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COVID-19 in 2022

S Smith

Solus Practice, Optima Anaesthesia, South Africa
Corresponding author, email: *sheenzsmith1@hotmail.com*

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Introduction

The COVID-19 pandemic has resulted in a major shift in international health care and service delivery.[1] Disruptions in 'routine health care' have been the global standard, and this is also true of perioperative care. Elective surgical procedures have been delayed, due to various factors, including patient infection, staff infection and shortages, and prolonged theatre times needed for adequate infection-control measures. These factors have resulted in a backlog of patients awaiting elective surgery, as well as an inability of healthcare facilities to cope with the pre-pandemic patient load.[1,2]

Reduced surgical capacity, delayed patient presentation and management, the effects of long COVID and prolonged home isolation with resultant patient-deconditioning are all factors that impact the cohort of patients presenting for surgery. Perioperative physicians will thus be challenged with more complex cases to manage in the years to come.[3,4]

Perioperative COVID-19

A significantly higher risk of perioperative morbidity and mortality has been found in patients infected with COVID-19 undergoing both elective and emergency surgeries.[5-7]

Postoperative pulmonary complications were reported in 51% of patients in an observational multi-centre international study of 1 128 patients with perioperative COVID-19 (i.e. diagnosed within seven days before, or up to 30 days after, surgery). These patients underwent a variety of surgical procedures, and amongst those with postoperative pulmonary complications, the 30-day mortality was 38%. Overall mortality was higher after emergency surgery compared with elective surgery (26% vs 19%), and was higher in men, patients > 70 years of age, and in patients with American Society of Anesthesiologists (ASA) Physical Status grade ≥ 3. Of the 280 patients who had elective surgery, 22 were diagnosed with COVID-19 preoperatively and two of them died.[7] This CovidSurg study currently seems to be the best available evidence of safety in SARS-CoV-2 infection and timing to surgery.[1]

An international prospective cohort study has shown that in patients with a preoperative SARS-CoV-2 diagnosis, mortality was increased in those 'having surgery within 0–2 weeks, 3–4 weeks and 5–6 weeks of the diagnosis (odds ratio [95% CI] 4.1 [3.3–4.8], 3.9 [2.6–5.1] and 3.6 [2.0–5.2], respectively). Surgery performed ≥ 7 weeks after SARS- CoV-2 diagnosis was associated with a similar mortality risk to baseline.[8] It has thus been suggested that, where possible, procedures should be delayed for at least seven weeks following diagnosis, and even longer in those patients who are still symptomatic at this point.[8] The ASA recommends that elective surgery be delayed for four weeks, even in asymptomatic patients testing positive for SARS-CoV-2. Six weeks is recommended for a symptomatic patient not requiring hospitalisation, and eight to 10 weeks for a symptomatic patient who is diabetic, immunocompromised, or hospitalised. If a patient was admitted to an intensive care unit due to COVID-19 infection, 12 weeks is recommended.[9] Recent guidelines released by the Australian and New Zealand College of Anaesthetists are in keeping with the ASA, recommending that non-urgent minor surgery be delayed by four weeks, and major surgery by eight weeks, provided that the patient is symptom-free and has returned to baseline level of functioning.[10] Jessop et al.[11] have echoed these sentiments, and have named healthcare workers as responsible for limiting infection transmission by restricting elective surgical workload and taking the necessary precaution to prevent exposure to both patients and healthcare workers. It must be remembered that these findings were prior to vaccination, and at a point in time where immunity to COVID-19 had not yet been established, and thus, may be an overestimate compared to what current findings would be.[1]

Lieberman and colleagues[12] have suggested that these recommendations are based on data obtained during previous and more virulent pandemic waves, where the majority of elective procedures were abandoned. They compared patient outcomes during the first three waves versus the fourth wave in December 2021 in New York State, in the United States of America. Lieberman and colleagues found that hospital admissions, intensive care admissions, pneumonia incidence and mortality were reduced during the fourth wave. They have attributed this to the lower virulence of the Omicron variant, immunity from previous infection, higher patient vaccination rates, and better overall COVID-19 treatment.[12] Although surgical outcomes have not been compared to earlier waves, they recommend reconsidering waiting times for asymptomatic patients awaiting elective surgery, and they have 'concluded that

a 10-day delay from the first day of symptoms or from the day of the first positive SARS-CoV-2 test is sufficient during the current surge',[12] as at this point, the patient is no longer infectious, and does not appear to be at risk of a poor outcome. A significant limitation of this research is that it is a single-centre study, which precludes its generalisability.[1]

When are patients no longer infectious?

The ASA and Anaesthesia Patient Safety Foundation (APSF)[9] released a joint statement including discontinuation of isolation in patients with a previous positive COVID-19 PCR test:

- Asymptomatic: 10 days following positive PCR test.
- Mild-to-moderate disease: 10 days following symptom onset. PCR tests may still be positive at this point, however replication-competent virus has not been detected.
- Mild-to-moderate symptoms and not immunocompromised:
  - At least 10 days have passed since symptom initiation.
  - At least 24 hours have passed since last fever, without the use of antipyretics.
  - Symptom improvement.
- Severe-to-critical illness or severely immunocompromised:
  - At least 10 days and up to 20 days since symptom onset.
  - At least 24 hours have passed since last fever, without the use of antipyretics.
  - Symptom improvement.

Preoperative testing

The ASA and APSF[13] recommend the following:

- In areas of high COVID-19 prevalence (based on Centre for Disease Control data), all patients with symptoms of COVID-19 should be referred for evaluation, and all others should be tested for COVID-19 ≤ 3 days prior to non-emergency surgery, using a nucleic acid amplification test (e.g. PCR test), regardless of their vaccination status.
- In areas of low to moderate community transmission, institutions may decide not to require preoperative testing for asymptomatic vaccinated patients having low-risk procedures.

What now?

In conclusion, we do not have an answer for the optimal time to proceed with elective surgery. Delaying elective surgery does have consequences, including increasing backlog of scheduled cases and worsening patient conditions in curative and palliative cancer treatment.[1] The risk of perioperative morbidity and mortality around SARS-CoV-2 infection, therefore, needs to be weighed against the risk of delay, at an individual level and on a larger scale.[2,14] Lieberman et al.[12] state that 'the anaesthetist should assess a patient's readiness for surgery comprehensively rather than delaying a case just based on a positive test for SARS-CoV-2. As new strains emerge, recommendations may have to be modified based on new information about the transmissibility and virulence of each emerging strain'. It is hypothesised that there may be a point in the future where there will be no delay between asymptomatic infection and surgery in vaccinated patients, and where symptomatic patients will be assessed and managed as per any other lower respiratory tract infection.[1]

ORCID

S Smith https://orcid.org/0000-0003-1760-2721

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