



Mortality and pulmonary complications in patients undergoing surgery

Journal Article, A multicentre cohort study

May 29, 2020

COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: An international cohort study
The Lancet. May 29, 2020. DOI: [https://doi.org/10.1016/S0140-6736\(20\)31182-X](https://doi.org/10.1016/S0140-6736(20)31182-X).

Summary

Methods:

- A multicentre, observational cohort study from 24 countries.
- Patients undergoing surgery from 1 January to 31 March 2020 who had SARS-CoV-2 infection confirmed within 7 days before or 30 days after surgery.

Results:

- Of the 1128 patients, 1002 patients (88.8%) were from the UK, Italy, Spain and the USA.
- SARS-CoV-2 infection was confirmed preoperatively in 294 (26.1%) patients while the rest were diagnosed postoperatively.
- Methods of confirmation were laboratory testing (85.9%), radiological (7.1%) and clinical (6%).
- 30-day mortality was 23.8% (268 of 1128) and pulmonary complications occurred in 51.2% (577 of 1128) patients.
- 30-day mortality in those with pulmonary complications was 38% (219 of 577), accounting for 82.6% (219 of 265) of all deaths.
- In adjusted analysis, 30-day mortality was significantly associated with male sex (odds ratio [OR] 1.75), age ≥ 70 years (OR 2.30), American Society of Anesthesiologists Grades 3–5 (OR 2.35), malignant disease (OR 1.55), emergency surgery (OR 1.67) and major surgery (OR 1.52).
- Mortality rates were higher even for patients operated for minor procedures under local (30.6%) or regional (21.2%) anesthesia compared to the pre-COVID period.
- Among the patients with no co-morbid conditions, mortality was 7% compared to 29% among those with two or more.

Conclusion:

- Postoperative pulmonary complications occurred in half the patients with perioperative SARS-CoV-2 infection and were associated with high mortality. Thresholds for surgery during the COVID-19 pandemic should be higher than during normal practice, particularly in men ≥ 70 years.
- Consideration should be given for postponing non-urgent procedures and advocating non-operative treatment to delay or avoid the need for surgery.

Appraisal

- Data in this study is from countries where and time periods when COVID-related deaths started increasing rapidly.
- Protocols for laboratory testing and radiological interpretation were not standardized across all the 235 hospitals and could have led to the exclusion of false-negative cases.
- The majority (71.5%) of cases had COVID laboratory testing done postoperatively. It is likely that many of these patients may have been infected preoperatively and precautions taken for prevention of hospital-acquired infection were not standardized across all centers as the guidelines were still evolving.
- Despite its shortcomings, currently, this evidence suggests high mortality after surgery in patients with SARS-CoV-2 infection across all surgical specialties.

Opinion

This study suggests that among patients undergoing major surgery who are positive for SARS-CoV-2 there is a high risk of mortality and morbidity. There is a significant influence of age on postoperative mortality with younger patients (<50 years) having a better outcome. Elderly patients (>70 years) with more than one co-morbidity undergoing major emergency procedures have the highest risk.

Although an abnormal preoperative chest X-ray has a higher likelihood of a worse postoperative outcome, mortality is higher even if the X-ray is normal.

Till evidence from further studies is available, major surgeries should be considered selectively in geographical regions passing through the peak of their COVID curve. This study also emphasizes the need and the value of routine preoperative COVID testing for better surgical decision making.

Appraisers

Sunil Kumar, Jyotishman Saikia, SVS Deo. Department of Surgical Oncology, BRA-IRCH (AIIMS)