A Practical Guide for Anesthesia Providers in the Endoscopy Suite During the Coronavirus Disease 2019 Pandemic: Unmitigated Coughing and Aerosol Generation During Open-Face Endoscopies

Gonzalez, René Miguel MD

Author Information

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To the Editor

A recent article by Dr Abola et al[1] included a brief but important mention of endoscopies, stating "bronchoscopy and endoscopy of the gastrointestinal (GI) tract are both considered high-risk aerosol-generating procedures" (AGPs). Upper endoscopies deserve much attention for several reasons.

Upper gastrointestinal (GI) endoscopies are among the most commonly performed procedures in modern medicine. About 7.1 million were performed in the United States in 2012.[2] This did not include transesophageal echocardiograms (TEEs) nor bronchoscopies. Coughing and gagging are very common during and after upper endoscopy. Most endoscopies are performed under intravenous sedation and thus require supplemental oxygen. But because the plastic dome of traditional oxygen masks prevents the insertion of the endoscope, nasal cannula is the most common oxygen delivery system used, providing open access to the patient's upper aerodigestive tract. However, this also results in an "open-face" technique, whereby patients cough, unimpeded, in close proximity to the staff and equipment in the endoscopy room and recovery room. This unmitigated coughing in the endoscopy suite is so commonplace that it has been tolerated for decades. The coronavirus disease 2019 (COVID-19) pandemic, however, has greatly heightened concern over aerosol-generating procedures (AGPs).

Current strategies for protecting staff from COVID-19 include pre-procedure testing to attempt to identify infectious patients, personal protective equipment, room ventilation systems, room cleaning, and, more recently, vaccines. However, it should be emphasized that none of these strategies is 100% effective. Because of these deficiencies in our current protective measures, legitimate calls have been made for a "universal precautions" approach to COVID-19.[3] Thus, additional, universally applicable strategies to reduce aerosol-borne pathogen load and transmission of COVID-19 and all other respiratory pathogens should be sought.

Hypoxia is another common occurrence during upper GI endoscopy with nasal cannula.[4,5] In 2018, as a patient safety initiative, the author's department investigated the available options to reduce the risk of hypoxia during upper endoscopy. After evaluation of alternative oxygen delivery systems, the group adopted an Food and Drug Administration (FDA)-approved endoscopy oxygen facemask (Procedural Oxygen Mask, POM Medical), which resembles a traditional oxygen mask and connects with standard oxygen tubing to standard oxygen flowmeters, but which has self-sealing oral and nasal endoscopy insertion ports, and a capnography sampling port. However, during the initial use of the endoscopic oxygen mask for hypoxia prevention, another benefit of the mask was noticed: the mask also functioned as a physical barrier against patients coughing unobstructed toward the staff and equipment.[6] It was later realized with the onset of the COVID-19 pandemic that endoscopy oxygen facemasks provide an important barrier method of "source containment," much as surgical masks worn by hospital patients can help reduce aerosolized viral load in the environment. After the onset of the pandemic, the endoscopy mask became the routine oxygen-delivery system used by the author and colleagues at the author's institution.

The mask remains on the patient until they have stopped coughing in the recovery room. The endoscopy and recovery staff have expressed appreciation that patients are no longer coughing unimpeded directly toward them. Colleagues at other institutions have expressed similar sentiments.

Serious consideration should be given to the use of endoscopy oxygen masks with self-sealing endoscopy ports, rather than "open-face" techniques such as nasal cannula, as the routine oxygen delivery system for all upper endoscopies. Unmitigated coughing into our work environment during upper GI endoscopies, TEEs, and bronchoscopies should be identified as a serious occupational and patient safety issue, and should no longer be tolerated. As leaders in the safety movement and as frontline providers who do not have the luxury of social distancing, anesthesiologists should seek simple, practical strategies that can be used universally and that are complementary to other currently used protective measures. We must learn from the pandemic and adopt new and better strategies, work habits, and standards than we had pre-pandemic. Our colleagues, our trainees, our patients, and their families deserve no less.

René Miguel Gonzalez, MD
Department of Anesthesiology
Southern Ocean Medical Center (Retired)
Stafford Township, New Jersey
rgonzo12380@gmail.com