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Permissive Apnea in COVID-19 Tracheostomy: Alternative Health Worker Safe Procedure in Intensive Care Unit



To the Editor:

We read with great interest the study by Angel and associates.¹ We agree to highlight the medical nurse safety, but we would like to offer our contribution with a quick different technique for permissive apnea performed in 25 individuals from 69 COVID patients (36.2%) in our COVID center that is safe for patients and health care workers.^{2,3} First of all, the most expert physicians in percutaneous tracheostomy were selected to organize a tracheo team.⁴ Usually, after 14 days, the tracheostomy was performed in patients with difficult weaning and no contraindications. The procedure was performed by the expert team, preceded by an accurate echographic assessment of the patient and a preoxygenation for 30 minutes with FiO₂ 1.0. Then the patient was positioned, sedation and myorelaxation were confirmed, a protective ventilation was applied, and then video bronchoscopy equipment was set up. The procedure began by putting the mechanical ventilator on stand-by mode for a few seconds, avoiding losing positive end-expiratory pressure, and positioning a fibre-optic bronchoscope swivel connector (Portex, Minneapolis, MN). Later, the bronchoscope was positioned in the endotracheal tube; if SpO₂ was greater than 90%, the operator proceeded directly to the puncture in bronchoscopic vision and quickly performed a Ciaglia (Bloomington, IN) percutaneous tracheostomy. If SpO₂ was less than 90%, then mechanical ventilation was resumed for a few minutes with FiO₂ 1.0 and then the puncture was performed. In the end, the endotracheal tube was removed only after positioning the cannula. We did not have cases of important bleeding or severe complications; only in 3 cases (12%) did it become necessary to resume ventilation and another permissive apnea time was needed to perform the procedure. In any case, no important variations of PaO₂/FiO₂ ratio after the procedure was registered.

The great novel technique of Angel and colleagues¹ requires very expert physicians with a bronchoscopist; furthermore, an anatomical conformation of the patient favorable to the introduction of the instrument next to the endotracheal tube is necessary. We consider our technique a feasible alternative; in either case, a great deal of experience in performing percutaneous tracheotomies is mandatory. We believe that, like the technique described by Angel and coworkers, our technique is also advisable and feasible for the health of operators, as long as none of our operators involved has been infected by COVID 19.

The authors wish to thank all colleagues, nurses, and health care workers of our center for their dedication, sacrifice, and commitment.

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Many Ways to Skin a Cat



Reply

To the Editor:

Marudi and colleagues¹ have presented an alternative method for performing tracheostomy in COVID-19 (coronavirus disease 2019) patients in response to our paper.² We agree that their technique is a feasible alternative. There is a rather gruesome American expression that states, "there are many ways to skin a cat." The problem is that the cat ends up not doing well, irrespective of the method chosen.

The expression also means that oftentimes, the differences between techniques are not as important as we, as surgeons and self-perceived master technicians, might think. We study every minute detail of what we do every day, and although there is great value in it, we must show the value in the changes we make. In addition, we are unconsciously biased toward the steps that we do select. The gruesome expression of cat skinning may be more applicable when the outcome is "uniformly" fatal as opposed to when the desired outcome is a fully recovered patient via the least operative time, hospital stay, and overall medical cost.

There are more similarities between our tracheostomy techniques than there are differences. And as most surgeons do, I will point out the differences. Permissive apnea may work in many patients, but a large number of COVID-19 patients are already hypercapnic and profoundly hypoxic. Further hypercapnia risks acidosis, which may lead to poor cardiac contractility or arrhythmias. In addition, permissive apnea leads to worsening hypoxia, and not infrequently, these patients can take a long time to recover, given their poor pulmonary function. This creates great angst for the bedside nurses and physicians. The authors found that 12% of the time it became necessary to resume ventilation and apply another period of permissive apnea. For these are reasons, we do not favor this technique but agree that it is another feasible alternative, safe and effective in many.

Given these known and admitted disadvantages of this technique, what are the advantages? We assume that it is because of the perceived lower viral shed or great safety to the surrounding health care workers during the tracheostomy. The former has not been shown, and the later may be clinically irrelevant because we have shown no conversions to any of our bedside health care workers when properly wearing their protective equipment during the 212 tracheostomies that we have now performed.

At the end of the day, we agree with Marudi and colleagues that there are many ways to skin a cat. We as surgeons need to be open to changing everything we do every day in order to get better outcomes for our patients at less cost. We do not care who