Letter to the Editor

https://doi.org/10.1590/2317-6431-2020-2384

Audiology Communication Research
ISSN 2317-6431

COVID-19 and dysphagia: practical guide to safe hospital care - number 1

COVID-19 e disfagia: guia prático para atendimento hospitalar seguro - número 1

Brenda Carla Lima Araújo[1], *Danielle Ramos Domenis*[1], *Thiago Henrique de Pontes Ferreira*[2], *Christiane Lopes de Albuquerque Merelles*[3], *Thales Rafael Correia de Melo Lima*[4]

ABSTRACT

The COVID-19 pandemic is associated with a new strain of coronavirus, SARS-Cov-2, which causes severe acute respiratory syndrome. This virus affects the upper respiratory tract and is transmitted mainly by droplets, sneezes and aerosols, so there is a high risk of transmission during the procedures of the speech therapist who works in the hospital environment. This article aims to describe the steps that can be taken by the speech therapist who attends bedside patients with dysphagia, to reduce the risk of cross-contamination in clinical practice during the COVID-19 pandemic.

Keywords: Coronavirus; dysphagia; Covid-19; speech therapy; coronavirus infection

RESUMO

A pandemia da COVID-19 é associada com o novo tipo do coronavírus, o SARS-Cov-2, que causa síndrome respiratória aguda grave. Esse vírus afeta o trato respiratório superior e é transmitido principalmente por gotículas, espirros e aerossóis, por isso há um alto risco de transmissão durante os procedimentos do fonoaudiólogo que atua no ambiente hospitalar. Este artigo tem o objetivo descrever os passos que podem ser tomados pelo fonoaudiólogo que atende pacientes à beira do leito com disfagia, com objetivo de diminuir o risco de contaminação cruzada na prática clínica durante a pandemia do SARS-CoV-2.

Palavras-chave: Coronavírus; transtorno de deglutição; Covid-19; fonoaudiologia; infecção por coronavírus

Study carried out at Departamento de Fonoaudiologia, Universidade Federal de Sergipe – UFS – São Cristóvão (SE), Brasil.
[1]Departamento de Fonoaudiologia, Universidade Federal de Sergipe – UFS – São Cristóvão/Lagarto (SE), Brasil.
[2]Instituto Universitário Italiano de Rosário – IUNIR – Rosário (SF), Argentina.
[3]Serviço de Fonoaudiologia, Universidade do Estado do Rio de Janeiro - UERJ - Rio de Janeiro (RJ), Brasil.
[4]Programa de Pós-graduação Profissional em Gestão e Inovação Tecnológica em Saúde, Universidade Federal de Sergipe – UFS – Aracaju (SE), Brasil.
Conflict of interests: No.
Authors' contributions: BCLA participated in the idealization of the study, collection, analysis and interpretation of data and writing of the article; DRD, THPS e CLAM participated in the final writing of the article; TRCM participated the idealization of the study, analysis, data interpretation and writing of the article.
Funding: None.
Corresponding author: Brenda Carla Lima Araújo. E-mail address: brendaaraujo@yahoo.com.br
Received: July 13, 2020; **Accepted:** September 24, 2020.

This is an open-access article distributed under the terms of the Creative Commons Attribution License.

Coronavirus is one of the main pathogens that target the human respiratory system. There are reports in the literature regarding human transmission of the coronavirus in health care settings and home environments[1]. There is also evidence that the virus spreads mainly through sneezing, saliva droplets and aerosols [2,3]. The common symptom of COVID-19 in critically ill patients is acute respiratory distress syndrome and most inpatients require respiratory support[4]. A recent study[5] on swallowing performance and safety at COVID-19 found during the first swallowing assessment, 19.8% of patients at levels on the ASHA 1-3 scale (when the individual is unable to swallow safely via oral and an alternative diet is necessary) and 53.5% of patients swallowed safely, but with diet restrictions and use of compensatory maneuvers. On the other hand, the study also suggests fewer rehabilitation sessions to return to safe oral feeding compared to critically ill patients in the ICU (without COVID-19), in addition to remaining intubated for longer.

The pace of the emerging COVID-19 literature and daily updates of national health policies and recommendations result in rapid change on topics of relevance to COVID-19. In this context, considering the evidence about a high risk of SARS-CoV-2 transmission during the procedures of the speech therapist inserted in the hospital environment, this article aimed to provide the current scientific evidence of the safe management of the speech therapist at the bedside during the current pandemic of COVID-19.

Personal protective equipment - PPE

- Speech therapists should prioritize the use of personal protective equipment, such as the N95 or PFF2 respirator (always perform a seal check when donning the mask), private hospital clothing, procedure gloves, protective glasses, face shild, cap and disposable aprons. Wash your hands with soap and water, according to standard precautionary measures, or rub your hands with 70% ethanol or 70% isopropanol[6]), before and after contact with patients and surrounding environmental surfaces, as well as after removing PPE. One study demonstrates that SARS-CoV can be inactivated easily with many commonly used disinfectants [7]. In addition, there is also evidence that rubbing hands with ethanol or isopropanol, both 70%, are generally effective against enveloped viruses, including SARS-CoV and MERS-CoV [8].

Speech therapy and COVID-19

- Speech therapy in patients with a negative viral load should be conducted with appropriate PPE. In the case of patients with suspected or confirmed COVID-19, care is not recommended, due to the risk of aerosol generation[9]. However, there are still controversies in the literature. We suggest that during the disease, care should be indicated only in cases of absolute necessity due to a significant deficit in swallowing, whose postponement of therapy imposes a greater risk of health problems and must prioritize measures that generate the least possible aerosols after agreement by the team and with use all appropriate personal protective equipment. It is necessary to define appropriate criteria to activate the speech therapy service and guide the best practices for hospital speech therapy assistance[10,11]. Priority should be given to minimum handling measures (adaptation procedures, compensations, guidelines and monitoring of swallowing) and the relevance of the speech-language assessment to the patient's condition should be analyzed. Patients with a history of risk of bronchoaspiration are eligible for speech-language assessment, such as: frail elderly, neurological disease, head and neck cancer, chronic lung disease, orotracheal intubation greater than 48 hours, and tracheostomy [12,13].

Clinical examination for patients with dysphagia

- Oral inspection and handling of the mouth, tongue and oral mucosa should be avoided; in case of need to ensure adequate protection of the entire face and other care, it is recommended to avoid any type of stimulus that may trigger coughing and vomiting reflexes, including areas of the oral cavity, such as the base of the tongue, fauces, uvula, palate and wall pharynx[14]. A study showed a high viral load in the saliva of infected patients 25 days after the first symptoms[14]. These forms of transmission are important for hospital speech therapy practice, since many procedures performed by speech therapists require proximity to the patients' faces, in addition to contact with oral mucosa and body fluids, such as saliva and respiratory droplets[15].
- It is suggested to perform the swallowing assessment with multiple consistencies and disposable tools to define the safest and most adequate route of nutrition, considering the previous history, the current disease and the oropharyngeal performance, with provision and monitoring by the nursing team if applicable, to reduce multiple visits. In cases of extubation, the evaluation can be performed after 48 hours[10]. It is recommended to discard and not reuse the leftover food (with or without thickeners) used in the evaluation. One study suggests that SARS-CoV can be transmitted indirectly through contact of the mucosa, with a source of polluted water and food[16].
- Avoid cervical auscultation and if necessary use only the stethoscope available on the patient's bed. The stethoscope generates the possibility of spreading the virus and contamination of hospital devices, this can cause the contagion of health professionals and hospitalized patients[17]. It is important to consider the cleaning and disinfection of equipment surfaces that were used in patient care, using hospital-grade germicides. So far, what is known about the survival of SARS-CoV-2 is that it is more stable on plastic and stainless steel surfaces[18].

Tracheostomy care and COVID-19

- In cases of tracheostomized patients and related procedures, such as endotracheal aspiration and deflation of the cuff, it is recommended to avoid this type of conduct due to the production of cough and "droplet sprays" of respiratory tract fluid, as they are potentially aerosol generators[19]. In a systematic review study, tracheostomy was considered as one of the procedures that generates the most aerosols[20]. Cannulas without fenestra and with cuff are recommended, which should remain inflated until the COVID-19 test is negative[21]. However, an individual assessment must be made for each patient. The deflation of the cuff and associated procedures must occur only in a closed suction circuit, and in cases of absolute necessity, they must be performed after the quarantine period and isolation of the disease. Tube changes and cleaning should be avoided unless deemed urgent. The use of speaking valves should be weighed and discussed with the interprofessional team[22]. Risk and benefits should be prioritized, taking into consideration benefits to airway management, phonation, and swallow physiology. Studies reinforce that during a sneeze or cough, these respiratory tract fluids with a viral load, usually larger than 5 mm in diameter, can be inhaled through microscopic aerosol particles[23]. Another study suggests that SARS-CoV-2 can be transmitted through the air through aerosols formed during medical procedures[24]. However, the route of transmission of the aerosol and the routes of transmission through feces and the mouth still need to be clarified[24] There is still no evidence to support speech therapy in infected tracheostomy patients, in addition to the real impacts of these mechanisms on the transmission of SARS-CoV-2.

Complementary swallowing assessment and other strategies

- Complementary exams to assess swallowing and voice should be avoided[25]. The evidence suggests that flexible pharyngolaryngological endoscopic evaluation and probably also swallowing video fluoroscopy are particularly at high risk of contamination for patients, speech therapists and otolaryngologists, in addition to the team involved in the procedure or equipment reprocessing[26].
- In the current scenario, we must consider the remote care as an alternative means of providing services, in a complementary way or in substitution to face-to-face treatments. One study[27] emphasize that the approach to assess dysphagia must be adapted to reduce the risk of possible viral exposure. Clinical history and virtual assessment of patients via call center, in addition to the use of validated questionnaires, can help in screening and selecting patients who need in-person assessment and diagnosis. On the other hand, there is still a gap in the evidence on the effectiveness of telerehabilitation in dysphagic patients when compared to face-to-face therapy[28]. A flowchart depicting the practical guide to safe hospital care in COVID-19 is provided in Figure 1.

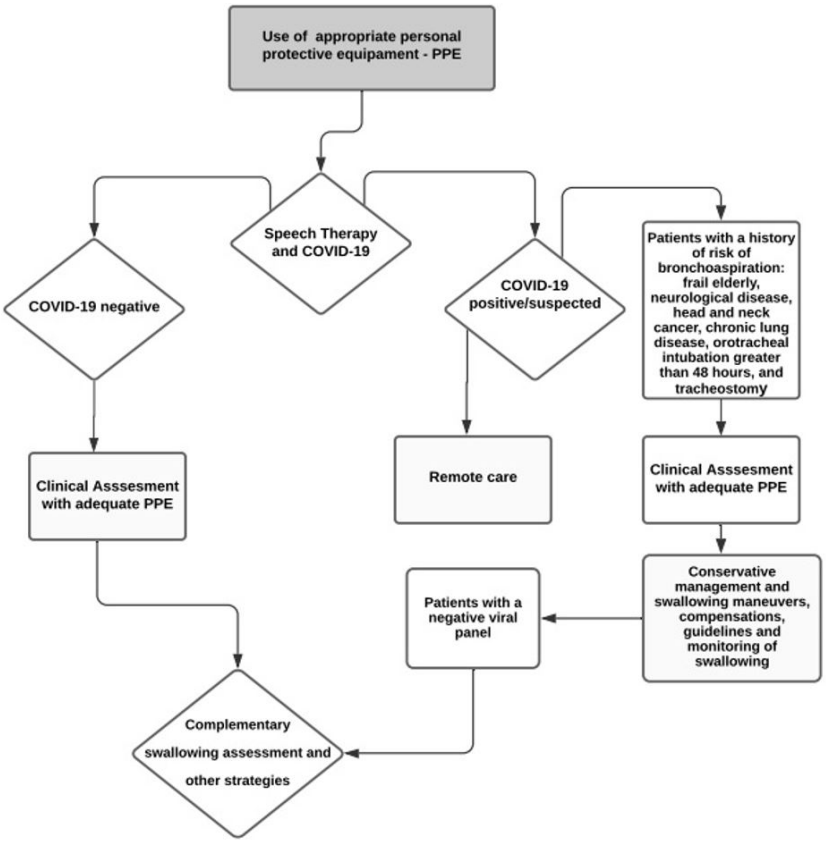

Figure 1. Flowchart of practical guide to safe hospital care in COVID-19

Finally, standard precautionary measures should be maintained for all patients without symptoms. We recommend the use of biosafety protocols and specific protection measures must be strictly followed during speech therapy sessions in the hospital environment. In addition, we suggest practical guidelines, such as screening and assessment of dysphagic patients, through validated and appropriate protocols for hospital speech therapy in patients with COVID-19.

REFERENCES

1. Chan JFW, Yuan S, Kok KH, To KKW, Chu H, Yang J, et al. A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: A study of a family cluster. Lancet. 2020;395(10223):514-23. http://dx.doi.org/10.1016/S0140-6736(20)30154-9. PMid:31986261.
2. Lu CW, Liu XF, Jia ZF. 2019-nCoV transmission through the ocular surface must not be ignored. Lancet. 2020;395(10224):e39. http://dx.doi.org/10.1016/S0140-6736(20)30313-5. PMid:32035510.
3. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. Int J Oral Sci. 2020;12(1):1-6. http://dx.doi.org/10.1038/s41368-020-0075-9. PMid:32127517.
4. Mohan R, Mohapatra B. Shedding light on Dysphagia associated with COVID-19: The what and why. OTO Open. 2020;4(2):1-2.
5. Lima MS, Sassi FC, Medeiros GC, Ritto AP, Andrade CRF. Preliminary results of a clinical study to evaluate the performance and safety of swallowing in critical patients with COVID-19. Clinics. 2020;75(8):e2021. http://dx.doi.org/10.6061/clinics/2020/e2021. PMid:32555948.
6. Centers for Disease Control and Prevention. CDC Statement for Healthcare Personnel on Hand Hygiene during the Response to the International Emergence of COVID-19 [Internet]. Atlanta: CDC; 2020 [cited 2020 Apr 24]. Available from: https://www.cdc.gov/coronavirus/2019-ncov/hcp/hand-hygiene.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Finfection-control%2Fhcp-hand-sanitizer.html
7. Rabenau HF, Kampf G, Cinatl J, Doerr HW. Efficacy of various disinfectants against SARS coronavirus. J Hosp Infect. 2005;61(2):107-11. http://dx.doi.org/10.1016/j.jhin.2004.12.023. PMid:15923059.
8. Kampf G. Efficacy of ethanol against viruses in hand disinfection. J Hosp Infect. 2018;98(4):331-8. http://dx.doi.org/10.1016/j.jhin.2017.08.025. PMid:28882643.
9. Kimura Y, Ueha R, Furukawa T, Oshima F, Fujitani J, Nakajima J. Society of swallowing and dysphagia of Japan: Position statement on dysphagia management during the COVID-19 outbreak. Auris Nasus Larynx. 2020;47(5):715-726. http://dx.doi.org/10.1016/j.anl.2020.07.009.
10. AMIB: Associação de Medicina Intensiva Brasileira. Parecer do Departamento de Fonoaudiologia da AMIB referente ao atendimento ao COVID19 na terapia intensiva e no ambiente hospitalar. Vila Olímpia: AMIB; 2020 [cited 2020 Apr 24]. Available from: https://www.amib.org.br/fileadmin/user_upload/amib/2020/marco/22/14_Parecer__FonoaudiologiaCOVID-19.pdf
11. ASHA: American Speech-Language-Hearing Association. SLP Service Delivery Considerations in Health Care During Coronavirus/COVID-19. Rockville, MD: ASHA; 2020 [cited 2020 Apr 24]. Available from: https://www.asha.org/SLP/healthcare/SLP-Service-Delivery-Considerationsin-Health-Care-During-Coronavirus/
12. Igarashi K, Kikutani T, Tamura F. Survey of suspected dysphagia prevalence in home-dwelling older people using the 10-Item Eating Assessment Tool (EAT-10). PLoS ONE. 2019;14(1):1-13. https://doi.org/10.1371/journal.pone.0211040.
13. Zuercher P, Moret CS, Dziewas R, Schefold JC. Dysphagia in the intensive care unit: Epidemiology, mechanisms, and clinical management. Crit Care. 2019;23(103):1-11. http://dx.doi.org/10.1186/s13054-019-2400-2. PMid:30922363.
14. To KKW, Tsang OTY, Leung WS, Tam AR, Wu TC, Lung DC, et al. Temporal profiles of viral load in posterior oropharyngeal saliva samples and serum antibody responses during infection by SARS-CoV-2: an observational cohort study. Lancet Infect Dis. 2020;20(5):565-74. http://dx.doi.org/10.1016/S1473-3099(20)30196-1. PMid:32213337.
15. Speech Pathology Association of Australia. Speech Pathology Australia guidance for service delivery, clinical procedures and infection control during COVID-19 pandemic. Melbourne, Australia: SPA; 2020.
16. Ceylan Z, Meral R, Cetinkaya T. Relevance of SARS-CoV-2 in food safety and food hygiene: potential preventive measures, suggestions and nanotechnological approaches. VirusDis. 2020;31(2):154-60. http://dx.doi.org/10.1007/s13337-020-00611-0. PMid:32656309.
17. Buonsenso D, Pata D, Chiaretti A. COVID-19 outbreak: less stethoscope, more ultrasound. Lancet Respir Med. 2020;2600(20):30120. http://dx.doi.org/10.1016/S2213-2600(20)30120-X. PMid:32203708.
18. van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, et al. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1. N Engl J Med. 2020;382(16):1564-7. http://dx.doi.org/10.1056/NEJMc2004973. PMid:32182409.
19. Zaga CJ, Pandian V, Brodsky MB, Wallace S, Cameron TS, Chao C, et al. Speech-language pathology guidance for tracheostomy during the COVID-19 Pandemic: An international multidisciplinary perspective. Am J Speech Lang Pathol. 2020;29(3):1-15. http://dx.doi.org/10.1044/2020_AJSLP-20-00089. PMid:32525695.
20. Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol generating procedures and risk of transmission of acute respiratory infections to healthcare workers: A systematic review. PLoS One. 2012;7(4):e35797. http://dx.doi.org/10.1371/journal.pone.0035797. PMid:22563403.
21. Piccin O, Albertini R, Caliceti U, Cavicchi O, Cioccoloni E, Demattè M, et al. Early experience in tracheostomy and tracheostomy tube management in Covid-19 patients. American Journal of Otolaryngology. 2020;41(4):102535. https://doi.org/10.1016/j.amjoto.2020.102535
22. Namasivayam-Macdonald AM, Riquelme LF. Speech-language pathology management for adults with COVID-19 in the acute hospital setting: Initial recommendations to guide clinical practice. Am J Speech Lang Pathol. 2020;17:1-16. http://dx.doi.org/10.1044/2020_AJSLP-20-00096. PMid:32692584.
23. Ghinai I, McPherson TD, Hunter JC, Kirking HL, Christiansen D, Joshi K, et al. First known person-to-person transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in the USA. Lancet. 2020;395(10230):1137-44. http://dx.doi.org/10.1016/S0140-6736(20)30607-3. PMid:32178768.
24. Wax RS, Christian MD. Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV) patients. Can J Anesth. 2020;67(5):568-76. http://dx.doi.org/10.1007/s12630-020-01591-x. PMid:32052373.
25. Rameau A, Young VVN, Amin MR, Sulica L. Flexible Laryngoscopy and COVID-19. Otolaryngol. Head Neck Surg. 2020; 162(6):813-815.
26. Mattei A, Amy de la Bretèque B, Crestani S, Crevier-Buchman L, Galant C, Hans S, et al. Guidelines of clinical practice for the management of swallowing disorders and recent dysphonia in the context of the

COVID-19 pandemic. Eur. Ann. Otorhinolaryngol. Head Neck Dis. 2020;137(3):173-175.

27. Soldatova L, Williams C, Postma GN, Falk GW, Mirza N. Virtual dysphagia evaluation: practical guidelines for dysphagia management in the context of the COVID-19 pandemic. Otolaryngol Head Neck Surg. 2020;163(3):1-4. http://dx.doi.org/10.1177/0194599820931791 PMid:32450732.

28. Nordio S, Innocenti T, Agostini M, Meneghello F, Battel I. The efficacy of telerehabilitation in dysphagic patients: a systematic review. Acta Otorhinolaryngol Ital. 2018;38(2):79-85. PMid:29967554.