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SPECIAL SECTION - COVID-19

Original Paper

Perioperative Care of Patients Undergoing Surgery During Coronavirus Pandemic

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ABSTRACT

While the coronavirus-19 has already infected over 2.2 million patients and killed over 150 thousand people worldwide, in Brazil, there are now 374 thousand confirmed cases and 23 thousand casualties. Apparently, the country has not yet reached the expected peak of infections, based on the experience of previously affected countries. Many considerations have been made concerning surgical cases during the COVID pandemic. Some recommendations include delaying all electives cases to save beds, equipment, and medical staff for COVID-19 infected patients. At the same time, it is known that not all elective cases are optional. Surgery cancellation may, eventually, be deleterious to the patient. Urgent and emergency procedures will still have to be undertaken and are of great concern since non-infected subjects can be infected by the coronavirus-19 during hospitalization and, likewise, asymptomatic COVID-19 infected patients may be operated and spread the virus to the environment, contaminating the medical team and other patients. The purpose of this article was to discuss whether elective surgeries should be performed and, if performed, what precautions should be taken in order to protect both the patients and the hospital staff. Also, the conduction of urgent cases will be addressed.

KEYWORDS: COVID-19; Perioperative care; Surgeries.

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INTRODUCTION

In Brazil, the COVID-19 pandemic is still developing and, apparently, is yet to reach its infection peak.

Hospitals are being prepared and state initiatives (such as creating campaign hospitals) are currently in course. The main goal of these initiatives is to secure as many beds and resources as needed for all COVID-19 patients.

The decision on whether elective surgeries should be performed must be careful and thoughtful. The main questions to be considered and answered should be:

-Are there enough beds for COVID and elective surgeries patients?

-Are there enough ICU beds for COVID and surgical patients that need intensive postoperative care?

-Are there enough resources, like ventilators, to supply all the expected demand?

-Is the hospital prepared to prevent non-COVID surgical patients from getting infected by the coronavirus-19?

-Is the hospital capable of protecting the surgical team from getting contaminated if they, somehow, operate an asymptomatic patient?

-Are the patients prepared to undergo surgery in the midst of a pandemic?

-What surgeries should be performed?

Another great concern is that patients operated during the asymptomatic phase of the coronavirus infection tend to develop symptoms earlier than patients who were not submitted to surgical procedures and, according to Lei et al., the mortality rate from complications associated with coronavirus infection during the postoperative period is much higher than those of the non-surgical COVID infected population[1].

This article opted to divide the surgeries into two distinct groups: urgent/emergency and elective cases.

Urgent and emergency surgeries

Emergency surgeries are the cases that must be operated within an hour after the diagnosis (such as massive hemorrhage, traumas, emergent c-sections, bowel perforation) and urgent procedures are those that must be resolved in 24 hours (like appendicectomies, cholecystectomies, septic arthritis, open fractures, bleeding pelvic fractures, acute nerve injuries)[2].

In our institution, the major concern regarding these cases is whether the patients are infected with COVID-19 virus prior to the operation for two main reasons: more severe forms of the infection may present during the postoperative period, according to the Chinese experience in Wuhan; also, asymptomatic patients may bring the virus into the hospital environment, facilitating staff contamination.

In order to address those concerns, we believe that all patients who present for an urgent or emergency surgery should be tested for coronavirus infection prior to the procedure. The method of choice in our institution is the Sars-CoV-2 PCR (polymerase chain reaction) test in nasopharyngeal swab. Since the results are usually available in less than 24 hours, when feasible, we wait for the results before proceeding to the operating room. When it is not possible to wait for the result, we proceed to surgery. To protect the hospital staff from coronavirus infection, in these cases, we use an operating room with negative pressure, and the entire medical and support staff wears full, level III[3], protection against COVID contamination, according to our protocol (i.e., N-95mask, goggles, face shield, gloves, isolation gown, protective clothing with headcover, another disposable head cover and shoe covers).

After surgery, the Sars-CoV-2 PCR test result is checked, and a fifteen-day follow-up is initiated for all patients. The purpose of the follow-up is to identify whether pre-operatively infected patients develop symptoms and, if so, the severity of those. Also, we intend to detect whether patients, who were pre-operatively COVID-free, get infected in the postoperative period, since it has described that one is more likely to become infected and to manifest more severe forms of coronavirus infection after being submitted to a surgical procedure[4].

Elective surgeries

The primordial discussion on the evolution of elective surgeries is to determine which non-emergency or urgent surgeries should be performed.

It is well-known that not all elective surgeries are optional, such as oncological, cardiovascular, and some orthopedic procedures.

In order to define which procedures would be performed in our hospital, we created a multidisciplinary board. All the aesthetic, bariatric, oral maxillofacial, otorhinolarynghological, and non-oncological laparoscopic procedures were postponed.

Forty-eight hours prior to elective surgery, all patients are tested through Sars-CoV-2 PCR nasopharyngeal swab. With a negative result, we proceeded to surgery.

Even with negative results, it was decided that all the operating room staff (medical and support) should use N-95 masks and protection goggles. During tracheal manipulation (i.e., intubation and extubation), the anesthesiologist must also wear a protective impermeable gown and a face shield. In addition, anesthetic techniques such as peripheral nerve blockades and spinal anesthesia, with no airway manipulation, are being used as a primary choice whenever possible.

Regarding the surgical technique, robotic and laparoscopic operations are still being performed, but with a special aspiration system that filters the inflated gas, due to the aerosol generation potential involved in these types of procedure.

Although many recommendations have been made to postpone cases which were expected to demand resources like intensive care or blood products, we believe that our institution has been able to provide resources for both COVID and non-COVID patients. Therefore, we continue to perform major essential elective surgeries, like cardiovascular and thoracic cases.

It is important to highlight, however, that many changes have been made in our hospital: a special unity has been created to care for patients presenting with flu symptoms, and if further investigation or hospital admission is needed, patients are conducted through a segregated path to special wards specially destinated to patients with suspected COVID infection. For non-COVID patients, dedicated wards and personnel have been prepared.

The surgical center staff has been extensively trained to wear and remove the individual protection equipment and special protocols have been created for what we called "the COVID era".

To date, none of our frontline doctors has been infected with coronavirus.

CONCLUSIONS

We believe that essential elective cases may continue to be conducted, even amidst the COVID pandemic if rigorous safety protocols are implemented. Also, a thoughtful decision must be made regarding the decision on which cases will be operated. It is our belief that aesthetical surgeries, oral maxillofacial, and otorhinolaryngologic non-emergent procedures should be postponed.

One must not forget that the safety of the hospital staff must always be a major concern. Therefore, providing adequate individual protection equipment and, most of all, training the staff intensively is a must if an institution decides to keep a surgical program during the COVID pandemic.

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