
Preoxygenation in super morbid obese in emergency laparotomy: A new frontier?

Dear Editor,

We appreciate the case report by Hajnour *et al.*^[1] on effectiveness of high-flow nasal oxygen (HFNO) as a preoxygenation technique in a super-morbid-obese patient with COVID pneumonia. We would appreciate their opinion on certain aspects of the case report.

Firstly, HFNO combined with noninvasive ventilation (NIV) may be more effective than NIV alone in terms of reducing the severity of oxygen desaturation, in hypoxemic intensive care unit (ICU) patients.^[2] As the arterial partial pressure of

oxygen (PaO_2)/fraction of inspired oxygen (FiO_2) ratio in their patient was around 120 (73/0.6), we wonder whether the authors had considered the combination therapy for better preoxygenation.

Secondly, the end-tidal oxygen (EtO_2), a measure of oxygen reserve in functional residual capacity (FRC) with values above 90% reflecting effective denitrogenation, appears as a new tool to discriminate between preoxygenation devices and can be an early surrogate marker of desaturation.^[3] Apart from EtO_2 , the oxygen reserve index (ORI), a novel pulse oximeter-based

nondimensional index, is also useful in detecting impending desaturation before noticeable changes in SpO_2 .^[4] We are curious to know whether the authors had assessed parameters like EtO_2 or ORI, as morbid obesity leads to decreased functional residual capacity (FRC) reducing oxygen reserve during apnea period and effective preoxygenation with HFNC requires the patient to keep mouth closed during the procedure which is practically difficult.

Thirdly, the intubation difficulty scale (IDS) score is a blend of subjective and objective criteria to evaluate the difficulty of the intubation, with a score of more than 5 signifying moderate to major difficult intubation.^[5] Apart from ensuring best preoxygenation technique, time to intubation, especially in a known case of anticipated difficult airway, is also of paramount importance. It would be interesting to know whether the authors had considered recording IDS score for this patient.

Lastly, the application of HFNO interrupts the earlier detection of a rise in carbon dioxide and of airway obstruction compared to when bag-mask ventilation is used. Arterial to end-tidal partial pressure of carbon dioxide (Pa-EtCO_2), an useful indicator of lung collapse and reopening, has been found to correlate closely with atelectatic lung area on computed tomography.^[6] Although the preoperative PaCO_2 was reported to be 42 mm of Hg, it would be still worthwhile to know about $\text{PaCO}_2/\text{EtCO}_2$ ratio during airway management or in the post-procedure phase.

The authors have aptly used HFNO as a novel preoxygenation method during difficult airway management, where the patient received alternating HFNO and NIV therapy preoperatively. Clarifications on the above-mentioned points would be welcomed. Further well-designed studies are warranted to explore the role of HFNO in perioperative period.

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Conflicts of interest

There are no conflicts of interest.

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