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Preoxygenation in the Covid-19 era: Worth a second look?



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Preoxygenation is a vitally important aspect of successful airway instrumentation. Comprehensive reviews such as that published by Bouroche and Bourgain, emphasize the physiologic foundation behind the role preoxygenation maintains in providing maximal apneic time without significant desaturations during airway instrumentation [1]. We want to note that since this review was published, the approach to airway instrumentation has changed dramatically following the pandemic spread of SARS-CoV2 across the globe. Cook et al [2], argued in their consensus guidelines that altered airway algorithms for the Covid-19 patient must deviate from commonly considered standards to limit the elevated risk that preoxygenation, intubation (and other AGMP's) poses to health care workers. Among the many deviations presented, we would like to focus on a particular change in approach – avoiding manual face mask ventilation prior to intubation [2]. It is generally considered standard to manually face mask ventilate following conscious preoxygenation but prior to intubation mainly to ensure the ability to do so, allow enough time for a muscle relaxant to take effect and to increase oxygen partial pressure in the alveoli allowing for increased safe apnea time. This change in airway management therefore significantly elevates the importance of conscious preoxygenation in the management of the Covid-19 airway. There are different conventions to preoxygenation techniques used, but regardless of the choice failed preoxygenation rates (defined as $FeO_2 < 90\%$ following 3 minutes of tidal volume breathing) are as high as 56% in clinical practice [1]. We know contributing risk factors are related to poor face mask seal in the preoxygenation process, which is why alternatives to the traditional facemask have been explored [1]. For example, oral preoxygenation has been shown to achieve endpoint targets more efficiently than traditional approaches, but the reluctance to adopt this method as a more commonly used approach is centered on the elimination of the traditional mask removing the possibility of manual ventilation if needed [3]. As scientists continue to study closely emerging variants of Covid-19, the consensus is this virus is likely to become endemic [4]. In this case, alternative approaches to airway management, such as those suggested by Cook et al. [2] will likely become normalized as the common approach. Considering this, we are concerned that a conventional movement away from manual face mask ventilation in the Covid-19 patient coupled along with high

rates of failed conscious preoxygenation may lead to increased occurrences of airway related morbidity. This change in practice demonstrates how the sudden and severe onset of Covid-19 across the globe pushed changes to practice with expert guided opinion that has remained largely unstudied. We fear that unless substantial improvements are made in the area of conscious preoxygenation, the safety profile of anesthesiology may see a negative shift. In the past three decades the safety profile of anesthesiology, most specifically in the area of airway management, has improved considerably [5]. Perhaps through continued study and innovation in the area of conscious preoxygenation we hope this trend continues.

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Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Mathew Peter Silvaggio*

Department of Anesthesiology, Trillium Health Partners, 100
Queensway West, Mississauga, Ontario, L5B 1B8, Canada

Mahmoud Labib
Critical Care and Pain Medicine, Beth Israel Deaconess Medical Center,
330 Brookline Avenue, Boston, MA, 02215, United States
E-mail address: mlabib@bidmc.harvard.edu.

Melanie Toman
Department of Anesthesiology, Lakeridge Health, 1 Hospital Court,
Oshawa, L1G 2B9, Canada
E-mail address: mtoman@lh.ca.

* Corresponding author. Department of Anesthesiology, Trillium
Health Partners, 100 Queensway West, Mississauga, Ontario, L5B
1B8, Canada.
E-mail address: mathew.silvaggio@thp.ca (M.P. Silvaggio).

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