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Received 28 July 2020; accepted 9 December 2020

https://doi.org/10.1016/j.bjane.2020.12.021

Transesophageal echocardiography probe cover: implementation of a cross-contamination containment strategy during the COVID-19 pandemic

Dear Editor,

In early 2020, in response to the COVID-19 pandemic, the American Society of Echocardiography released its Statement on Protection of Patients and Echocardiography Service Providers During the 2019 Novel Coronavirus Outbreak.[1] Shortly after, additional information was made available in the Perioperative/Periprocedural Transesophageal Echocardiography (TEE) Statement and the Sonographer Statement. These three statements contained multiple recommendations regarding patient selection and stratification, handwashing, droplet, and airborne precautions, limiting examination time and exposure of unnecessary equipment, and following recommended disinfection protocols.

Based on the statements and recommendations from other national medical organization guidelines including those from the American Society of Anesthesiologists and the Anesthesia Patient Safety Foundation, cardiologists at our institution adopted a screening process to more carefully select patients who truly require and will benefit from TEE evaluation. Cases deemed neither urgent nor emergent were postponed. Depending on personal protective equipment availability and preservation strategies, many hospitals implemented a heightened level of precaution in the care of all patients during the COVID-19 pandemic. At our institution, this included N-95 respirators (or powered air-purifying respirators) and gowns for the cardiologist, assisting circulating nurse, and anesthesia team for all patients requiring TEE – asymptomatic, under investigation, or COVID-19 positive. Additionally, technical precautions (e.g., avoiding deep sedation, rapid sequence induction for general anesthesia, avoidance of mask ventilation during induction, use of videolaryngoscopy for intubation, placement of barrier drapes during intubation, and the use of a TEE probe cover, etc.) were adopted. The American Society of Echocardiography later released a statement describing a similar tiered process to the selection of patients for TEE and the reintroduction of echocardiography services at each institution. This statement reaffirms the idea that the TEE examination is an aerosolizing procedure with airborne precautions recommended for COVID-19 positive or high-risk patients.[2] In the perioperative environment, the TEE probe is intermittently and frequently manipulated over a period of several hours during the surgical procedure, resulting in the possible contamination of multiple operating room surfaces. Several studies have demonstrated that anesthesiologists may be responsible for the possible spread of pathogens from the patient to the operating room environment, which may result in cross-contamination between providers and patients.[3,4]

The technique utilized for covering each TEE probe at our institution is described below.

After inserting a clean TEE probe tip into the open end of a standard ultrasound probe cover and placing a rubber band above the wheel to secure the cover to the probe, we cut the opposite (closed) end of the probe cover with sterile scissors. We verify the cut portion of the probe cover is neat and

Figure 1 Modified ultrasound probe cover used as a transesophageal echocardiography probe cover.

tear-free, and then anchor it with a rubber band onto a bite block (Figure 1). The TEE probe is advanced beyond the bite block into the esophagus. The bite block is then positioned in the patient's mouth. Because the exposed (contaminated) portion of the TEE probe remains within the probe cover, direct contact with secretions and potential for inadvertent spread to the operating room environment is minimized. As elective TEE cases have resumed, we have continued to use an ultrasound probe cover (Figure 1) as a protective barrier on each TEE probe and for many examinations.

Although this method was developed independently at our institution, a similar method was proposed by Dr. Jain, an anesthesiologist from the Medical College of Georgia.[5] We believe that this is a viable technique to both perform a high quality echocardiographic exam and to prevent exposure of the provider performing the TEE to oral secretions from the patient.

Conflicts of interest

The authors declare no conflicts of interest.

References

1. Kirkpatrick JN, Mitchell C, Taub C, et al. ASE statement on protection of patients and echocardiography service providers during the 2019 novel coronavirus outbreak: endorsed by the American College of Cardiology. J Am Soc Echocardiogr. 2020;33:648–53.
2. Hung J, Abraham TP, Cohen MS, et al. ASE statement on the reintroduction of echocardiographic services during the COVID-19 pandemic. J Am Soc Echocardiogr. 2020;33:1034–9.
3. Loftus RW, Koff MD, Burchman CC, et al. Transmission of pathogenic bacterial organisms in the anesthesia work area. Anesthesiology. 2008;109:399–407.
4. Birnbach DJ, Rosen LF, Fitzpatrick M, et al. The use of a novel technology to study dynamics of pathogen transmission in the operating room. Anesth Analg. 2015;120:844–7.
5. Jain A. Preventing contamination during transesophageal echocardiography in the face of the COVID-19 pandemic. J Cardiothorac Vasc Anesth. 2020;34:2849–51.

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Received 4 September 2020; accepted 12 December 2020

https://doi.org/10.1016/j.bjane.2020.12.023

COVID-19 pandemic mental health risks among anesthesiologists: it is not only burnout

Dear Editor,

During COVID-19 pandemic the anesthesiologists and critical care forces have been fighting against a hitherto completely unknown enemy. This ''call to arms'' to fight COVID-19 has affected the anesthesia workforce in different psychological aspects depending on the level of involvement in the COVID-19 emergency. Anesthesiologists who are in the most affected areas are facing an unprecedented emergency, even that they have been always highly motivated to help. However, this has a price.

Physical fatigue due to the heavy workload is considerable and could affect the person's own health and the care provided to the patients. The lack of staff and unfavorable conditions in which anesthesiologists are forced to work, and the quarantine could be threatening to the mental health.

In addition, the risk of burnout is concrete and tangible. In fact, even if the challenge is high, and stimulating from an intellectual point of view, the risk factors for burnout are all there.[1] Emotional exhaustion, depersonalization, and reduced personal accomplishment are situations experienced during the pandemic that increased the risk to develop burnout.

First of all, the emotional exhaustion is due to the massive influx of patients into the wards, the high number of deaths, and the enormous difficulty of caring for infected patients.[2] Secondly, the depersonalization, due to the inevitable repetitiveness of standardized protocols, the use of individual protection devices that make people anonymous, and the reduction of moments of workplace debriefing. Finally, the reduced personal accomplishment is due to the forced transfer of the department, the provision, albeit temporary, of expertise acquired, to the reduction of the possibilities of practicing hobbies, and interests by the quarantine.

Burnout, however, is not the only mental risk for anesthesiologists, especially in the long term. There are grounds for this unique experience to result in post-traumatic stress disorder (PTSD), which can also occur six months after the end of the pandemic. The possible onset of PTSD is related to the tangible feeling of being in constant danger of life, amplified by the emphasis of the mass media on the pandemic. Indeed, the stressful elements in the workplace cannot find an external relief valve given the quarantine life and the constant talk about the topic of the moment, there is a lack of possibilities for distraction. In addition, some anesthesiologists are working many kilometers away from their family, concerned of the possibility of never seeing their