

Adaptation of Anaesthesia Practices Owing to the Coronavirus Disease 2019 Pandemic

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Abstract

For coronavirus disease 2019 (COVID-19), substantial proportion of secondary transmission may occur before illness onset. During the epidemic of Severe Acute Respiratory Syndrome (SARS) in Toronto, Canada, it was evident that particularly those involved in airway related procedures such as endotracheal intubation were highly susceptible. In this situation, we anaesthesiologist need to rapidly keep updating ourselves with the available literature and adopt and evolve new practices in our regime. In this article we have tried to suggest evidence based practices for perioperative management and operation theatre work flow in the existing scenario of the coronavirus pandemic.

Enveloped ribonucleic acid virus that causes an influenza-like disease.[1] Following its emergence, in December 2019, in the Hubei (China), there was an exponential outbreak in the city of Wuhan.[2] The secondary transmission may occur before illness because its serial interval near to or even smaller than its median incubation period.[3] The contagiousness of COVID-19 is very high almost double to that of seasonal flu, its basic reproduction number (R0) value is calculated to be 2.68 (95% credible interval (CI): 2.47–2.86).[4] As on May 29, 2020, the caseload from the disease throughout the world is 59,33,322 cases with a total number of recorded deaths as 3,62,629. India is yet to enter community transmission where we have around 1,67,441 cases, and 4,797 deaths have been attributed to the disease.

During the SARS outbreak, the world has seen that 21% of the infected individuals globally were healthcare workers. A lot of experience learned from the SARS situation had helped us in the current pandemic. Prevention of infection in health care settings encompasses all principles of infection prevention and control. The risk of infection was much higher in health care workers before personal protective equipment (PPE) was used. Early recognition, triage, and prompt isolation of suspected cases have to be the normal now. During the epidemic of SARS; it was evident that particularly those involved in airway-related procedures such as endotracheal intubation were highly susceptible. From such experiences, it is evident that we need to evolve our practices to maintain our health systems rapidly.

In this situation, we anaesthesiologist find ourselves in a very high-risk group of contracting the infection owing to the daily exposures we have to the aerosols generating procedures in the operating rooms (ORs) and the intensive care units (ICUs) in our daily practice. There is a need to rapidly keep updating ourselves with the available literature and adopt and evolve new practices to our regime. The purpose of this article is to have a certain comparison of evidence-based practices owing to this pandemic about our day to day anesthetic practices.

Operation Theatre Set up

Ideally all ORs should have negative pressure rooms to prevent viral dissemination. In our current scenario all our ORs are positive pressure ORs. Nevertheless, in such a scenario a high frequency of air changes (around 25 per hour) helps to reduce the viral load rapidly.

All patients requiring surgery must be considered as positive until proven otherwise to minimize spread of infection. Clearly defined workflows and standard operating procedures (SOPs) must be made as per institutional policy for healthcare professionals managing these patients.

All unnecessary equipment should be removed and only bare necessities on case to case basis should be kept inside the OR only. Standard anaesthetic trolleys should be modified to have minimal but adequate stock. All the materials should ideally be disposable as far as possible including linen.

The OR door must always be kept closed and have clear signage to prevent unnecessary movement. The movement to supply materials to the OR during surgery should also be dissuaded. After the patient left the OR, logistics should allow enough time before the next procedure, to reduce chances of air contamination.

We would suggest that all patients be screened for COVID-19 before elective surgery to control the growing epidemic crisis and eliminate all possible cross-infection to healthcare workers and patients in the perioperative period.

Anaesthetic Management

Preoperative Evaluation

The operation theatres are a source of infection and have the potential for an epidemic spread of the infection in the hospital set up owing to a large amount of personnel involved and resulting cross-contamination. A proper multidisciplinary approach as shown earlier involving surgeons on deciding the priority basis for surgery and a proper screening system involving infectious disease experts and anaesthesiologist are required to properly screen patients. A joint statement from the American Society of Anaesthesiologists (ASA) and the Anesthesia Patient Safety Foundation (APSF) recommends that in areas of high COVID-19 prevalence, COVID-19 test should be performed to all the patients preceding to non-emergency surgery and that surgery should be delayed until the patient is no longer infectious and has recovered from COVID-19.

Recommended PPE for healthcare workers in the anesthesia preoperative evaluation clinic should include white medical gowns, medical gloves, eye protection shields, disposable surgical caps, and surgical masks or test fit N95 masks or respirators.

Patients receiving an anaesthesia preoperative evaluation should enter the consulting room one by one to minimize close contact with the clinician and other individuals.

Patients' body temperatures should be measured (electronic ear thermometer) before entering the consulting room. If the body temperature is higher than 37.3°C, he or she must be escorted to the clinics for fever disorders immediately and should be reported to the infection control officer on duty of the hospital. Patients with normal body temperature can proceed with the evaluation at the anaesthesia clinic.

During the first encounter, the anaesthesiologists should take a detailed history and conduct a thorough physical examination, particularly a careful chest examination. In addition, specific history and examination to rule out COVID should be taken.

In addition, high risk surgical (tracheostomy, surgical procedures that need high speed drilling, rigid bronchoscopy etc.) and anesthetic procedures (awake fiberoptic intubation, mask ventilation, non-invasive ventilation, high flow nasal cannula, etc.) should be identified and technique/procedure should be modified. Clear communication needs to be established in such procedures and adequate precautions might be taken pre-emptively during such procedures by reducing the operating room personnel, minimising the procedure times etc. Airway management should be planned and preferably be done in minimum amount of time.

Conclusion

With the issuing pandemic, it is of vital importance that evidence-based recommendations and practices be followed in perioperative settings. All precautions have to be taken owing to the issuing pandemic to prevent operation theatres from becoming hot spots for the disease, and optimal care for patients has to be ensured with the available literature. Adequate practice-based recommendations and their implementation have to be followed among the health care workers to protect them and to maintain the integrity of our health systems.

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