

Commentary

Triaging out of elective surgeries during the COVID-19 pandemic: The wrong approach?

Takhliq Amir

Michael G. DeGroot School of Medicine, McMaster University, Hamilton, ON

Abstract

The devastating burden of COVID-19 on the health of individuals and capacities of health systems has led to blanket cancellations of elective surgeries globally. In response, surgery and anesthesia societies worldwide have published perioperative guidelines to inform the continuation of elective surgical procedures during the pandemic and the resumption of services in the intra- and post-pandemic phase. The effects of these widespread cancellations on the health of patients or the overall cost to the health systems are unclear but emerging anecdotal evidence is painting a grim picture. This commentary aims to review the current literature on the cancellation of elective surgeries in response to the COVID-19 pandemic, summarize broad recommendations from recently developed perioperative guidelines, and discuss key considerations for the resumption of elective surgeries in the intra- and post-pandemic world.

Keywords: Elective surgery, Triage, COVID-19

Corresponding author: takhliq.amir@medportal.ca

Introduction

The COVID-19 pandemic and its resultant toll on individuals of all ages have severely overwhelmed the capacities of healthcare systems worldwide. In the midst of managing an ongoing and rapidly evolving pandemic—and ensuring capacity for anticipated surges—the past year has seen blanket cancellations of elective surgeries globally (1).

In comparison to emergency surgeries, elective surgeries are procedures that are scheduled in advance for conditions that are not acutely life- or limb-threatening. However, ‘elective’ does not equate to optional. Rather, the line between urgent and non-urgent for many elective procedures is blurry, with many procedures potentially a life-changing option for patients. For instance, while vascular surgeries may be scheduled as elective, cases of limb ischemia or aneurysmal disease are still urgent and require immediate treatment (1,2). The protracted delay of elective operations, such as tumour resections or hip replacements, runs the risk of increased morbidity, decreased quality of life, and increased costs for individual patients due to increased disability and time off from work (3).

Some arguments in favour of the cancellation of elective surgeries include protecting patients and healthcare providers from risks of in-hospital COVID-19 transmission, increasing availability of ICU beds for COVID patients, preserving PPE, and redirecting surgeons and perioperative teams to provide support in other areas, such as critical care (4). A retrospective cohort study from China on asymptomatic patients undergoing major surgery during the incubation period of the COVID-19 infection found that intensive care was required by 44% of the patients due to COVID-19 disease progression postoperatively, with a 20% mortality rate post-ICU admission (5). However, the evidence was considered low quality and the sample size was small. Despite limited evidence, the fear of COVID-19 transmission led to blanket cancellations of elective surgeries worldwide in the initial peak of the pandemic without knowledge of short- or long-term impacts on individual patient health and health systems.

The issue has since become a matter of policymaking by individual institutions and regional healthcare bodies—balancing the risk of harm due to delay of elective procedures against the possibility of increased exposure to COVID-19 in hospitals. A study in Ontario estimated the surgical backlog between mid-March to mid-June 2020 to be over 148,000 surgeries, with an estimated time of 84 weeks needed for clearance (6). Results from the study demonstrated a drop in surgical volume by 38% for cancer, 42% for cardiac, 73% for vascular, 81% for transplant, 94% for pediatric surgeries, and 96% for other adult surgeries in April 2020 compared to April 2019. For many of these patients, at best, cancellations equate to a prolonged wait to healing. At worst, they equate to progressively debilitating pain/complications and the potential for irreversible disease progression.

Development of surgical triage guidelines

Back in March 2020, when Italy's health system became incapacitated by the pandemic, the Italian College of Anesthesia, Analgesia, Resuscitation, and Intensive Care released guidelines for triaging care. These guidelines included factors such as age, comorbidities, and pre-existing functional status in the algorithm for decision-making regarding ICU admissions (7). Since then, several surgery and anesthesia societies have published guidelines regarding the provision of surgical care during the COVID-19 pandemic, many of which balance broad public health safety considerations and resource availability with individual acuity of need.

The Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) and The European Association for Endoscopic Surgeons (EAES) released recommendations regarding surgical response during the pandemic (8). Their guidelines suggested postponing elective surgical and endoscopic procedures based on the burden of COVID-19 locally, general recommendations for procedural considerations (i.e., dedicated ORs, minimizing OR staff numbers, etc.), and practical measures for laparoscopic, endoscopic, and other surgical procedures.

The American College of Surgeons (ACS) statement focused on emphasizing regional cooperation to ensure capacity and resources for surgical procedures, principles for prioritization strategies (i.e., phased re-opening of ORs, specialties' prioritization, etc.), and discussed considerations for surgical care from the preoperative phase to post-discharge care planning (9). The ACS further published individualized guidelines for various types of surgeries (i.e., vascular surgery, pediatrics, etc.) aimed at facilitating local decision-making (10). Others, such as the Federation of Surgical Specialty Associations (U.K.), have published regularly updated guidelines that define appropriate timelines based on the type of condition and procedure (11). For example, an aortic dissection or empyema with sepsis should be treated with emergency surgery within 24 hours, while surgery for aortic stenosis can be performed within 1 month. In Ontario, Ontario Health released a report titled *A Measured Approach to Planning for Surgeries and Procedures During the COVID-19 Pandemic*, which included thresholds for acute care capacity, protective equipment, and personnel availability before elective surgeries could be resumed (12).

While many of these guidelines likely provide some much-needed direction to individual institutions, the limited research evidence to support their recommendations continues to present a challenge. In a scoping review on the short- and long-term effects of the pandemic on the delivery of surgical services, it was found that many of these newly developed perioperative guidelines only offer anecdotal data based on individual care provider expertise (13). Upon review of the guidelines, it also becomes clear that beyond general safety and resource availability recommendations, they offer no consensus on the process of prioritizing certain procedures, surgical specialties, or defined plans for the restart of surgical care in the post-pandemic phase. While the value of individual expertise should not be undermined, this has inadvertently left the door open for considerable uncertainty in best practices and likely increases

the moral and ethical dilemma faced by surgeons, anesthesiologists, and perioperative teams involved in healthcare.

Considerations for elective surgeries in the intra- & post-pandemic phase

Given the extraordinary nature of the pandemic and the massive scale-back of elective surgeries globally, it remains a challenge to identify the best method to manage the backlog of elective procedures after the pandemic. One study, led by the COVIDSurg Collaborative, projected an estimated 28 million elective procedures to be cancelled or postponed during the 12-week peak of the pandemic (4). They also estimated that a median of 45 weeks would be required to clear the backlog with a 20% increase in surgical volume in the post-pandemic setting.

Arguably, the burden of COVID-19 on those facing delays in care may have just as devastating of an impact on the health of individuals as that caused by the virus itself. Articles in mainstream media are rife with examples of people suffering from health consequences due to cancelled surgeries (i.e., heart disease or cancer care) (1). Cancellation of elective surgeries also present substantial—and potentially catastrophic—consequences for health systems globally. A study published in August 2020 calculated the potential cost of postponing elective procedures for at least 3 months in the United Kingdom (U.K.) (2). With the possibility of 40,000 elective procedures cancelled, the authors estimated that the cost of clearing the resultant backlog would be over £2 billion, or ~\$3.5 billion CAD. This cost is likely to be significantly higher if patient morbidity caused by delays in healthcare was taken into account.

While the solution to this problem remains to be identified, it has become clear that complete cancellations of elective surgeries do not take into account the nuances of individual patient needs, operative indications, and the spectrum of disease that is involved. A starting point in resuming elective surgical care, then, should be a more granular approach that slowly triages surgical patients back into care based on the urgency of their condition.

Engelman et al.'s proposed principles for adult cardiac surgical programs is one example to guide the re-initiation of surgical care: 1) collaboration to achieve increased case volumes based on local resources available within the healthcare system; 2) prioritization of patients based on factors suggesting that they are at a high-risk; and 3) constant re-evaluation of local conditions to monitor the rise in hospital admissions, availability of resources, and risk of transmission to healthcare providers and patients (14). Another approach places the emphasis on lifesaving operations unless resource scarcity necessitates a shift to prioritization based on quality of life years saved (15). With this approach, considerations for surgical care can be divided into two different phases—before and after the peak of the pandemic—with a staggered approach aiming to ensure gradual recovery of surgical volumes.

To guide prioritization of individual patients, the MeNTS (medically necessary, time-sensitive procedures) scoring system can be utilized (16). It includes 21 factors related to the procedure (i.e., length of hospital stay, duration of operation, etc.), disease (i.e., risk of delay on

the outcome, alternative non-surgical therapeutic options, etc.), and the patient (i.e., age, pre-existing comorbidities, etc.). The total scores are then used to estimate the level of surgical risk, risk to personnel, and resource utilization. The use of such a tool can help to identify patients most in need of surgeries and reduce moral and ethical burdens placed on healthcare providers who have to make challenging decisions that measure individual patient needs against broader public health risks.

Other recommendations can be more practical in nature and warrant consideration for future pandemic planning. Ensuring adequate PPE for healthcare workers, having protocols for designated ORs, ICUs and wards, maintaining constant public health communication, and ensuring that hospital leadership secure enough supply of resources to provide support for patients are all imperative to maintaining a functioning healthcare system (17,18). Where procedures are cancelled, providing simple reassurance to patients through telemedicine can go a long way towards ensuring that they are not falling through the cracks (19).

Conclusion

While the COVID-19 pandemic has posed significant risks to individuals worldwide, the need to allocate resources and care safely and equitably is crucial. Blanket cancellation of elective surgeries is dangerous for the health of countless individuals and communities, likely made worse by the inability to measure the full impact on patients' health outcomes at this time. It is likely that in the aftermath of this pandemic, epidemiological and clinical data will emerge regarding the perioperative factors and postoperative outcomes that are most significant when prioritizing surgical services. Research to evaluate the effects of elective surgery cancellations on 'collateral damage'—both the health costs to patients and the economic costs to healthcare systems as a result of declining quality of life and worsened conditions owing to a delay in care—is greatly needed.

In the post-pandemic world, then, it would be crucial for health systems to develop a disaster plan that includes policies and processes for the continuation or delivery of surgical services during public health crises. Until then, all healthcare bodies and institutions should deeply reconsider the potentially catastrophic impacts of the cancellation of elective surgeries on the health of those unable to receive timely care during this pandemic.

References

1. Rosenbaum L. The untold toll—the pandemic’s effects on patients without Covid-19. *N Engl J Med*. 2020 Jun;382:2368-2371.
2. Ding A, Onida S, Davies AH. The painful cost of cancelling surgery due to COVID-19—can we do anything about it? *Br J Surg*. 2020 Aug;107(9):e336.
3. Fu SJ, George EL, Maggio PM, Hawn M, Nazerali R. The Consequences of Delaying Elective Surgery: Surgical Perspective. *Ann Surg*. 2020 Aug;272(2):e79–e80.
4. Negopdiev D, Collaborative C, Hoste E. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. *Br J Surg*. 2020 Jul;107(11):1440-9.
5. Lei S, Jiang F, Su W, Chen C, Chen J, Mei W, et al. Clinical characteristics and outcomes of patients undergoing surgeries during the incubation period of COVID-19 infection. *EClinicalMedicine*. 2020 Apr;21:100331.
6. Wang J, Vahid S, Eberg M, Milroy S, Milkovich J, Wright FC, et al. Clearing the surgical backlog caused by COVID-19 in Ontario: a time series modelling study. *CMAJ*. 2020 Nov;192(44):E1347-56.
7. Craxì L, Vergano M, Savulescu J, Wilkinson D. Rationing in a pandemic: lessons from Italy. *Asian Bioeth Rev*. 2020 Sept;12(3):325-30.
8. 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 Jun;34(6):2327-31.
9. Jou J, Waterman R, Rhodes L, Haworth J, Moberg A, Schaefer R, McHale M. Essential surgery during the covid 19 pandemic: The implementation of a pre-operative universal covid testing program. *The American Journal of Surgery*. 2021 Apr 1;221(4):770-1.
10. American College of Surgeons [Internet]. Joint Statement: Roadmap for Maintaining Essential Surgery during COVID-19 Pandemic; 2020 [updated 2020 Aug 10; cited 2020 Nov 23]. Available from: <https://www.facs.org/covid-19/clinical-guidance/nov2020-roadmap>
11. American College of Surgeons [Internet]. COVID-19: Elective Case Triage Guidelines for Surgical Care; 2020 [updated 2020 Mar 27; cited 2020 Nov 23]. Available from: <https://www.facs.org/covid-19/clinical-guidance/elective-case>
12. The Federation of Surgical Specialty Associations [Internet]. COVID-19 documents; [updated 2021 May 13; cited 2020 Nov 23]. Available from: <https://fssa.org.uk/covid->

19_documents.aspx

13. Ontario Health [Internet]. A Measured Approach to Planning for Surgeries and Procedures During the COVID-19 Pandemic; 2020 [updated 2020 May 7; cited 2020 Nov 23]. Available from: <https://www.ontariohealth.ca/sites/ontariohealth/files/2020-06/A%20Measured%20Approach%20to%20Planning%20for%20Surgeries%20and%20Procedures%20During%20the%20COVID-19%20Pandemic.pdf>
14. Søreide K, Hallet J, Matthews JB, Schnitzbauer AA, Line PD, Lai PB, et al. Immediate and long-term impact of the COVID-19 pandemic on delivery of surgical services. *Br J Surg*. 2020 Sep;107(10):1250–1261.
15. Engelman DT, Lothar S, George I, Ailawadi G, Atluri P, Grant MC, et al. Ramping up Delivery of Cardiac Surgery During the COVID-19 Pandemic: A Guidance Statement from The Society of Thoracic Surgeons COVID-19 Task Force. *Ann Thorac Surg*. 2020 Aug;110(2): 712–717.
16. Brindle ME, Doherty G, Lillemoe K, Gawande A. Approaching surgical triage during the COVID-19 pandemic. *Ann Surg*. 2020 Aug;272(2):e40.
17. Prachand VN, Milner R, Angelos P, Posner MC, Fung JJ, Agrawal N, et al. Medically-necessary, time-sensitive procedures: a scoring system to ethically and efficiently manage resource scarcity and provider risk during the COVID-19 pandemic. *J Am Coll Surg*. 2020 Aug;231(2):281-288.
18. Cavallo JJ, Donoho DA, Forman HP. Hospital capacity and operations in the coronavirus disease 2019 (covid-19) pandemic—planning for the nth patient. *JAMA Health Forum*. 2020 Mar;1(3):e200345-e200345.
19. Mayol J, Pérez CF. Elective surgery after the pandemic: waves beyond the horizon. *Br J Surg*. 2020 Aug;107(9):1091-1093.
20. Ives J, Huxtable R. Surgical ethics during a pandemic: moving into the unknown? *Br J Surg*. 2020 Aug;107(9);1089-1090.