beds for patients with respiratory infections, especially in intensive care units. Thus, planning for the maintenance and resumption of surgical procedures, in general, is being based on new protocols and practices for the prevention and control of SARSCoV-2 transmission within health services (COVIDSurg Collaborative, 2020).

According to Trevilato et al. (2020) the management of human resources and materials within health units is essential to meet the demand for perioperative care, reorganization of surgical procedures, guarantee the safety of health professionals, organization of materials needed for operating rooms, recovery planning of postoperative patients, in addition to the efficient cleaning and disinfection of the operating rooms.

Different international associations in the surgical field prepared a joint statement composed of criteria to be evaluated for the resumption of elective surgeries in the period of the COVID-19 pandemic. The developed roadmap recommends the return of elective surgeries only if the city meets the: reduction of new cases of COVID-19 in the geographic area for 14 days; maintain the safety of patients who require hospitalization; adequate number of beds and health professionals trained to provide care; availability of personal protective equipment (PPE) for the entire work team; agreement security authorities; non-commitment to the safety of patients and professionals (FACS, 2020).

In a technical note, ANVISA published that essential surgeries are all those that meet the criteria of: emergency, which must be performed within one hour; urgency, which must be performed within 24 hours; elective urgency, which must be carried out within two weeks and essential elective urgency, which must be carried out between three to eight weeks (ANVISA, 2020).

During the pandemic caused by the collective outbreak of COVID-19 transmission, changes in the medical routine are measures that are imposed not only in consultation rooms, but also in operating rooms, whether emergency or elective (Benítez, et al, 2020). Therefore, recommendations regarding surgical practices are essential to guide nurses and doctors

in order to apply the best safety practices in patient care, according to scientific evidence recommended by reference institutions.

Recommendations and precautions for management in operating rooms during the COVID-19 pandemic

Surgical patients are classified into three risk categories for COVID-19 (Alves, 2020):

1) Patients confirmed for COVID-19: diagnosis of COVID-19 confirmed through RT-PCR (Real-Time Reverse Transcription Polymerase Chain Reaction) with identification of viral ribonucleic acid (RNA), originating from samples collected by nasopharyngeal and oropharyngeal swabs, or by positive results in serological serum tests (identification of IgM antibodies). Suspects of COVID-19 are those who have a history of contact (in the last 14 days) with suspected or confirmed patients, associated with either of the two clinical manifestations (fever and respiratory symptoms) and tomographic changes typical of COVID-19, which may present leukocytes. normal or decreased totals in the initial stage of the disease, with reduced lymphocyte counts; or when they do not have a clear epidemiological history, but needed to present 3 clinical manifestations (fever and/or respiratory symptoms) with tomographic changes of COVID-19 and leukogram of the previously described pattern. Other common laboratory findings in a patient with COVID-19 are thrombocytopenia, in addition to increased lactic dehydrogenase, troponin, C-reactive protein, D-dimer, ferritin, and interleukin-6.2) (Alves, 2020);

2) Patients at high risk for COVID-19 are those who have a history of contact (in the last 14 days) with suspected or confirmed patients for COVID-19 and have clinical manifestations (fever and/or respiratory symptoms) within 14 days;

3) Low-risk patients are those who do not

have a history of close contact (last 14 days) with confirmed or suspected COVID-19 patients, do not have fever or respiratory symptoms or tomographic changes.

It must be noted that the patient suspected of having COVID-19 who needs to undergo an emergency procedure must, if possible, have a chest tomography to rule out changes compatible with COVID-19 (Benítez et al., 2020). If there is a need for patients with a clinical picture suggestive of SARS-CoV-2 to undergo surgical procedures, the planning for execution must be based on protocols with reinforcement of care and existing guidelines. The use of personal protective equipment (PPE) is an example of good practices, its use must be based on incessant training, including undressing, where the contamination rate is high (de Campos, 2020).

In 2020, guidelines were published on the management of patients who required surgery during the pandemic period (Cunha et al., 2020):

- a) The operating room must be dedicated to treating the patient with COVID-19 and preferably without contact with other units;
- b) Exclusive access door to the patient with direct access to the operating room;
- c) The exclusive anteroom;
- d) Temperature of rooms suitable for negative or neutral pressure;
- e) In cases where it is not possible to maintain neutral pressure, wait a 30-minute interval between the entry of one patient and another;
- f) Keep all doors closed throughout the procedure;
- g) Appropriate signage on the doors of operating rooms.

After disinfection of the operating room, all used PPE must be discarded, with precautionary attention to undressing, as this is a crucial moment for the non-infection of health professionals. All instruments and

materials must be sent to the purge. The accommodation of materials that have come into contact with the airways must be made in hermetically sealed plastic packaging, with the correct description for later transport and handling (Alves, 2020).

The most common diseases in the emergency unit are acute appendicitis and acute cholecystitis, which have videolaparoscopy surgery as standard treatment. The great risk for the surgical team when performing artificial pneumoperitoneum is due to the release of aerosols. Adding to the risk that the use of electric or ultrasonic scalpels can lead to the release of aerosols through the smoke produced by such devices. There is an estimate that in laparoscopic surgery, there are greater releases of aerosols related to smoke from the electric scalpel than in open surgery, for example (Lima et al., 2020).

On the other hand, in open surgeries, the use of aerosolization and electrocautery means greater contact with surgical gloves that facilitate contact with the patient through micro-cracks, which can affect the gloves and facilitate the rupture of the protective barrier (Mendes, 2020).

Regarding the equipment to be used in both elective and emergency surgeries, the recommendations are (Cunha et al., 2020):

- 1) Use as little furniture as possible, using only what is necessary;
- 2) Prioritize the use of disposables;
- 3) All devices must be wrapped in disposable plastic to reduce contamination;
- 4) Use of high efficiency particulate air filter (*High-Efficiency Particulate Air* - HEPA) in the anesthesia circuit and capnography system before the filter (between circuit and filter).

It is also recommended that the length of hospital stay in the postoperative period of videolaparoscopy be shorter than usual, this to contain the excessive use of hospital beds. The

recommendation is that surgeons evaluate the cost-effectiveness of using the laparoscopic approach in the patient in the emergency room with COVID-19 (Mendes, 2020).

According to the National Association of Private Hospitals (ANHP) in 2020 there was a 32% reduction in scheduled elective surgeries across the country. There was a significant drop in the number of surgeries, more significant in the second quarter of 2020, with a gradual recovery throughout the year, however, with a further drop in March and April 2021. These periods correspond to the beginning of the pandemic in the country and the second wave of transmission that took place in 2021, with the strategic reduction of elective surgeries in order to reduce the hospital occupancy rate and wait for an improvement in the rate of bed turnover (Magagna et al., 2021).

CONCLUSION

For the National Association of Private Hospitals (ANHP), in 2020 there was a 32% reduction in scheduled elective surgeries across the country. The most significant drop in the number of surgeries was observed in the second quarter of 2020, with a gradual recovery throughout the year, however, with a further drop in March and April 2021. These periods correspond to the beginning of the pandemic and the second wave. of transmission that took place in 2021, with the strategic reduction of elective surgeries, aiming to reduce the hospital occupancy rate and wait for the improvement in the rate of bed turnover.

The systematization of care in the surgical act, both in elective and urgent surgeries, can mean another aid in the prevention of viral transmission. Aerosol dispersion in the operating room can be avoided through simple measures and without the need for expensive or sometimes unavailable devices.

In short, in this period of great uncertainty, the application of the best scientific evidence, the adaptation of protocols, the correct use of available resources and structures and the elaboration of a service recovery plan, prioritizing patients with conditions clinics with a higher risk of deterioration.

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