Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Patient positioning under anesthesia during COVID-19 pandemic —Foresight risks to prepare, plan and execute

Letter to editor

The outbreak of COVID-19 began in December 2019 in Wuhan, Hubei province, China with a few cases of viral pneumonia [1]. With the declaration of a pandemic by the World Health Organization in March 2020 [2], the disease has been a constant threat to physical, mental health as well as the world economy. It has also paralyzed the care of patients in need of medical supervision for indications other than COVID pneumonia. Anesthesiologists are leading this battle as they are well acquainted with the knowledge and skills needed to combat COVID-19.

The unprecedented healthcare crisis has brought about a change in the paradigm of every aspect of anesthesia practice. The protection of both health care workers and patients is important apart from the accustomed standard of care. Therefore, routine practices need to be conceptualized afresh for successful management.

Positioning under anesthesia is associated with potential risks to the patient because of the inhibition of various protective mechanisms [3].Each position is associated with changes in the cardiac and respiratory physiology as well as the risk of nerve injuries and pressure sores [4–7]. The combination of position-specific physiological changes and risk of COVID-19 transmission place both the patient as well as the anesthesiologist in peril. Therefore, careful planning and coordination between the anesthesiologist, surgeon, and operating room (OR) staff is needed for successful positioning with minimum risk of COVID -19 transmission.

The goal of the OR team will be to minimize the aerosol generation and achieve successful positioning in the first attempt. Positioning under regional anesthesia alone will be associated with the lowest risk as compared to general anesthesia with or without regional due to minimal aerosol-generating procedures (AGP) involved. The following steps can be used as a guide for positioning of the patient under anesthesia amid COVID-19 pandemic:

1. Plan

a. Know the position required for appropriate surgical access
b. Adequate manpower to be available to manage a position safely
c. All staff should be trained to use personal protective equipment (PPE), how to wear it, and take it off correctly [8].
d. Staff adequately trained in infection control practice inside the OR.
e. Overall plan for positioning to be discussed with the surgeon and anesthesiologist team before any movement
f. OR table, head ring, bolster, arm supports, gel pads, sandbags, leg supports or stirrups, foam mattress, soft material for padding to be kept ready
g. All non-essential equipment to be kept outside the OR
h. Teamwork and drills to be organized for the training of the staff involved
i. Comorbidities of the patient to be reviewed. Certain positions may have detrimental effects on the hemodynamics and ventilation hence may not be tolerated by a patient suffering from cardiac or respiratory problems

2. Prepare

a. All equipment required for adequate positioning to be kept ready
b. Personal protective equipment to be used inside OR – Sterile gown with shoe covers, N95 respirators, eye protection with goggles, face shield and two pair of sterile gloves
c. Monitors, IV lines, endotracheal tube should be well secured before any change in position
d. Anesthetists should lead the team and be available at the head end to prevent inadvertent extubation during positioning.
e. Vitals to be monitored and ensure safe blood pressure before any patient movement as various positions are associated with hemodynamic compromise
f. Emergency drugs to be kept ready for any unforeseen situation

3. Execute

a. The main aim is to minimize aerosol generation during any change of position
b. Preoxygenate the patient with 100% oxygen to attain end-tidal oxygen concentration of >90%
c. Switch off the ventilator and clamp the endotracheal tube before the change of position
d. Disconnect the circuit and position the patient as required for the surgical procedure
e. After successful attainment of the required position, reconnect the circuit, remove the clamp and restart the ventilation
f. Monitor for any contamination of surfaces by drooling of secretions, check tube fixation, ventilation, hemodynamics, reconnect all the monitors and IV lines
g. The proper functioning of all equipment to be reassured after positioning

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h. Proper padding of pressure points to be ensured to prevent nerve injuries and pressure sores
i. Position to be made as much physiological as possible with minimum flexion and extension of various body parts
j. Try to minimize the apnea time to prevent desaturation

4. Summarize and debrief

a. Summarize and debrief between the teammates to enhance the process of learning
b. It will also facilitate better patient management in the future

All the above steps to be practiced while repositioning of the patient before extubation.

4.1. Considerations for specific positions

4.1.1. Lateral and prone position

Lateral decubitus and prone position are associated with excessive drooling of secretions which can be a source of infection for OR staff. Hence appropriate measures like anti-sialagogue to be used preoperatively. Accidental dislodgement of the tube can occur while positioning, thus the tube should be adequately taped to prevent accidental extubation.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tacc.2020.10.001.

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Kiran Mahendru, Abhishek Kumar
Department of Oncoanesthesia and Palliative Medicine, Brairch, All India Institute of Medical Sciences, New Delhi, India

Tanvi Bhargava*
Dr Ram Manohar Lohia Hospital, Postgraduate Institute of Medical Education and Research, New Delhi, India

* Corresponding author.
E-mail address: tanvib06@gmail.com (T. Bhargava).

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