



## Editorial

Pulmonologists, Mechanical Ventilation and Complementary Techniques<sup>☆</sup>

## Neumólogos, ventilación mecánica y técnicas complementarias

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Several studies performed in the last 20 years have investigated the use of non-invasive mechanical ventilation (NIV) and the need for complementary techniques (CTs)—primarily assisted cough—in NIV patients who are unable to cough successfully.<sup>1</sup> In these cases, NIV is bound to fail<sup>1–3</sup> unless appropriate CTs are applied, and all efforts will only prolong the suffering of both patients and family members and frustrate the efforts of the medical team.

In contrast, continuous NIV associated with appropriate CTs may prolong survival in amyotrophic lateral sclerosis (ALS) patients with failing respiratory muscles but minimal bulbar involvement who have refused tracheotomy.<sup>2</sup> Non-invasive procedures are rendered ineffective by the failure of the bulbar muscles rather than the respiratory muscles.<sup>1–4</sup> In the hands of a competent team, patients with some bulbar function, even in the absence of measurable vital capacity or ability to cough, may live for years without the need for tracheostomy, despite occasional episodes of severe respiratory infection.<sup>2,4</sup>

Although there is still a long investigational path ahead, it is already becoming clear which tools are essential and which are futile as complements to both invasive and non-invasive mechanical ventilation. A competent pulmonologist will be able to decide exactly the right moment, neither too soon or too late, to provide a patient with home ventilation or cough assist therapy. Clinical and functional data can be used for the initial evaluation and subsequent follow-up of patients in whom respiratory assistance is foreseeable to ensure they receive the most effective treatment at all times during the course of their disease.<sup>5</sup>

Nowadays, using a combination of care modalities described by A. Oppenheimer as “high technology and compassionate care”, a purely palliative approach is no longer the only focus of treatment for fully informed patients who have requested short- or long-term vital support. On the other hand, pulmonologists must be able to

provide the right palliative care, and be capable of withdrawing mechanical ventilation if this is the choice of the patient.

To achieve this level of excellence, we need to have a thorough working knowledge and command of all the technical resources and procedures associated with mechanical ventilation, including ventilators, masks, tubes, cough assist techniques, functional examination, decision trees, etc. The words of J. Escarrabill<sup>6</sup>: ‘the therapy “package” must also include the organization of care’, are as relevant today as when they were written. We believe that the current clinical practice will only improve if pulmonologists improve the level of knowledge and introduce changes on some organizational fronts. Although mechanical ventilation and associated procedures are already part of specialist training programs,<sup>7</sup> we must improve our skills. How many of us can interpret, at the patient’s bedside, the pressure, flow and volume indicators of a ventilator and use them to make informed decisions with the same ease as a cardiologist interprets an electrocardiogram and decides on possible treatment options? How many of us can talk knowledgeably about the interactions between changes in pressure and flow in a mechanical insufflation/exsufflation device based on changes in resistances or thoracopulmonary compliance? We are in a position to improve the training of new pulmonologists, since we do not rely on external clinical and scientific influences in this area.

However, the greatest difficulty lies in obtaining the resources needed to ensure a high standard of quality care. It is clear that in the current economic climate not all hospitals can have a pulmonologist on call to deal with mechanical ventilation and CT issues. However, during night and weekend shifts, in emergency rooms and pulmonology departments, is it acceptable to leave NIV in the hands of doctors who have not received specialist training in this area? Years ago, the British Thoracic Society laid out clear guidelines on the application of NIV.<sup>8</sup> Why are these not followed as closely as some of their other clinical practice guidelines? Perhaps pulmonologists and intensive care physicians could develop coordinated joint protocols to enable the latter to take on the responsibility for mechanical ventilation when a pulmonologist is not available. Ventilation is one of the essential tools of their trade, and these professionals are capable of not only dealing with the practical procedures but also taking complex ethical decisions following

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previously established protocols. It is obviously complicated to find a solution to the current *impasse*, but it is unacceptable that patients living in one part of town or another, or in one city or another should receive such widely differing quality of care? To remedy this situation, we need to work together to decide where we are going, and who will accompany us in our search for alternatives that will most likely differ in each hospital.

Too many third-level hospitals lack the resources to care properly for patients that need complex mechanical ventilation procedures. Pulmonologists need to spearhead efforts to create units equipped with the material and human resources required to manage these patients (ALS patients could be the role model), and here we include our indispensable nurses and physiotherapists. These units could also take on the task of slowly and safely weaning patients off mechanical ventilation, thus relieving critical care units of this burden.<sup>9,10</sup> On a positive note, in hospitals where a clearly bi-directional functional relationship with critical care units has been established, reciprocity has also improved in other areas of mutual interest.

Finally, no discussion of CT in mechanical ventilation would be complete without mentioning some other critically important areas of care: professional emotional support for patients and caregivers who need it (“care for the carer”), social assistance, appropriate healthcare support during transfer and adaptation to home care, telephone or online contact with the medical team, etc. The SEPAR Year of Domiciliary Respiratory Care is a good time to improve the knowledge and skills of pulmonologists, nurses and physiotherapists (we know that SEPAR is working on this), and to show the health authorities and companies entrusted with supplying materials that we cannot effectively do our job without them.

## Conflict of Interests

The authors state that they have no conflict of interests and no financial relationship with any commercial company that may benefit from the content of this article.

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