
Meet the Experts

[ME1] Meet the Experts 1

Noninvasive ventilation in hypoxemic acute respiratory failure

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[ME1]Noninvasive ventilation in hypoxemic acute respiratory failure

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【同時通訳付き】

MASSIMO ANTONELLI MD, CV

Born in Rome 23 February 1957, Nationality: Italian Sex: Male, Married, one son.

Professor of Intensive Care and Anesthesiology at the “Università Cattolica del Sacro Cuore” Rome Italy since November 1999.

Director of the Dept. of Anesthesiology and Intensive Care and Emergency Medicine and of the General ICU, Postoperative ICU and Neurosurgical ICU of the Fondazione Policlinico Universitario A.Gemelli IRCCS.

Director of the School of Specialty in Anesthesiology and Intensive Care Medicine.

School of Medicine at La Sapienza University from 1976 to 1981. Graduated in Medicine and Surgery with full qualification as a Medical doctor cum laude in 1981.

During 1983-984 visiting scholar at the Rayne Institute of the School of Medicine, University College of London and at the University of Berkeley, California, USA, Membrane Bioenergetics Group, directed by Prof. Lester Packer

Full qualification as specialist in Anesthesiology and Intensive Care Medicine in 1984.

In 1991 working period at the Reanimation Polyvalent, Cochin-Port Royal University Hospital, directed by prof J.F. Dhainaut

Assistant Professor of Anesthesiology and Intensive Care Medicine at the “Policlinico Umberto I-Università La Sapienza” from 1985 to 1999.

Editor in Chief of “Intensive Care Medicine” from 2007 to 2013. Associate Editor of the same Journal from 2000 to 2007.

Awarded with the Society Medal of the ESICM in the 2013.

Past President of the Italian Society of Anesthesiology and Intensive Care Medicine (SIAARTI).

President of the European Society of Intensive Care Medicine (ESICM) 2016-2018

Scientific fields of interest and research: Noninvasive Ventilation, Mechanical Ventilation, ARDS, Shock, sepsis and infections.

Involved as Principal Investigator in many phase II-III clinical and international trials in ICU patients

Author of more than 300 papers with more than 24,384 citations, H index 74. The majority of these scientific publications are on several aspects of Noninvasive Ventilation, ARDS, Shock and sepsis.

Invited lecturer or chairman in more than 300 International Meetings.

Non-invasive positive pressure ventilation (NIV) has been shown to be safe and effective as first line treatment in patients with acute hypercapnic respiratory failure and acute cardiogenic pulmonary oedema. Despite some data suggest NIV may also avoid intubation in heterogeneous categories of patients with hypoxemic acute respiratory failure (HARF), its safety and efficacy in such a context is still debated, given the high failure rate and the possible detrimental effect on the clinical outcome.

As patients' comfort is crucial for NIV success, over the last years a great effort has been made to optimize NIV tolerability. Different interfaces are available for noninvasive ventilation: in spite of face masks being more commonly used, helmet has been shown to improve patients' comfort, allowing patients' interaction, speech, feeding and not limiting cough. Nonetheless, skin necrosis, gastric distension, or eye irritation are seldom observed during helmet NIV, while may be consequences of long-term treatments with face masks. Moreover, differently from face masks, helmets permit longer-term treatments and allow the setting of higher levels of PEEP without causing air leaks or patient-ventilator asynchrony; this aspect may be crucial when treating severely hypoxemic patients with acute respiratory failure and the acute respiratory distress syndrome (ARDS). Interestingly, higher PEEP during fully controlled mechanical ventilation in the early phase of the disease improves mortality in ARDS patients and raising evidence indicates that it may exert beneficial effects also if spontaneous breathing is maintained. In this sense, a recent randomized controlled trial comparing continuous NIV delivered with helmet or face-mask in patients with ARDS showed a lower intubation rate and a lower 90-day mortality in patients in the helmet group who, accordingly, underwent treatments with higher PEEP and lower FiO_2 . In this study, however, pressure support NIV and low-flow-continuous positive airway pressure (CPAP) were indifferently used in patients randomized to helmet group, despite their mechanisms of action, efficacy and potential harmful effects are profoundly different, especially given the high relevance of the driving pressure in such a context.

No study has ever clarified whether first-line treatment with helmet NIV as compared to other interfaces or techniques may yield a significant benefit to critically ill patients with respiratory failure. In order to establish whether the application of NIV in hypoxemic patients through the helmet might be beneficial without arm in comparison to other interfaces further randomized controlled studies are needed