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Letter to the editor

CORONA-steps for tracheotomy in COVID-19 patients: A staff-safe method for airway management



ARTICLE INFO

Keywords:

Coronavirus disease 2019
Airway management
Tracheostomy
Health-care worker
Safety

Dear Editor,

We read the editorial article by Pichi et al. [1] about staff safety during tracheostomy procedures on patients with coronavirus disease 2019 (COVID-19) with interest. Health-care workers are expected to work every day with COVID-19 patients, and protecting them is essential to enable them work safely and avoid being infected. Airway management and, more specifically, tracheostomy procedures have a high risk of causing contamination because they generate aerosols [2]. Even if tracheostomy procedures can be used in COVID-19 patient management, no evidence-based recommendations for the protection of healthcare workers performing tracheostomies for these patients exist to date. Pichi et al. [1] proposed a step-by-step procedure using the acronym CORONA: Covering yourself (C), Operating Room setting (OR), Opening the trachea (O), and Nursing and Airway management (NA). We completely agree about the use of personal protective measures and post-tracheostomy care. However, we suggest another approach for the other steps.

Two tracheostomy procedures are currently available: open tracheostomy (OT) and percutaneous tracheostomy (PT). The first, which Pichi et al. [1] recommend, is surgically performed, most often in an operating room (OR). The surgeon inserts a tracheostomy tube following skin incision, muscle retraction, and a wide opening of the trachea. PT is typically performed by an intensive care specialist in an intensive care unit (ICU). It consists of a percutaneous tracheal puncture guided by bronchoscopy and a progressive dilatation before the insertion of the tracheostomy cannula. Most reported complications are wound infection and post-operative bleeding for OT, compressive neck hematoma and difficulty reinserting the cannula in case of unexpected decannulation for PT. However, the general complication rate of both techniques is the same [3]. No data about the specific contamination risk of each technique for healthcare workers are available. Published information from the SARS outbreak of 2003 showed that OT was preferred [2,4,5] (PT had a reputation for gen-

erating more aerosols than OT due to extensive airway manipulation), but we must also consider that PT techniques have advanced since then. Current guidelines on choosing OT or PT for COVID-19 patients differ between countries (Table 1) [1,6,7]. We recommend PT in COVID-19 patients because it does not require transferring the patient to an OR and thus limits the risk of contamination. The duration of PT (and thus care workers' exposure time) is no longer than that of OT [3], and opening the trachea with a guide enables better control of expiratory flow than with a surgical opening, which is more hazardous. Moreover, PT eliminates the risk of piercing the endotracheal cuff. PT procedure must be conducted in a sedated patient, and ventilation must be stopped entirely during the critical step of introducing the cannula. Bronchoscopy control is safely performed using a deported screen. The bronchoscope is inserted by a specific opening valve that protects the operator from the respiratory flow, without repeated connection and disconnection from the ventilatory circuit. A double lumen endotracheal tube can also be used, with an upper channel that allows passage of a bronchoscope during PT and with a lower channel exclusively dedicated to patient ventilation [8]. We recommend performing a neck ultrasonography systematically before PT to ensure there is no large vessel in the puncture area or a large thyroid isthmus to prevent hematoma complication. Technical options must be discussed between the ICU specialist and the surgeon for patients with anatomical particularities (difficult neck). We think that the risk of a difficult cannula re-insertion in case of unexpected decannulation is controlled, provided the patient does not have any upper airway obstruction, which enables classical orotracheal intubation.

When OT must nonetheless be performed, we recommend performing it bedside in the ICU to avoid transfer to an OR, if possible. Otherwise, we recommend following all other measures suggested by Pichi et al. [1] when performing OT. A hybrid procedure with a surgical approach and dilatation of the trachea is for us a good option when it is feasible.

Table 1

Currently available recommendations (from articles or scientific societies) about the favored tracheostomy procedure by country, type and date of publication. When no favored procedure is specified, the choice is typically collectively taken between the ICU specialist and the surgeon. PT: percutaneous tracheostomy; OT: open tracheostomy.

Authors/Organization	Country	Type of Report	Date	Favored Procedure
The Australian and New Zealand Intensive Care Society (and ENT society) www.anzics.com.au	New Zealand/Australia	Guideline	03/16/2020	Not specified
Sociedad Española de Cirugía Oral y Maxilofacial y de Cabez y Cuello [Spanish Society of Oral Maxillofacial, Head and Neck Surgery] www.secom.org	Spain	Guideline	03/20/2020	PT
National Tracheostomy Safety Project www.tracheostomy.org.uk	UK	Guideline	03/20/2020	Not specified
Canadian Society of Otolaryngology - Head and Neck Surgery www.entcanada.org	Canada	Guideline	03/22/2020	Rather OT
Società Italiana di Otorinolaringoiatria e Chirurgia Cervico Facciale, Pichi et al. [1] [Italian Society of ENT and Head and Neck Surgery] www.siochcf.it	Italia	Guideline/Article (letter)	04/06/2020	OT
Deutsch Gesellschaft für Hals Nasen Ohren Heilkunde [German society of ENT] https://cdn.hno.org	Germany	Guideline	03/25/2020	Rather OT
American Academy of Otolaryngology-Head and Neck Surgery www.entnet.org	USA	Guideline	03/27/2020	Not specified
Société Française d'Anesthésie Réanimation (and SFORL) [French Society of Anesthesiology and ICU, and ENT Society]	France	Guideline	03/29/2020	Rather PT
Givi et al. [6] <i>JAMA Otolaryngol Head Neck Surg</i>	USA	Article (letter)	03/31/2020	Rather PT
Tay et al. [7] <i>JAMA Otolaryngol Head Neck Surg</i>	Singapore	Article (review)	03/31/2020	OT

Declaration of Competing Interest

The authors declared that there is no conflict of interest.

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