Anesthesia practice in Covid-19 era: Unprecedented problems call for extraordinary solutions

Global healthcare system was caught off guard by a huge crisis in the beginning of 2020 when a pneumonia outbreak which originated from the city of Wuhan in Hubei province of China quickly spread across borders. The causative agent was identified as a novel coronavirus (SARS-COV-2) by the World Health Organization (WHO) and a pandemic was declared on March 11, 2020 affecting over 100 countries. By 4th May 2020, more than 34 million people were infected globally and about 2.39 million had died making it one of the worst global disease outbreaks in a century. The current pandemic situation can potentially overwhelm the health care resources in the coming times and may impair the delivery of optimal care to patients requiring surgical interventions. Therefore, planned and judicious utilization of manpower and resources is of prime importance.

Healthcare workers (HCWs) in direct care of patients are at increased risk of contracting the virus and hence it is of immense importance to educate, train, and protect HCWs to carry out their duties safely amidst the disease outbreak.[1] Suspected or confirmed COVID patients pose unique challenges for the anesthetist due to its contagiousness and systemic implications of the illness. Hence a sound knowledge of the disease epidemiology and personal preventive measures is of immense importance for the anesthesiologists. Many leading Societies of Anesthesiology across the world have put forward working principles and guidelines for perioperative management of COVID-19 patients.[2-4]

The present issue of this journal has many articles discussing anesthetic concerns for a confirmed or suspected COVID-19 patient,[5] challenges in scheduling elective surgeries in COVID-19 era,[6] preventing HCPs exposure to COVID-19,[7] and anesthesia in COVID-19 patients scheduled for emergency laparotomy.[8]

Neethirajan *et al.*,[6] discuss the challenges in scheduling elective surgeries in COVID-19 era. A blanket cancellation policy has one major challenge that a cancellation or delay in an indicated surgery can contribute to patient's morbidity and mortality. On the other hand, if a patient who has undetected or mild COVID-19 disease is operated, he/she may transmit the infection to the operative team and other HCWs involved in his/her care.[9] Also, the COVID patients who are operated have poorer outcomes due to perioperative immunosuppression, venous thromboembolism, unmasking of severe infection, etc.[10] Hence, a balanced approach considering the demand–supply analysis, that is, local and institutional COVID burden versus available resources, along with the nature of the surgical illness and its expected course and stage of pandemic should be taken into consideration.[6]

Before restarting elective procedures, one should augment COVID testing facilities, increase the supply of personal protective equipment (PPEs), ensure adequate intensive care beds, and should have a documented policy for case prioritization according to urgency. In general, the surgical procedures should be triaged and only emergency and time sensitive surgical procedures should be allowed till the epidemic has been contained. Medically necessary, time sensitive (MeNTS) scoring system is one such prioritization tool which can be utilized to manage the precious resources efficiently and ethically in these times.[11]

There is a potential medicolegal concern that the patient may have acquired the disease from community and may blame the hospital for the infection during his stay for the surgical procedure. Due to this possibility, a consent regarding the same and risks of possible complications in positive patients should be taken preoperatively. Hence, it has been suggested that preoperatively all patients should be tested for COVID-19 to ensure safety of patients and HCPs and appropriate PPE should be used for all patients.[6,7,11,12] A screening lung ultrasound and chest X-ray may further help to detect a false negative RT-PCR and rule out COVID-19.[11]

Neethirajan *et al.*[6] are to be commended for describing a systematic integrated six-pronged approach to minimize infection risk while maintaining standards of anesthesia care during this pandemic. This systematic strategy includes minimizing chance for exposures, strict observance of standard protocols, precautions during perioperative patient care, precautions while performing aerosol-generating procedures (AGPs), limiting operation room (OR) personnel movement and finally, monitoring and managing HCWs. Teaching HCWs regarding standard protocol and best practices, psychological support and regular debriefing would be important to keep their moral high amid this protracted crisis.

Both intubation and extubation are high-risk AGPs and increase the risk of transmission of COVID to the anesthesiologists and merit close vigilance. It has been predicted that amongst persons infected with coronavirus roughly 8% will require endotracheal intubation and mechanical ventilation.[13] In

the absence of negative pressure OR, air exchanges should be increased to more than 15 cycles per hour, use of aerosol box (preferably with a vertical suction at the head end) or covering the patients head with plastic sheet are the recommended strategies to prevent aerosol spread but have their own limitations.[5,8] In a recent simulation study, Begley *et al*. reported increased intubation times, decreased first-pass success, more failures and damage to PPEs with the use of aerosol box, calling into question its actual benefit versus potential risks.[14]

Setlur *et al*.[7] have discussed measures of preventing HCPs exposure to COVID-19. Due to high infectivity of COVID-19, it was logical to attempt to use disposable PPE and equipment. However, one important challenging aspect of this is the global crisis regarding PPE shortage and disposal of the massive biomedical waste generated. Various solutions have been put forward to manage this crisis, for example, extended use and reuse of PPE.[12,15]

A pragmatic approach to emergency laparotomy in a suspected/positive COVID patient has been described by Umesh *et al*.[8] An important aspect which they have mentioned in the care of these patients is preoperative video-communication as a means of evaluation and consultations to reduce patient contact with HCWs. Use of simulation to familiarize OR team members with their roles would be important as communication is hampered while in PPE. It would be wise to make a detailed stepwise plan beginning from patient transfer to emergence from anesthesia. Regional anesthesia should be preferred wherever possible considering the increased risk of exposure of anesthesiologist to virus during GA.[5]

The pandemic does not seem to die out any time soon. The health care system needs to be geared up to deal with the worst. It will be prudent to delay the elective surgeries and recruit all the available resources for the management of COVID patients, especially in resource limited countries.

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Access this article online

Quick Response Code:

Website: www.joacp.org

DOI: 10.4103/joacp.JOACP_219_20

How to cite this article: Gupta A, Nath S, Trikha A. Anesthesia practice in Covid-19 era: Unprecedented problems call for extraordinary solutions. J Anaesthesiol Clin Pharmacol 2020;36:S75-7.

Submitted: 05-May-2020 **Revised:** 19-Jun-2020 **Accepted:** 27-Jun-2020
Published: 24-Jul-2020