

SARS-CoV-2 in perioperative medicine: lessons learnt

Aisling Ní Eochagáin^{1,*}, Jonathan G. Hardman^{2,3} and Donal J. Buggy^{1,4}

¹Mater University Hospital, University College, Dublin, Ireland, ²School of Medicine, University of Nottingham, Nottingham, UK, ³Nottingham University Hospitals NHS Trust, Nottingham, UK and ⁴Outcomes Research, Cleveland Clinic, Cleveland, OH, USA

*Corresponding author. E-mail: aislingnie@gmail.com

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Editor—As of February 4, 2021, coronavirus disease 2019 (COVID-19) has affected 216 countries or territories around the world, with >103.6 million confirmed cases, >2.2 million deaths, and >25.9 million active cases.¹ The impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on perioperative care now needs to be considered. The impact of reduced surgical capacity and of delayed patient presentation has led to an increased burden of pathology and is beginning to affect many surgical patients.² This, combined with deconditioning of patients because of prolonged shielding and isolating at home and the systemic effects of long COVID on those patients who have contracted the infection, means that perioperative physicians will face a more complex patient cohort in years to come.

Severe acute respiratory syndrome coronavirus 2 infection has disproportionately affected older individuals and those with underlying medical conditions.³ Risk factors for developing severe disease from SARS-CoV-2 infection include modifiable and non-modifiable factors. The WHO identifies the increased risk of obesity for becoming severely ill as seven-fold.⁴ Smokers and patients with diabetes were found in separate meta-analyses to have increased risk of severe complications and higher mortality.⁴ Further meta-analyses indicate that hypertension, cardiovascular disease, and cerebrovascular disease increased the odds for severe COVID-19 by 2.3, 2.9, and 3.9 times, respectively, as did chronic obstructive pulmonary disease.⁴ A study in Wuhan, China showed that the mortality rate from COVID-19 was significantly increased in patients with cancer, particularly blood cancers.⁴ However, increasing age is likely the strongest risk factor for hospitalisation or death from COVID-19, with those aged 75–84 yr being 220 times more likely to die than those aged 18–29 yr.⁵ Risk factors relating to race and ethnicity vary between countries, but include higher rates of infection in Black and Hispanic people, and amongst economically deprived communities.⁶

Preoperative assessment

Since the COVID-19 outbreak, face-to-face consultations have been actively discouraged and many interactions are now virtual.⁷ This has the potential to impact on the accuracy of airway assessment in the preoperative setting and may increase risk of airway difficulty if this is only identified on the day of admission. Attention should be paid to identifying factors that may decrease safe apnoea time or predict difficulty in face-mask ventilation.⁷ Optimising the quality of

remote airway assessment and exploring whether it correlates with face-to-face assessment are potential areas of research.

The impact of the pandemic on postoperative recovery needs to be understood to inform clinical decisions. The COVIDSurg trial, at 235 hospitals in 24 countries, included patients undergoing surgery who had SARS-CoV-2 infection confirmed between 7 days before and 30 days after surgery. Pulmonary complications occurred in half of patients with perioperative SARS-CoV-2 infection and were associated with increased mortality. Therefore, it can be argued that thresholds for proceeding with surgery during the COVID-19 pandemic should be higher than during normal practice, particularly in men aged >70 yr.⁷

Sequelae of shielding

Although less dramatic than the sequelae of COVID-19 infection, months of isolation at home as a result of COVID-19 pandemic restrictions will have a deconditioning effect on millions of people through cardiovascular disease, diabetes mellitus, and cancer. Calculations using the WHO health economic assessment tool model predicted that imposed sedentary behaviour for 3 months in those >70 yr, or with chronic comorbidity, would result in additional premature deaths.⁸

Analysis of national databases indicates that many patients are delaying medical consultation and avoiding emergency departments, either because of fear of contracting SARS-CoV-2 or because they do not want to burden health systems.⁸ Data from NHS England show that referrals via the 2-week-wait urgent pathway for suspected cancer in the UK decreased by up to 84%.² When patients do eventually present, they will therefore likely have a higher burden of pathology than in pre-pandemic times.

Sequelae of SARS-CoV-2 infection

There are variable recovery patterns and sequelae of SARS-CoV-2 infection, depending on age and pre-existing comorbidities in addition to illness severity. In a survey of 350 patients with COVID-19 in the USA, only 39% of those hospitalised reported a return to baseline health by 14–21 days after diagnosis.⁹ Similarly, amongst 143 patients who had been hospitalised for COVID-19 in Italy (of whom seven had been mechanically ventilated), only 13% were symptom-free 60 days following disease onset. The most common persistent symptoms were fatigue (53%), dyspnoea (43%), joint pain

(27%), and chest pain (22%); none had fever or features indicating acute illness.¹⁰ Patients with milder initial infections may also have prolonged symptoms.

Systematic evaluation of the long-term sequelae of COVID-19 indicates that 70% of patients have impairment in one or more organs 4 months after initial infection, even amongst relatively healthy patients before infection.² The most commonly reported ongoing symptoms, regardless of hospitalisation status, were fatigue (98%), myalgia (88%), shortness of breath (87%), and headache (83%). Mild organ impairment was evidenced in the heart (32% of patients), lungs (33%), kidneys (12%), liver (10%), pancreas (17%), and spleen (6%), with 25% of individuals displaying evidence of multi-organ impairment. The risk of multi-organ impairment was significantly associated with hospitalisation.² Patients who were critically ill with COVID-19 may also be at risk for post-intensive care syndrome (persistent impairment in cognition, mental health, or physical function after survival of critical illness), although the incidence after COVID-19 is at present unknown. Medium- and long-term follow-up of 'long COVID' patients is warranted and requires multidisciplinary management.²

As we move gradually past this pandemic, clinicians and health policymakers may need to consider multiple strategies to tackle the upcoming challenges faced. Supplies of PPE will need to be adequate to cater to further waves of infection, particularly as variants resistant to vaccination emerge. They will also need to work with hospital administration to increase critical care bed capacity, which will be an investment in managing the increasing burden of high-morbidity patients undergoing surgery or becoming critically ill. Adaptive trials are encouraged to provide Level 1 evidence for therapeutic strategies, not only in COVID-19, but also in viral pneumonia inducing acute respiratory distress syndrome/acute lung injury.

Declarations of interest

DJB and JGH are editorial board members, and JGH is associate editor-in-chief of the *British Journal of Anaesthesia*. JGH accepts fees for the provision of advisory reports to the crown prosecution service, the police, solicitors, and coroners.

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Putative antiviral effects of propofol in COVID-19

Penghui Wei¹, Qiang Zheng¹, Haotian Ye², Wenyan Lyu¹, Jianjun Li^{1,*} and Jian-jun Yang^{2,**}

¹Department of Anesthesiology, Qilu Hospital (Qingdao), Cheeloo College of Medicine, Shandong University, Qingdao, People's Republic of China and ²Department of Anesthesiology, Pain and Perioperative Medicine, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, People's Republic of China

*Corresponding author.

**Corresponding author. E-mails: ljj9573@163.com, yjyangjj@126.com