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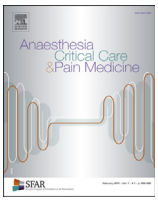

Letter to the Editor

Supraglottic airways in the management of COVID-19 patients

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Dear Editor,

The coronavirus disease 2019 (COVID-19) pandemic has placed healthcare workers, including anaesthetists, at high risk of contracting the disease due to their frequent involvement in aerosol generating procedures (AGP), e.g., intubation and extubation. Anaesthesia guidelines by national and professional bodies recommended rapid sequence induction and intubation as it minimises aerosolisation [1]. There is however a lack of consensus on the use of supraglottic airway devices (SGA) in COVID-19 patients, although some recommended its role in rescue airway management. We describe some of the issues related to the use of supraglottic airway devices (SGA) in COVID-19 patients.

Cook et al. advocated a "safe, accurate and swift" approach to airway management via tracheal intubation [1]. However, a SGA can also be "safe, accurate and swift". Advantages over facemask ventilation include improved airway seal (less aerosolisation) [1], improved oxygenation and less hand fatigue [2]. Compared with tracheal intubation, the use of a SGA leads to: faster insertion, less coughing (therefore, decreased risk of aerosolisation), and improved oxygen saturation during emergence [2]. SGA avoids the use of muscle relaxants and their associated risks, e.g., malignant hyperpyrexia and anaphylaxis. Furthermore, during SGA insertion, the anaesthetist can maintain a further distance from the patient's face compared to direct laryngoscopy. In the context of managing a COVID-19 patient and the risk of HCW transmission, most of these benefits are arguably less important. Hence, the recommendations from various countries on the use of SGA are limited and varied (Table 1). They range from: use in preference over facemask ventilation before, and in between attempts at laryngoscopy [1,3]; use in "selected patients because of the lower risk of coughing" [4]; if SGA use is indicated [3]; as a

Table 1
Summary of guidelines for SGA use in COVID-19 patients.

Source of guidelines	Recommendations
Consensus statement: Safe Airway Society principles of airway management and tracheal intubation specific to the COVID-19 adult patient group[3] (Australia and New Zealand)	If indicated, use a second-generation device
	Avoid positive pressure ventilation
	Better option than FMV (due to less aerosolisation) if immediate intubation is not possible
	Use of a bronchoscope… for exchange of a SGA for a tracheal tube, is not an aerosol generating event when performed in a profoundly paralysed apnoeic patient without use of positive pressure ventilation or insufflation or suction
Anaesthesia Patient Safety Foundation (APSF) and the American Society of Anesthesiologists (ASA) [4] (US)	Greater risk of generating aerosols compared to tracheal intubation
	Higher positive pressure might create a leak
	Acceptable option in selected patients due to the lower risk of coughing
The Italian coronavirus disease 2019 outbreak: recommendations from clinical practice[6]	If a rescue airway is needed, a second-generation SGA is strongly advised, and one that allows bronchoscopic intubation
Consensus guidelines for managing the airway in patients with COVID-19[1] (UK)	Lower threshold for use over FMV
	If using an SGA, spontaneous ventilation may be preferred to controlled ventilation, to avoid airway leak
	Second-generation SGA for airway rescue
	Second-generation SGA used as an alternative to FMV between attempts at laryngoscopy
	Flexible bronchoscopy techniques… via a SGA conduit (is) likely to be aerosol generating and therefore unlikely to be the first choice
	Changing a tracheal tube to a SGA for smooth emergence

FMV: facemask ventilation; LMA: laryngeal mask airway; SGA: supraglottic airway device.

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conduit for asleep flexible bronchoscopic intubation [3,5]; and for airway rescue following failed tracheal intubation [1,6].

If SGAs are used in a COVID-19 patient, considerations include:

- various authors and guidelines recommend RSI and intubation [1,3,6];
- a second-generation device allowing flexible bronchoscopic intubation should be used [1,3,5,6];
- spontaneous ventilation is preferred to controlled ventilation [1];
- low airway pressure ventilation modes (low tidal volumes) is preferred [6];
- SGAs may produce a suboptimal seal, leading to leakage and aerosolisation during controlled ventilation [3].

Leakage can occur at low ventilation pressures, e.g., mal-positioning of, or an inappropriately sized, SGA. It can also occur during coughing or bucking, or if ventilation pressures exceed the oro-pharyngeal leak pressure of the SGA. If laryngospasm or malposition occurs, management may result in, or require, the use of higher than normal airway pressure ventilation or additional AGP. The latter includes SGA removal with subsequent facemask ventilation, suctioning or laryngoscopy and intubation. Due to these potential complications, all personnel in the operating theatre should consider wearing appropriate personal protection equipment for the duration the SGA is in use.

It should be noted that outside of the operating theatre, SGA use (with modifications) remains the first line airway device for out-of-hospital cardiac arrests during the COVID-19 pandemic [7]. However, the place of SGA use in cardiac arrests in COVID-19 patients is yet to be fully determined.

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Not applicable.

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Contribution of authors

PW: conception of work, acquisition of data, drafting manuscript and revisions.

WYL: conception of work, acquisition of data, drafting manuscript and revisions.

Disclosure of interest

The authors declare that they have no competing interest.

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Wan Yen Lim[a,b], Patrick Wong[b,c,d,*]
[a]*Division of anaesthesiology and perioperative sciences, Sengkang general hospital, Singapore general hospital, Singapore, Singapore*
[b]*Duke-NUS medical school, Singapore, Singapore*
[c]*Yong Loo Lin school of medicine, National university of Singapore, Singapore*
[d]*Division of anaesthesiology and perioperative sciences, FRCA, Sengkang general hospital, Singapore general hospital, Singapore, Singapore*

[*]Corresponding author. Department of anaesthesiology, division of anaesthesiology and perioperative medicine, Singapore general hospital, Outram road, 169608, Singapore, Singapore
E-mail address: patrick.wong@singhealth.com.sg (P. Wong).

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