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LETTER

Nebulized Therapy in the COVID-19 Era: The Right Tool for the Right Patient [Letter]

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Dear editor

I read with great interest the relatively recent editorial by Dr Richard Russell entitled "COVID-19 and COPD: A Personal Reflection".[1] I especially focused on the line "Anxiety can drive malbehavior." Indeed, we healthcare personnel treating patients with respiratory diseases may not be completely absolved of anxiety-driven malbehavior in this COVID-19 world, as we try to come to grips with an indefatigable virus and wrap our heads around ways to slow it down and stop it. The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic has brought into sharp focus how healthcare personnel must approach the treatment of patients with respiratory disease. While we wait for the clinical or quantitative evidence necessary to establish true best practices, there is a concern that healthcare personnel, patients, and healthcare systems are prioritizing one form of therapy over another based on assumptions or partial information rather than evidence. This is certainly an issue that requires further consideration.

Consider the large-scale dispensing of albuterol metered-dose inhalers (MDIs) to hospitalized patients with COVID-19, which has resulted in severe shortages of albuterol MDIs in some parts of the United States.[2] This is not a supply chain problem but rather an acute crisis caused by the sharp increase in MDI use driven by the concern that nebulizers used by hospitalized patients with COVID-19 could potentially spread the SARS-CoV-2 virus.[3] This concern could potentially extend to home use of nebulizers. But is this an appropriate use of now-limited resources, such as MDIs, or is this a reflexive reaction to a perceived risk with aerosol-generating procedures? Does the answer depend on the setting of care? Unfortunately, there is no precedent to guide the treatment of patients with respiratory disease in the current situation because experience from previous episodes of mass infection do not appear to be scalable to the worldwide SARS-CoV-2 pandemic.

At a time when public health information is in a state of rapid flux, rather than using a one-size-fits-all policy, the more sensible approach would be to use a right-tool-for-the-right-patient strategy based on what we know. Thus, nebulizers should remain the preferred option for patients who require that treatment, especially in light of the severe shortage of MDIs. This approach does not conflict with recent COVID-19 guidance and can serve as an example for encouraging best practices even after the pandemic.

The National Institute for Health and Care Excellence (NICE) and the UK Government guidance from the New and Emerging Respiratory Virus Threats

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Advisory Group (NERVTAG) recommend the continued use of nebulizers because the aerosols produced by them are generated from fluid within the nebulizer chamber that does not carry patient-derived viral particles. If a particle in the aerosol coalesces with contaminated mucous membrane, it ceases to be airborne and therefore will not be aerosolized.[4] The Global Initiative for Chronic Obstructive Lung Disease advises that patients with chronic obstructive pulmonary disease maintain their regular therapy and recommends nebulizers for those who need them and MDIs for patients who are suitable for them.[5]

At present, only a few studies have investigated the risk of aerosol-generating treatments spreading any type of coronavirus. A 2012 assessment of three cohort studies investigating the transmission of coronavirus to healthcare personnel during the 2002–2003 SARS-CoV outbreaks found no significantly elevated risk of SARS-CoV transmission to healthcare workers caring for patients undergoing nebulizer treatment.[6] A recent article by Dr Arzu Ari indicates that, while unnecessary aerosol therapy should continue to be avoided, the risk of viral transmission can be minimized with basic precautions.[7] Although limited, these studies suggest that there is no compelling reason to alter aerosol modality for patients with established nebulizer-based regimens.

Guidance for the treatment of patients with respiratory disease during the SARS-CoV-2 pandemic is rapidly evolving as new details of viral transmission are being elucidated. At present, data on whether nebulized treatment represent an infection transmission risk are limited. Moving forward, it will be important to follow evidence-based treatment procedures using the right-tool-for-the-right-patient approach and to not overreact based on assumptions, which could lead to future shortages of medical resources as well as possible suboptimal outcomes related to medication delivery and patient-related factors.

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References

1. Russell R. Covid-19 and COPD: a personal reflection. *Int J Chron Obstruct Pulmon Dis*. 2020;15:883–884. doi:10.2147/COPD.S255101
2. ACAAI. A message to asthma sufferers about a shortage of albuterol metered dose inhalers. 2020. Available from: https://acaai.org/news/message-asthma-sufferers-about-shortage-albuterol-metered-dose-inhalers. Accessed July 9, 2020.
3. CMAJ. RE: transmission of coronavirus by nebulizer - a serious, underappreciated risk! 2020. Available from: https://www.cmaj.ca/content/re-transmission-corona-virus-nebulizer-serious-underappreciated-risk. Accessed July 9, 2020.
4. NICE Guideline. COVID-19 rapid guideline: community-based care of patients with chronic obstructive pulmonary disease (COPD). Available from: https://www.nice.org.uk/guidance/ng168/resources/covid19-rapid-guideline-communitybased-care-of-patients-with-chronic-obstructive-pulmonary-disease-copd-pdf-66141907467973. Accessed July 9, 2020.
5. GOLD COVID-19 Guidance. Available from: https://goldcopd.org/gold-covid-19-guidance/. Accessed July 9, 2020.
6. 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. doi:10.1371/journal.pone.0035797
7. Ari A. Practical strategies for a safe and effective delivery of aerosolized medications to patients with COVID-19. *Respir Med*. 2020;167:105987. doi:10.1016/j.rmed.2020.105987