



SEVERE ACUTE RESPIRATORY SYNDROME CORONAVIRUS 2: CONCERNS FOR PAEDIATRIC ANAESTHESIOLOGIST

Gyanendra Kumar*

Department of Paediatric Anaesthesia, Chacha Nehru Bal Chikitsalaya, New Delhi, India*Corresponding Author

Manoj Sharma

Department of Neuroanaesthesia, AIIMS, New Delhi, India.

KEYWORDS :

1. INTRODUCTION

Coronavirus disease 2019 (COVID-19) is caused by novel coronavirus, now called severe acute respiratory syndrome Coronavirus 2. World Health Organization (WHO) has declared this outbreak as a "Public health emergency of international concern" (PHEIC) on January 30, 2020. WHO subsequently declared COVID-19 a pandemic on March 11, 2020.

SARS - COV2, infects children less frequently than adults and clinical presentation of COVID-19 symptoms in children are generally milder than that in adult patients 1. Paediatric anaesthesiologist will be required to perform airway procedures in children suspected or confirmed of having COVID-19. This may be for children with critical COVID-19 infection who require ventilation, or it may be for children who require surgery.

Management of paediatric patients with suspected or confirmed COVID-19 is also complicated by the need to manage accompanying parents and relatives who are likely to be infected and therefore, presents an infection risk to healthcare providers and other patients. The risk to paediatric care providers is increased by the higher level of asymptomatic carriers in the young (up to 50%) 2.

1. Considerations for modification of anaesthetic technique in paediatric patient with suspected or confirmed COVID-19

As upper respiratory infections (URI) are more common in children, it is impossible to clinically distinguish COVID-19 from other respiratory infection in paediatric patient unless confirmatory test is done.

We need to apply appropriate protocol to reduce viral dissemination and risk of contamination.

2. Perioperative management

2.1. The goal is to minimize exposure and prevent aerosol & droplet generation.

Appropriate donning of personal protective equipment is a must.

Child should be wearing a surgical mask during transport to OT. A crying or screaming child will increase the risk of droplet or aerosol spread of the virus, hence strong consideration should be given to administration of a sedative pre-medication. Anaesthesiologist should maintain strict hand hygiene. PPE kits with N95 mask & face shield should be used routinely.

During induction, positive pressure ventilation using a face mask should be avoided. Intravenous induction with RSI is preferred. If inhalational induction is planned, a tight face mask seal with low flow should be used. A microbiological filter should be placed between the tracheal tube and breathing circuit. Cuffed endotracheal tube is preferred as it minimizes leakage to environment.

Circuit disconnection should be avoided during maintenance. Use of disposable equipment where available.

Smooth & deep extubation should be tried, as it reduces risk of cough. Although it is unclear whether there is a benefit to deep extubation of patients it has been predictive as protective for aerosol generation 3.

Covering the patient with transparent plastic barrier minimize contamination of the anaesthesiologist.

Ideally patient with confirmed COVID-19 should be recover negative pressure isolation room 4.

Entry & exit point to the OT needs to be tightly controlled and door opening should be kept to a minimum. Minimal staff presence is encouraged especially during intubation & extubation.

3. CONCLUSION

The provision of anaesthesia for the paediatric population during COVID-19 generates unique challenges. It requires special emphasis; guidelines & protocols are constantly reviewed to provide anaesthesia that is safe for the child and minimizes the risk of infection to health care worker.

4. Financial support and sponsorship

None.

5. Conflicts of interest

None

6. REFERENCES

1. Lu X, Zhang L, Du H, et al. SARS-CoV-2 infection in children. *N Engl J Med.* 2020;382:1663-1635. doi: 10.1056/NEJMc2005073
2. Bialek S, Gierke R, Hughes M, MaNamara, et al. Coronavirus disease 2019 in children – United states, February 12–April 2, 2020. *Morb Mortal Wkly Rep.* 2020;69:422-426. doi: 10.15585/mmwr.mm6914e4
3. Matava CT, Kovastis PG, Lee JK, Castro P, et al. Paediatric Airway Management in COVID-19 Patients: Consensus Guidelines From the Society of Paediatric Anaesthesia's Paediatric Difficult intubation Collaborative and the Canadian Paediatric Anaesthesia Society. *Anesth Analg.* 2020;131:61-73. doi: 10.1213/ANE.0000000000004872
4. Lee-Archer P, von Ungern-Sternberg BS. Paediatric anaesthetic implications of COVID-19 – a review of current literature. *Paediatr Anaesth.* 2020. doi: 10.1111/pan.13889