

# Challenges faced by anesthesiologists during the cesarean section of COVID-19 patients – An observational study



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## ABSTRACT

**Background:** The health-care system has encountered exceptional circumstances, experiencing unique challenges, and manifesting as acute challenges in health-care services due to the spread of COVID-19. **Aims and Objectives:** The present study aimed to report the difficulties faced by the anesthetists while performing a cesarean section under the subarachnoid block (SAB) in COVID-19 patients at a dedicated COVID Level 3 hospital. **Materials and Methods:** Twenty healthy anesthetists (six consultants and 14 postgraduate) aged 20–40 years performed 60 elective or emergency cesarean sections of known COVID-19-positive gravida patients aged 20–35 years with no comorbidity and no spine abnormality under the SAB. Anesthetist;s responses to the challenges faced while performing procedures wearing the Level 3 personal protective equipment were recorded using a pre-structure self-administered questionnaire. To quantify the intensity of these problems, all the physical and psychological difficulties were graded as mild, moderate, and severe. **Results:** In the present study, 75% experienced moderate-to-severe sweating, and 60% experienced moderate-to-severe headaches. A total of 45% experienced moderate-to-severe breathlessness. Though there was little difficulty in communication among doctors and staff, almost 75% of anesthetists faced it. The fear of contracting the disease and spreading it to the family members was expressed by 75–80% of anesthetists. **Conclusion:** The present scenario has increased physical stress and other psychological problems among health workers. Therefore, hospital support with regular psychological counseling sessions is needed for healthcare workers to cope with the current situation.

**Key words:** COVID-19; Cesarean section; Psychological problems

## INTRODUCTION

A massive crisis at the beginning of 2020 stunned the global health-care system when a pneumonia outbreak in the city of Wuhan in the Hubei province of China quickly spread across borders.<sup>1</sup> As a result, the health-care system has encountered exceptional circumstances, experiencing unique challenges, and requiring acute changes to services. For example, in COVID 19 operation theater (OT), both the surgeons and the anesthetists faced physical, technical, and psychological challenges. Further, the fear of contracting the infection from the patients is also prevalent among healthcare workers.

In the present study, we aim to report the prevalence and magnitude of challenges faced by anesthetists while performing cesarean section under the subarachnoid block (SAB) in COVID-19 patients at a dedicated COVID hospital.

### Aims and objectives

In the present study, we aim to report the prevalence and magnitude of challenges faced by anaesthetists while performing Caesarean section under the subarachnoid block in COVID 19 patients at a dedicated COVID hospital.

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## MATERIALS AND METHODS

The present survey was conducted in the Department of Anaesthesia at our hospital. Twenty anesthesiologists (six consultants and 14 postgraduate) in the age group of 20–40 years without any comorbidity participated in the study. A total of 60 elective or emergency cesarean sections of known COVID-19-positive gravida patients in the age group of 20–35 years, weight ranging from 50 to 70 kg, with no comorbidity and no spine abnormality was conducted under the SAB.

A thorough pre-anesthetic evaluation and airway examination was done for all the patients. In addition, routine hematological and biochemical investigations were done. Anesthesiologists, obstetricians, neonatologists, nursing staff, and technicians donned the personal protective equipment (PPE) in the designated area outside the COVID OT complex. The Level 3 PPE kit of N95 respirators, impervious body suits with hoods, goggles, face shields, shoe covers, and double-layered medical gloves were worn. The patient was shifted to OT with an N95 mask. After attaching routine monitors (electrocardiogram, non-invasive blood pressure, and SpO<sub>2</sub>), a 20 gauge intravenous cannula was secured, and IV fluid Ringer Lactate started SAB was administered in the L3 L4 intervertebral space with the patient sitting, and 2 ml of 0.5% heavy Bupivacaine was given. Anesthesia consultants gave all the SABs. Surgery started once the sensory block was achieved till the T6 level was checked by pinprick. Intraoperative vital monitoring was done, and after the completion of the procedure, patients were shifted to the COVID isolation ward, and their babies were handed over to relatives.

The anesthesiologist's problems were noted, from shifting the patient to the OT table to transferring them out of the (operation room). They were divided into three subheadings – physical, technical, and psychological challenges.

Physical challenges included profuse sweating, persistent headache, breathlessness, restricted mobility, difficulty

communicating with the surgeon and the patient, less audibility, and reduced visibility due to fogging.

Technical challenges included difficulty in IV cannulation and giving SAB due to fogging and difficulty palpating the spine due to decreased tactile sensation. Psychological challenges included fear of contracting disease, fear of carrying the infection to family members, and apprehensions while doffing.

Anesthesiologists posted in OT were asked to fill up a questionnaire consisting of 11 questions regarding the challenges they faced. Based on this questionnaire, the intensity of these problems was judged.

The physical and psychological challenges were graded as mild, moderate, and severe. Severity was graded as per the difficulty faced in performing the designated work.

## RESULTS

A questionnaire filled by 20 anesthesiologists noted physical and psychological challenges. The number of anesthesiologists who faced a particular challenge and its intensity was noted (Figure 1).

Technical challenges were judged by the number of attempts to give SAB (Figure 2) and the number of failed SAB (Table 1) in 60 cesarean sections performed.

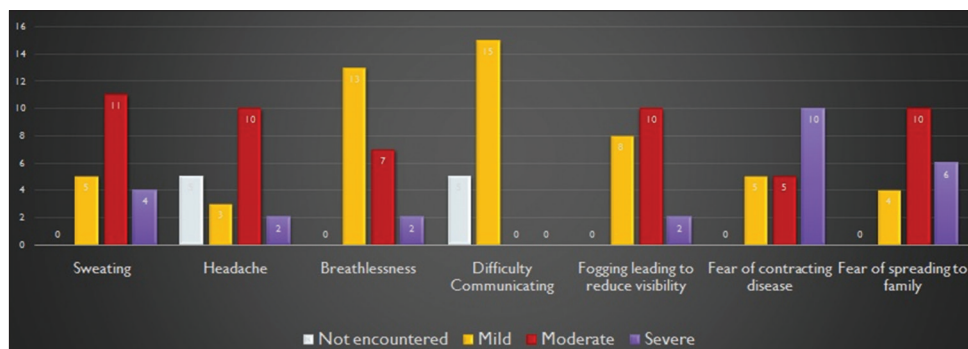
## DISCUSSION

PPE and hand hygiene materials have proven to prevent the spread of COVID-19 infection effectively.<sup>2,3</sup> Many studies have shown an increased risk of contracting the disease by

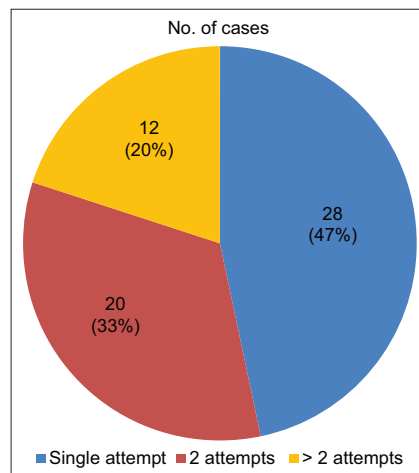
**Table 1: Number of attempts to give SAB**

Total number of SAB given	60
Number of failed SAB (where there was no effect at all)	7
Failure percentage	11.66%

SAB: Subarachnoid block



**Figure 1:** Graph showing physical and psychological challenges faced and their intensity



**Figure 2:** Number of failed SAB

the anesthetist. Chen et al., stated that anesthesiologists are likely to have an even higher risk than healthcare workers of other subspecialties because anesthetists manage the airway and ventilation. Therefore, urgent development of safe medical practices and infection prevention protocols for the perioperative management of patients with COVID-19 is needed.<sup>4</sup>

Our study has thrown light on other physical, psychological, and technical challenges the anesthetist faces in the operating room.

As stated in a study done by Yuan et al., 122 (94.57%) health-care professionals experienced discomfort while wearing Level 3 PPE to treat patients with COVID-19. The main reasons for adverse reactions and discomfort include varying degrees of adverse skin reactions, respiratory difficulties, heat stress, dizziness, and nausea.<sup>5</sup> Various studies have shown similar skin and mucous membrane adverse effects.<sup>6,7</sup> Similarly, in our study on 20 anesthetists working in the OT, 75% experienced moderate-to-severe sweating leading to dehydration.

A total of 60% experienced moderate-to-severe headaches. Headache can be attributed to dehydration and the tight fighting goggles and hoods. In addition, retaining some amount of CO<sub>2</sub> due to the tight-fitting mask can also be one of the causes of headaches.

A total of 45% experienced moderate-to-severe breathlessness. Although there was little difficulty in communication among doctors and staff, almost 75% of anesthetists faced it. There is no way to identify the person, and one has to speak louder than usual, thus making the person more breathless.

The fear of contracting the disease and spreading it to the family members was expressed by 75–80% of anesthetists.

We also saw that the number of two or more attempts to give SAB is 53.33%, and SAB failure in seven patients accounts for an 11.66% failure rate. As per a review on failed spinal anesthesia done by Agrawal et al.,<sup>8</sup> most experienced practitioners consider the incidence of failure of spinal anesthesia to be extremely low, probably below 1%. However, it could be as high as 17% in the case of inexperienced clinicians and other avoidable factors. Experienced consultants gave 8. Thus, the failure rate is much higher than seen in normal conditions, and this is attributed to the decreased tactile sensation as there are three layers of gloves (two provided with the PPE kit and one sterile glove over these) over the bulky suit. The other foremost reason is fogging, leading to reduced visibility, making it challenging to see CSF's flow while giving SAB. Moderate-to-severe fogging was encountered by 60% of the anesthetist.

#### Limitations of the study

Sample size was small. Larger study with more number of subject is needed.

## CONCLUSION

The pandemic has done a reality check on the present health-care facility, but it has also prepared us for the next. Therefore, it underlines the necessity to establish protocols to reduce the rate of infection among healthcare workers. Still, health-care personnel's physical and psychological challenges worldwide in intensive care unit or OTs cannot be addressed thoroughly due to their job nature and proximity to infected patients. This has increased incidences of post-traumatic stress and other psychological problems among health workers. Therefore, a revised protocol with hospital support with regular psychological counseling sessions is needed for healthcare workers to cope with pandemic scenarios.

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**ML**- Concept, design, and data analysis; **RK**- Statistical data analysis, data interpretation, and proof reading; **AK**- Review of literature and manuscript preparation; and **IY**- Coordination, analysis, and final proof reading.

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