Foreword

Noninvasive Ventilation in Acute Care: Controversies and Emerging Concepts

It is no exaggeration to say that noninvasive ventilation (NIV) has revolutionized the treatment of acute respiratory failure. In the decade since the 1997 RESPIRATORY CARE Journal Conference on this topic there have been hundreds of publications and more than 50 randomized controlled trials on NIV in the acute setting. NIV is now the accepted standard treatment for acute-on-chronic respiratory failure (exacerbation of chronic obstructive pulmonary disease), acute cardiogenic pulmonary edema, and some forms of hypoxemic respiratory failure, to facilitate weaning in selected patients, and to prevent extubation failure in high-risk patients.

However, many centers still have not integrated NIV into daily clinical practice. Although some may be unaware of the extensive literature that indicates NIV's benefit, more often the barriers to clinical application have to do with technical or institutional factors. Relatively little robust information is available on how to establish an NIV program or what are the components of a highly successful NIV program. Many other questions about NIV application remain without definitive answers. For example, what is the most effective interface and what ventilator should be used for optimal application in a given clinical situation? Where should NIV be administered, and how is this affected by the increasing use of NIV in do-not-intubate patients or during palliative care?

The purpose of this Journal Conference was to review the current evidence on NIV and to provide expert opinion on questions that lack evidence from randomized controlled trials. We convened a distinguished group of clinicians, including physicians, respiratory therapists, and investigators.

The conference kicked off with Dave Pierson, RESPIRATORY CARE's Editor in Chief Emeritus, who discussed the current epidemiology of NIV, described its history and use in randomized controlled trials and outside the research setting. John Davies then described what is needed to develop a successful NIV program, including time, money, equipment, personnel (respiratory therapists, nurses, and physicians), and training. Stefano Nava followed with a discussion of the pros and cons of the available NIV interfaces, including the newly developed full-face masks and helmets. Rob Chatburn presented the benefits of and concerns regarding the various types of ventilators, including intensive-care and portable ventilators, that can provide NIV. Nick Hill completed the first session by tackling the controversial issue of where NIV should be initiated and continued, and he laid out what is necessary to apply NIV on the medical/surgical wards, in the emergency department, and in the intensive care unit.

Rich Kallet began the second day's session by providing a comprehensive discussion of the physiologic effects (eg, on work of breathing, respiratory mechanics, and hemodynamics) of NIV, with a particular emphasis on patient-ventilator synchrony. He then discussed the potential benefits of proportional-assist ventilation and neurally adjusted ventilatory assistance during NIV. Sean Keenan followed by reviewing the extensive high-level evidence for NIV in acute respiratory failure, with emphasis on acute-on-chronic respiratory failure in chronic obstructive pulmonary disease, and certain forms of hypoxemic respiratory failure. Sangeeta Mehta then examined the numerous randomized controlled trials of continuous positive airway pressure and bi-level positive airway pressure for acute cardiogenic pulmonary edema. Scott Epstein completed the session by examining the use of NIV to shorten the duration of mechanical ventilation, including to facilitate weaning and to prevent or treat post-extubation respiratory failure.

Josh Benditt led off the next session by exploring some novel NIV applications, including to facilitate bronchoscopy, in the postoperative setting, in patients with obesity hypoventilation, and during pandemics, such as severe acute respiratory syndrome. Bob Kacmarek reviewed the observational studies that have defined the emerging role of NIV in do-not-intubate patients and discussed the related ethical issues. Dean Hess, the Editor in Chief of RESPIRATORY CARE, followed with a discussion of how to initiate an NIV program, including the factors that may explain why not all programs are successful. Peter Gay completed the session with an exploration of the common complications associated with NIV and a review of the important role of NIV in reducing the incidence of nosocomial infection. Rich Kallet then returned to the podium to provide an expert summary of all 13 presentations. In so doing he offered a concise set of recommendations that will provide practical advice to both experienced NIV clinicians and those developing new NIV programs.

We believe the manuscripts from this conference, in this and the next issue of RESPIRATORY CARE, will be ex-tremely useful, regardless of your individual experience with NIV.

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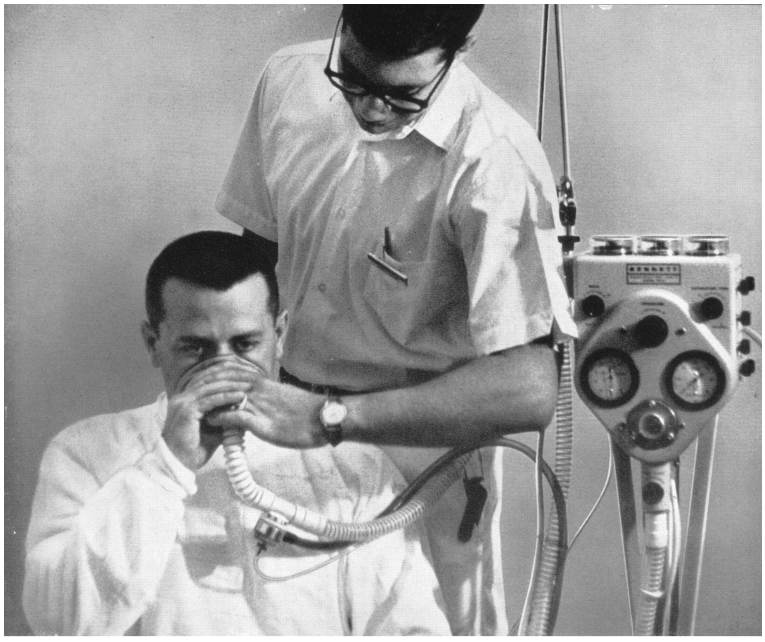

Aerosol therapy, 1964. From an advertisement for pancreatic dornase
(Dornavac, Merck Sharp & Dohme)
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