

Oxygen Therapy

Oxygen Therapy in Intensive Care Medicine,
J. Grensemann, S. Sakka

Oxygen: Too Much is Bad, *B. Pastene, M. Leone*

Oxygen Therapy in COVID-19 Patients: The Role of HFNC and CPAP, *S. Ferrari, A. Isirdi, E. Taddei et al.*

Apnoeic Oxygenation for Intubation - Where is the Evidence? *A. De Jong, C. Monet, S. Jaber*

Major Adverse Peri-intubation Events in Critically Ill Patients - Update on the INTUBE Study,
V. Russotto, S. Myatra, J. Laffey et al.

New Applications of Pulse Oximetry, *F. Michard*

Practical Strategies in Mechanical Ventilation for Patients With Acute Respiratory Failure Due to COVID-19, *O. Pérez-Nieto, E. Zamarron-Lopez, J. Meade-Aguilar et al.*

Airway Management in Critically Ill Patients - Striving to Improve Outcomes, *K. Karamchandani, A. Khanna, S. Myatra*

Hyperoxia - A Journey to the Centre of the Cell,
J. Poole

Diaphragm Ultrasonography in ICU: Why, How, and When to Use It? *Y. Aarab, A. De Jong, S. Jaber*



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Supplemental oxygen is an essential component of intensive care and is a commonly used therapy worldwide. The primary goal of oxygen therapy is to prevent hypoxaemia. Since oxygen is usually widely available (except in special circumstances such as during the COVID-19 pandemic) and is relatively inexpensive, it is frequently used in patients with declining oxygen saturation.

However, while oxygen therapy may be critical for some patients, it is important to ensure it is not used unnecessarily or administered longer than required. Most of the time, it is better to adopt a less is more strategy because there is now sufficient evidence to show that excessive oxygen therapy may, in fact, be harmful to some patients. Management of hypoxaemia can be a challenge, but while interventions for mitigating hypoxaemia may be necessary, the possibility of harm from excess oxygen administration cannot be overlooked. In critical care, the appropriate dose of oxygen, duration of oxygen therapy and specific use and application in different patient populations remain vague. Therefore, it is important to establish realistic and rational oxygen therapeutic goals for individual patients and ensure a balance between oxygenation targets so that they are neither too conservative nor too liberal.

In this issue, our contributors discuss **Oxygen Therapy** in the ICU. Jörn Grensemann and Samir Sakka provide an overview of current recommendations for oxygen administration in different patient populations and discuss optimal oxygen target values, while Bruno Pastene and Marc Leone discuss the benefits and harms of supplemental oxygen administration in the intensive care unit.

Samuele Ferrari, Alessandro Isirdi, Erika Taddei and co-authors talk about oxygen therapy and mechanical ventilation in patients with COVID-19 and discuss steps to choose the right therapeutic strategy. Audrey De Jong, Clément Monet and Samir Jaber discuss apnoeic oxygenation and how it can be used in critically ill patients without replacing preoxygenation.

Vincenzo Russotto, Sheila Myatra and co-authors provide an update on the findings of the INTUBE study, a large international prospective observational study on peri-intubation adverse events in critically ill patients. Frederic Michard discusses the clinical applications of pulse oximetry and how it can help improve the quality of care in patients with respiratory and circulatory disorders, particularly those with COVID-19.

Orlando R. Pérez-Nieto, Eder I. Zamarron-Lopez, José Antonio Meade-Aguilar and co-authors talk about the challenges of respiratory therapy in patients with COVID-19 and highlight the importance of evidence-guided protective mechanical ventilation to reduce mortality while Kunal Karamchandani, Ashish Khanna and co-authors discuss tracheal intubation in critically ill patients and the steps that can reduce the antecedent morbidity and mortality.

Joanna Poole provides an overview of hyperoxia, the effect of reactive oxygen species on biological processes and tissues and effective strategies for oxygen therapy. Yassir Aarab and co-authors discuss diaphragm ultrasound and how it can be used for easier assessment of diaphragmatic function and a better understanding of pathophysiological processes afflicting the diaphragm.

As always, if you would like to get in touch, please email JLVincent@icu-management.org.

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