




Ana Maria Bezerra de Araújo¹ 
José Márcio Carvalho da Silva^{2,3} 
Leandro Pernambuco^{1,4} 

Specific care for total laryngectomized patients during the COVID-19 pandemic in the Brazilian reality

Cuidados específicos com laringectomizados totais durante a pandemia de COVID-19 na realidade brasileira

Since the first quarter of 2020, the world has been facing the coronavirus disease-2019 (COVID-19) pandemic - a disease caused by the novel coronavirus SARS-CoV-2⁽¹⁾. Several measures have been adopted to prevent and control the spread of this disease to the general population; however, some population groups, such as total laryngectomized patients, are more susceptible to the risk of contagion and require specific care⁽²⁾.

This population is mostly composed of immunosuppressed elderly people with multiple comorbidities. In these individuals, total tracheostomy allows the passage of unfiltered and humidified airflow directly into the lower airways, increasing the incidence of bronchopulmonary infections⁽³⁾ and naturally exposing them to the contagious nature of SARS-CoV-2 through respiratory droplets and aerosols⁽²⁾.

The use of a Heat and Moisture Exchanger (HME) is one of the options to minimize the vulnerability of total laryngectomized patients to COVID-19. HME is a heat and moisture exchange device composed of a foam sponge impregnated with calcium chloride⁽⁴⁾ that is placed over the tracheal stoma with an airtight seal⁽⁵⁾. These filters add resistance to the airflow by filtering, heating and humidifying the air, thus reducing the need to use external humidifiers and vaporizers and optimizing lung performance^(6,7). In addition, the use of an HME minimizes the risk of viral transmission through aerosolization of tracheal secretions, because it reduces episodes of cough, sputum production, and sputum expectoration^(2,5,8).

There are different types of HMEs available, with specific bacterial and/or viral filters⁽⁸⁾ that have pores <0.6 µm and can retain some pathogens (bacteria and viruses), playing the role of a biological barrier against pulmonary infections⁽⁹⁾, and are thus very important in the COVID-19 pandemic context considering that SARS-CoV-2 particles have an estimated size of 0.12 µm⁽¹⁰⁾.

Although the effectiveness of HMEs in preventing COVID-19 has not yet been specifically tested, it is assumed that, because they are made with electrostatic filtering material with higher viral filtration percentage, they are the most suitable devices for use during the pandemic^(2,8,11). It is also worth noting that the fixation of an HME requires accessories such as disposable hypoallergenic adhesives⁽²⁾ or specific silicone tracheostomy cannula⁽¹²⁾. This device has a high cost to most total laryngectomized patients in the Brazilian context of socioeconomic inequality. The absence of a national

Correspondence address:

Leandro Pernambuco
Departamento de Fonoaudiologia,
Universidade Federal da Paraíba –
UFPB
Cidade Universitária, João Pessoa
(PB), Brasil, CEP: 58051-900.
E-mail: leandroape@globo.com

Received: May 28, 2020.

Accepted: June 10, 2020.

Study conducted at Departamento de Fonoaudiologia, Universidade Federal da Paraíba – UFPB - João Pessoa (PB), Brasil.

¹ Apta Comunicação - Recife (PE), Brasil.

² Faculdade da Escada – FAESC - Escada (PE), Brasil.

³ Universidade Federal de Pernambuco – UFPE - Recife (PE), Brasil

⁴ Universidade Federal da Paraíba – UFPB - João Pessoa (PB), Brasil.

Financial support: nothing to declare.

Conflict of interests: nothing to declare.



This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

health care policy for total laryngectomized patients also hinders their access to pulmonary protection supplies in this pandemic context.

Some legal institutes have provided support this population, such as the Health Care Department of the Brazilian Ministry of Health, through its Ordinance SAS/MS no. 400 of 16 November 2019⁽¹¹⁾, which establishes national guidelines for the health care of ostomized people; Law no. 13,146 of 6 November 2015⁽¹³⁾, which establishes the Statute on Persons with Disabilities; and, more recently, Resolution no. 202/CIB/2019⁽¹⁴⁾ of the Health Department of the state of Santa Catarina, published on 26 September 2019, that with the support of the Brazilian Association of Mouth and Throat Cancer (ACBG - Brazil) instituted the Guidelines for Health Care of Laryngectomized and/or Tracheostomized People and standardized provision of the necessary supplies for pulmonary and phonatory rehabilitation in that state, including HMEs. This is a pioneering initiative with a legal basis whose example should be followed by other states of the federation. However, due to the difficulties in obtaining supplies through administrative means, some users have turned to the courts to guarantee them. For instance, in 2019, a user in Rio de Janeiro filed a lawsuit against the government and had his request granted after a favorable court sentence⁽¹⁵⁾.

The COVID-19 pandemic has evidenced the need for specific care for total laryngectomized patients, as well as the deficiency of public power in providing the necessary support to these individuals. The best recommendation currently available for this population with respect to ensuring protection against aerosols and inhalation of SARS-CoV-2 in a community environment has three approaches: 1) cover nose and mouth with surgical or fabric mask; 2) cover stoma with high collar clothing or scarf; 3) use HME with specific bacterial and/or viral filters⁽⁸⁾. In the impossibility of access to an HME, total laryngectomized patients should be largely guided to follow the other procedures. At the same time, this moment should also be used to observe the needs and vulnerabilities of this population group.

REFERENCES

1. WHO: World Health Organization. Coronavirus disease (COVID-19) outbreak situation [Internet]. Geneva: WHO; 2019 [citado em 2020 Abr 20]. Disponível em: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
2. Parrinello G, Missale F, Sampieri C, Carobbio ALC, Peretti G. Safe management of laryngectomized patients during the COVID-19 pandemic. *Oral Oncol.* 2020;107:104742. <http://dx.doi.org/10.1016/j.oraloncology.2020.104742>.
3. Mérol JC, Charpiot A, Langagne T, Hémar P, Ackerstaff AH, Hilgers FJ. Randomized controlled trial on postoperative pulmonary humidification after total laryngectomy: external humidifier versus heat and moisture exchanger. *Laryngoscope.* 2012;122(2):275-81. <http://dx.doi.org/10.1002/lary.21841>. PMID:22105893.
4. Hilgers FJ, Aaronson NK, Ackerstaff AH, Schouwenburg PF, van Zandwijk N. The influence of a heat and moisture exchanger (HME) on the respiratory symptoms after total laryngectomy. *Clin Otolaryngol*

Allied Sci. 1991;16(2):152-6. <http://dx.doi.org/10.1111/j.1365-2273.1991.tb01966.x>. PMID:2070531.

5. Araujo AMB, Santos ECB, Pernambuco LA. Breathing and voice self-assessments after the use of a heat and moisture exchange in total laryngectomized patients. *Audiol Commun Res.* 2017;22:e1820.
6. Scheenstra RJ, Muller SH, Vincent A, Ackerstaff AH, Jacobi I, Hilgers FJ. Short-term endotracheal climate changes and clinical effects of a heat and moisture exchanger with an integrated electrostatic virus and bacterial filter developed for laryngectomized individuals. *Acta Otolaryngol.* 2010;130(6):739-46. <http://dx.doi.org/10.3109/00016480903382790>. PMID:20001445.
7. Brook I, Bogaardt H, van As-Brooks C. Long-term use of heat and moisture exchangers among laryngectomees: medical, social, and psychological patterns. *Ann Otol Rhinol Laryngol.* 2013;122(6):358-63. <http://dx.doi.org/10.1177/000348941312200602>. PMID:23837386.
8. Hennessy M, Bann DV, Patel VA, Saadi R, Krempl GA, Deschler DG, et al. Commentary on the management of total laryngectomy patients during the COVID-19 pandemic. *Head Neck.* 2020;42(6):1137-43. <http://dx.doi.org/10.1002/hed.26183>. PMID:32298016.
9. van den Boer C, van Harten MC, Hilgers FJ, van den Brekel MW, Retèl VP. Incidence of severe tracheobronchitis and pneumonia in laryngectomized patients: a retrospective clinical study and a European-wide survey among head and neck surgeons. *Eur Arch Otorhinolaryngol.* 2014;271(12):3297-303. <http://dx.doi.org/10.1007/s00405-014-2927-4>. PMID:24554391.
10. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J, et al. A novel coronavirus from patients with pneumonia in China, 2019. *N Engl J Med.* 2020;382(8):727-33. <http://dx.doi.org/10.1056/NEJMoa2001017>. PMID:31978945.
11. Brasil. Ministério da Saúde. Portaria nº 400, de 16 de novembro de 2009. Estabelece Diretrizes Nacionais para a Atenção à Saúde das Pessoas Ostomizadas no âmbito do Sistema Único de Saúde – SUS [Internet]. Diário Oficial da União; 18 nov 2009 [citado em 26 Maio 2020]. Disponível em: https://bvsmis.saude.gov.br/bvs/saudelegis/sas/2009/prt0400_16_11_2009.html
12. Kligerman MP, Vukkadala N, Tsang RKY, Sunwoo JB, Holsinger FC, Chan JYK, et al. Managing head and neck cancer patients with tracheostomy or laryngectomy during the COVID-19 pandemic. *Head Neck.* 2020;42(6):1209-13. <http://dx.doi.org/10.1002/hed.26171>. PMID:32298035.
13. Brasil. Secretaria-Geral. Subchefia para Assuntos Jurídicos. Lei nº 13.146, de 6 de novembro de 2015. Institui a Lei Brasileira de Inclusão da Pessoa com Deficiência (Estatuto da Pessoa com Deficiência). [Internet]. Diário Oficial da União; 7 jul 2015 [citado em 26 Maio 2020]. Disponível em: http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2015/lei/113146.htm
14. Santa Catarina. Governo. Secretaria de Estado da Saúde. Comissão Intergestores Bipartite. Deliberação 202/CIB/2019, de 26 de setembro de 2019. Aprova as Diretrizes Para Atenção à Saúde das Pessoas Laringectomizadas e/ou Traqueostomizadas do Estado de Santa Catarina; Aprova os formulários padronizados pelo Serviço Estadual; Estabelece os fluxos e competências de cada ponto da Rede para o referido Serviço [Internet]. Diário Oficial do Estado de Santa Catarina [citado em 26 Maio 2020]. Disponível em: <http://www.saude.sc.gov.br/index.php/documentos/legislacao-principal/deliberacoes-cib/deliberacoes-2019-cib/16046-deliberacao-202-cib-26-09-2019/file>
15. Brasil. Tribunal Regional Federal da 2ª Região. Andamento do Processo n. 5073010-56.2019.4.02.5101/RJ - Procedimento Comum - 18/11/2019 do TRF-2 [Internet]. Jusbrasil; 2019 [citado em 26 Maio 2020]. Disponível em: <https://www.jusbrasil.com.br/diarios/271707637/trf-2-jud-jfrj-18-11-2019-pg-93?ref=topic-lawsuit>

Author contributions

AMBA and LP: study design, selection of references, writing and final revision of the manuscript; JMCS: selection of references, writing and final revision of the manuscript.