



New insights into acute and chronic respiratory failure: highlights from the Respiratory Failure and Mechanical Ventilation Conference 2022

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Cite this article as: Heunks L, Duiverman ML. New insights into acute and chronic respiratory failure: highlights from the Respiratory Failure and Mechanical Ventilation Conference 2022. *Eur Respir Rev* 2023; 32: 230027 [DOI: 10.1183/16000617.0027-2023].

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Received: 5 Feb 2023
Accepted: 7 Feb 2023

The European Respiratory Society (ERS) is home to clinicians, scientists and students interested in respiratory medicine. In June 2022, the Society organised the second edition of the “Respiratory Failure and Mechanical Ventilation Conference”. This event focuses on clinical and scientific aspects of acute and chronic respiratory failure. Faculty and participants from 50 countries around the globe met in Berlin, although this time most of the sessions could also be accessed online. Participants with very diverse backgrounds, including medicine, nursing, physiotherapy and industry, discussed all aspects of respiratory failure including physiology, interventions for respiratory support, advanced diagnostic techniques, quality of life, and end of life care. Our common ground was passion for respiratory failure. The quality of the sessions during this 3-day conference was outstanding, and many of the presentations are still available for conference participants through the ERS website. However, the conference organisers felt that many of the topics discussed deserved an even broader audience. We are happy that the editors of the *European Respiratory Review* have invited selected speakers to write a review based on the topic of their presentation during the “Respiratory Failure and Mechanical Ventilation Conference”. The response has been fantastic, and the manuscripts provide an excellent overview of the topics covered during the conference and highlight developments in the field of respiratory medicine. All the papers in this series are worth reading in detail, and we wish to highlight a few of them in this editorial.

Advanced physiological respiratory monitoring is an attractive approach to individualise mechanical ventilation. Traditionally, clinicians rely on airway pressures measured by the ventilator during the respiratory cycle. In the absence of air flow (inspiratory or expiratory hold manoeuvre) the pressure in the ventilator equals alveolar pressure (in the absence of airway collapse). However, from a physiological perspective, it is not the alveolar pressure that predicts alveolar injury. Distension of the alveolus, leading to alveolar injury, is better reflected by the difference in alveolar and pleural pressure. The oesophageal pressure provides an estimation of pleural pressure and as reviewed by JONKMAN *et al.* [1] in a forthcoming article in this series, may help to deliver lung and diaphragm protective mechanical ventilation [2]. Although we are waiting for clinical studies to provide evidence that oesophageal pressure monitoring improves clinical outcome, a strong physiological rationale exists for this relatively simple and cheap monitoring technique.

Initiation of weaning is an important milestone for patients on invasive mechanical ventilation. Delayed weaning is associated with adverse clinical outcome [3]. The pathophysiology of difficult weaning is complex, and many reasons have been identified for difficult ventilator weaning [4]. In the current series, BUREAU *et al.* [5] discuss the pathophysiology of critical illness-associated respiratory muscle weakness and interventions that may help to improve respiratory muscle strength and ultimately weaning outcome. Both



prevention of respiratory muscle weakness (diaphragm protective mechanical ventilation) and interventions that aim to improve strength are discussed in detail and are important for clinicians caring for weaning failure patients.

In patients with chronic respiratory failure, improvement of quality of life should be an important goal when starting home mechanical ventilation (HMV). This topic is discussed extensively in a forthcoming article by D’Cruz *et al.* [6] entitled “Quality of life in patients with chronic respiratory failure on home mechanical ventilation”. Multiple factors, like the underlying cause of respiratory failure, disease severity at presentation, trajectory of respiratory failure progression, clinical response to HMV, the impact of the treatment on the patient’s autonomy and caregiver wellbeing, patient’s preferences, values and beliefs, and social/environmental circumstances influence health perception in patients on HMV. The authors summarise well-known health-related quality of life questionnaires developed for patients with respiratory failure [7], although they do recognise that more quantitative interviews might be needed to capture all these elements. The challenge is to acknowledge all these factors and discuss them when decisions about medical interventions need to be taken.

In the review entitled “The role of telemonitoring in patients on home mechanical ventilation” [8], we aimed to discuss this upcoming way of working by reviewing studies on this topic and by placing the literature in the context of daily practice and future perspectives. Initiation of chronic noninvasive ventilation at home is a cost-effective alternative to standard in-hospital initiation, and is, above all, preferred by patients who are severely disabled by their disease [9, 10]. Telemonitoring is already used in the follow-up of patients on HMV but the methods of monitoring are diverse, and controlled studies comparing this way of working with standard care are limited. A challenge for the coming years will be to provide evidence-based guidance on how to effectively incorporate rapidly evolving e-health technology in the daily practice of HMV set-up and follow-up [11].

We are confident that this series of papers will be of interest to clinicians and scientists interested in respiratory failure and mechanical ventilation. If so, we hope to welcome you at the 2024 edition of the ERS Respiratory Failure and Mechanical ventilation Conference! #RFMV2024.

Provenance: Commissioned article, peer reviewed.

Conflict of interest: L. Heunks has received grants or contracts from ZonMW (Dutch government), for clinical research; consulting fees from Liberate Medical; payment or honoraria from American Thoracic Society; and reports leadership or fiduciary role as an Associate editor for the *American Journal of Respiratory and Critical Care Medicine*, and committees for ESICM and FERS, outside the submitted work. M.L. Duiverman has received research grants from RESMED, Philips, Lowenstein, Vivisol, Sencure, and Fisher&Paykel; and speaker fees from Chiesi and Breas, outside the submitted work.

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