

A simple recommendation to prevent COVID-19 spread by patients with tracheostomy tube

In Iran, the COVID-19 outbreak started on February 19, 2020, and then rapidly grew.^[1] The patients are usually asymptomatic or presenting mild symptoms such as fever, cough, sore throat, and myalgia. However, about 20% of patients get very sick and require hospital admission, mostly because of pneumonia.^[2] Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus is mostly spread by infected droplets, entering directly to other persons' mouth, nose, or eyes, caused by coughing, sneezing, or even talking (airborne transmission). It may also be transmitted by touching the contaminated items and surfaces (contact transmission).^[3] As there is no definite treatment or vaccination, the most important strategy for control of the disease is prevention of virus spread by infected people.

Disease severity is a wide spectrum from asymptomatic patients to patients with fulminant acute respiratory distress syndrome and respiratory failure requiring endotracheal intubation and mechanical ventilation. Some patients may also require tracheostomy procedure, in case of prolonged intubation.^[4] Patients with COVID-19 disease, who have been weaned from mechanical ventilation with a tracheostomy tube in place, are in the most threatening situation for spreading the virus in intensive care units as long as they could not be decannulated.

These patients and other patients with a previous permanent tracheostomy tube, who are infected with SARS-COV-2 virus, could spread the virus by

respiratory droplets not only through their mouth and nose but also through their tracheostomy tubes. They may also spread the virus by the tracheal secretions through their stoma, particularly when the stoma is larger than the tracheostomy tube.

Therefore, in addition to wearing a facemask, we recommend that an antimicrobial/antiviral ventilator filter is connected to their tracheostomy tube [Figure 1].

These devices have a filtration efficiency of >99.999% with viruses as small as 0.017 μ during 24 h.^[5] They are also very light, create no respiratory resistance, and are tolerated easily by the patients. They are inexpensive and therefore could be changed whenever there is any concern about their contamination or obstruction by secretions.

These patients should also have a watertight dressing all around their stoma to prevent leakage of potentially infected tracheal secretions. That dressing should be changed as soon as it gets wet and before contaminating the patients' neck and subsequently the patients' hand. The peristomal skin should be disinfected during each dressing change by alcohol-based solutions.

On the other hand, patients with permanent tracheostomy should also observe proper protection equipment for prevention against COVID-19. They should follow all general preventive commands such as social distancing and wearing facemasks and also avoid touching their tracheostomy tubes. In addition, because these filters work in both directions, we highly recommend using an antimicrobial/antiviral filter for more protection against airborne transmission in healthy patients who have tracheostomy tube.

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Conflicts of interest

There are no conflicts of interest.



Figure 1: Antimicrobial/antiviral ventilator filter connected to the tracheostomy tube

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REFERENCES

1. Jamaati H, Dastan F, Tabarsi P, Marjani M, Saffaei A, Hashemian SM. A fourteen-day experience with coronavirus disease 2019 (COVID-19) induced acute respiratory distress syndrome (ARDS): An Iranian treatment protocol. *Iran J Pharm Res* 2020;19:31-6.

2. Ing AJ, Cocks C, Green JP. COVID-19: in the footsteps of Ernest Shackleton. *Thorax*. 2020;75:613.
3. Holland M. Since January 2020 Elsevier has Created a COVID-19 Resource Centre with Free Information in English and Mandarin on the Novel Coronavirus COVID-19. The COVID-19 Resource Centre is Hosted on Elsevier Connect, the Company's Public News and Information, no; January, 2020.
4. Schultz P, Morvan JB, Fakhry N, Morinière S, Vergez S, Lacroix C, *et al.* French consensus regarding precautions during tracheostomy and post-tracheostomy care in the context of COVID-19 pandemic. *Eur Ann Otorhinolaryngol Head Neck Dis* 2020;137:167-9.
5. Daggan R, Zefeiridis A, Steinberg D, Larijani G, Gratz I, Goldberg ME. High-quality filtration allows reuse of anesthesia breathing circuits resulting in cost savings and reduced medical waste. *J Clin Anesth* 1999;11:536-9.

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