

Impact of aerosol box on anxiety of the anaesthesiologist for intubation during COVID-19 pandemic: A single-blinded observational study

Sir,

Reports of healthcare workers (HCWs) getting infected during the coronavirus disease-19 pandemic are disturbing and tragic. The risk posed to HCWs especially anaesthesiologists during aerosol generating procedures (AGPs) is critical. Innovation of the aerosol box (AB) (made of acrylic or transparent polycarbonate sheet) may help to address this issue.^[1] AB is a transparent plastic cube designed to cover a patient's head and has two circular ports through which the clinician's hands are passed to perform the airway procedure. It is a barrier device useful as an anti-splash or against direct cough from patient into the face of the proceduralist.^[2] We conducted a survey from July 2020 to December 2020 to evaluate whether the AB really played a vital role in allaying anxiety of the anaesthesiologist regarding the risk of direct aerosol exposure or was it a hurdle in smooth working. The survey was distributed to experienced anaesthesiologists, who were routinely doing cases in general anaesthesia. After prior consent, we distributed the online survey to anaesthesiologists through their institutional emails, social media and WhatsApp messenger in our city. No data which could breach personal information was collected. They filled the questionnaire which enquired about their awareness, experiences, adventures and misadventures during induction and extubation with the AB [Table 1].

Ninety anaesthesiologists responded to the survey questions. Only 29.60% of the participants had prior experience with the AB [Table 2]. Almost 70.40% of the study population was unaware of the use of this innovative barrier device. 46.30% participants came to know about AB from colleagues, whereas the rest came to know from social media and other sources. Thus, the results depicted that no first-hand experience or hands-on training for anaesthesiologists was present prior to using this box. 11.10% of the participants had an overall nice experience with

Table 1: The questionnaire

1.	Do you have any prior experience of use of aerosol box? Yes No
2.	How did you come to know about aerosol box? Social media Colleague Others
3.	What is your overall experience about use of aerosol box? Very helpful Helpful but hurdle for intubation Hazardous
4.	Aerosol box made mask ventilation? Easier Difficult Or did not affect procedure
5.	Aerosol box made endotracheal intubation - Easier Difficult Did not affect
6.	Do you feel that use of aerosol box prevented contamination with aerosol particles? Yes No
7.	Do you feel aerosol box made you mentally composed against the risk of aerosol exposure? Yes No
8.	Do you feel you were more comfortable working with level 3 PPE without aerosol box? Yes No
9.	Were you confident in use of aerosol box while extubating the patient? Yes No
10.	Would you recommend using aerosol box to other colleagues for aerosol generating procedure? Yes No

use of AB while performing intubation and 85.20% felt that though it was helpful, it was a hurdle for intubation. 3.70% of the participants found it to be hazardous. Bag and mask ventilation was found to be easy by 14.80%, while 57.40% found bag and mask ventilation difficult with use of the box [Table 2]. Ease with endotracheal intubation was reported by 9.30%, while 83.30% of the participants faced difficulty. The majority (70.40%) of the participants agreed that AB prevented contamination with aerosol particles, whereas 13% disagreed about the efficacy. Use of AB made 68.50% of the participants mentally composed, while the rest were anxious. 7.40% of the participants felt that nothing can affect the composure of an anaesthesiologist. 55.60% of the respondents were more comfortable working

Table 2: Summary of responses to all questions

All questions	Frequency(%)
Prior experience of use of aerosol box	
Yes	29.60%
No	70.40%
Source of knowledge of aerosol box	
Colleague	46.30%
Social media	44.40%
Other resources	9.30%
Overall experience of the use of aerosol box in intubation	
Very helpful	11.10%
Helpful but hurdle for intubation	85.20%
Hazardous for use during intubation	3.70%
Aerosol box effect on bag and mask ventilation	
Easy	14.80%
Did not affect procedure	27.80%
Difficult	57.40%
Aerosol box effect on endotracheal intubation	
Easy	9.30%
Did not affect procedure	7.40%
Difficult	83.30%
Aerosol box prevented contamination with aerosol particles	
Yes	70.40%
No	13%
I don't know	16.70%
Aerosol box made you mentally composed against the risk of aerosol exposure	
Yes	68.50%
No	24.10%
Nothing can affect my composure	7.40%
More comfortable working with level III PPE	
Yes	55.60%
No	44.40%
Would recommend aerosol box to other colleagues for aerosol generating procedures	
Yes	72.20%
No	27.80%
Confident in the use of aerosol box while extubating the patient	
Yes	44.40%
No	37%
Did not affect me	18.50%

with level 3 personal protective equipment (PPE) without AB. Almost 72.2% of the participants agreed to recommend AB to other colleagues for AGPs. During extubation, 37.0% of the participants were under-confident in use of the box, while 18.5% of the participants felt that it did not affect their psychology during extubation.

Overall experience of the anaesthesiologists as per our survey was that the box acts as a hurdle for intubation and made bag and mask ventilation and

intubation difficult. However, 70% of the study population felt that it prevented contamination with aerosol during AGPs, which was in compliance with the study conducted by Dalli *et al.*^[3] This was in contrast to the study by Wakabayashi *et al.*,^[4] who concluded that the effect of AB on endotracheal intubation difficulty is clinically irrelevant when an experienced anaesthesiologist intubates the trachea in normal airway conditions. The survey was inconclusive with regards to the confidence of the anaesthesiologist during extubation as per the meta-analysis by Sorbello *et al.*^[5] The survey could also not conclude on the comfort with the use of the box as compared to level 3 PPE and was lacking in views on chances of accidental extubation and the box acting as an oxygen and virus reservoir.^[6]

We concluded from the survey that though the AB allays the anxiety of the anaesthesiologist, it acts as a hurdle for intubation during AGPs.

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Conflicts of interest

There are no conflicts of interest.

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