Eur Respir J 2005; 26: 178–184
DOI: 10.1183/09031936.05.00031805

CORRESPONDENCE

Early noninvasive ventilation failure in COPD with acute on chronic respiratory failure

To the Editors:

Noninvasive ventilation (NIV) has proven to be of great interest in the management of acute respiratory failure (ARF) due to exacerbations of chronic obstructive pulmonary disease (COPD), with an improvement in arterial blood gas tensions and respiratory frequency usually observed 1–6 h after initiation [1, 2]. We describe an unusual and reversible condition of early NIV failure as follows.

The patient was a 72-yr-old male with chronic respiratory failure from COPD, successfully treated with nocturnal bilevel pressure NIV for 20 months. He was hospitalised in our respiratory intensive care unit (CHU de Rouen, Hôpital de Bois-Guillaume, Rouen, France) for ARF (pH=7.26; arterial carbon dioxide tension (P_{a,CO_2}) 11.4 kPa; arterial oxygen tension (P_{a,O_2})/inspiratory oxygen fraction (F_{I,O_2}) 338). The patient presented with bilateral wheezing, encephalopathy and gaseous abdominal distension. Standard medical treatment associated with NIV failed to improve the patient's condition, despite different settings with pressure-preset and flow-preset ventilatory modes, and careful management with facial and nasal masks. Five hours after admission, the patient's condition worsened (pH=7.12; P_{a,CO_2} 19.2 kPa; $P_{a,O_2}/F_{I,O_2}$ 115). Intubation was then performed, subsequently revealing a laryngeal vestibule carcinoma, partially obstructing the glottis aperture. After tumoural laser resection, the patient was successfully weaned, extubated and then discharged home with his previous NIV treatment.

Early NIV failure in COPD with ARF may be ascribed to the patient's clinical status, such as bronchial hypersecretion, deterioration in medical condition, pneumothorax, haemodynamic instability, severe encephalopathy or gastric distension. Technical ventilator-associated factors could also account for early NIV failure, such as inadequate settings and/or ventilatory mode, inadequate inspiratory and/or expiratory triggering, deleterious leaks, excessive dead space and rebreathing. Preliminary data suggest that patient–ventilator asynchronism and NIV failure could also result from underestimated high nasal and/or upper airway resistances, particularly reflex glottic narrowing [3]. In this respect, upper airway tumours may cause progressive airway obstruction, can mimic a COPD exacerbation and lead to difficulties during NIV, except if their presence is clinically suspected by a stridor. Indeed, NIV is contraindicated in this latter situation, and the patients should be intubated. In patients with ARF treated by invasive mechanical ventilation, local tumoural resection by bronchoscopic intervention has been shown to be associated with successful weaning in the majority of cases and to be a cost-saving approach [4].

During chronic obstructive pulmonary disease exacerbation requiring noninvasive ventilation, we suggest that an unexplained early noninvasive ventilation failure should lead to an evaluation of the integrity of the extra- and intrathoracic upper airways before or during the mandatory intubation procedure. Fibreoptic bronchoscopy *via* a facial mask may facilitate an early diagnosis, but still needs to be evaluated for patients with this condition [5].

A. Cuvelier, L.C. Molano and J-F. Muir
Respiratory and Intensive Care Medicine, CHU de Rouen, Hôpital de Bois-Guillaume, Rouen, France.

REFERENCES

1 Brochard L, Mancebo J, Wysocki M, *et al.* Noninvasive ventilation for acute exacerbations of chronic obstructive pulmonary disease. *N Engl J Med* 1995; 333: 817–822.
2 Mehta S, Hill NS. Noninvasive ventilation. *Am J Respir Crit Care Med* 2001; 163: 540–577.
3 Jounieaux V, Aubert G, Dury M, Delguste P, Rodenstein DO. Effects of nasal positive-pressure hyperventilation on the glottis in normal awake subjects. *J Appl Physiol* 1995; 79: 176–185.
4 Colt HG, Harrell JH. Therapeutic rigid bronchoscopy allows level of care changes in patients with acute respiratory failure from central airways obstruction. *Chest* 1997; 112: 202–206.
5 Antonelli M, Conti G, Riccioni L, Meduri GU. Noninvasive positive-pressure ventilation *via* face mask during bronchoscopy with BAL in high-risk hypoxemic patients. *Chest* 1996; 110: 724–728.

Antibody deficiency in bronchiectasis

To the Editors:

We have read with interest the article by VAN KESSEL *et al*. [1] on impaired antibody response to the pneumococcal polysaccharides of *Streptococcus pneumoniae* in patients with bronchiectasis of unknown aetiology. Several aspects of this work are controversial and there is no unanimous agreement on some of their conclusions. The first aspect that merits attention is the lack of a control group to establish the normal total antibody response and the isotypes to the vaccine, and, consequently,