

## Letter

**Prophylactic positive end-expiratory pressure: are good intentions enough?**Enrique Fernández-Mondéjar<sup>1</sup>, M<sup>a</sup> Jesus Chavero<sup>2</sup> and Juan Machado<sup>2</sup><sup>1</sup>Cheif of ICU, Servicio de Cuidados Críticos y Urgencias, Hospital de Traumatología (Hospital Universitario Virgen de las Nieves), Granada, Spain<sup>2</sup>Resident, ICU, Servicio de Cuidados Críticos y Urgencias, Hospital de Traumatología (Hospital Universitario Virgen de las Nieves), Granada, SpainCorrespondence: Enrique Fernández-Mondéjar, [efermonde@hvn.sas.junta-andalucia.es](mailto:efermonde@hvn.sas.junta-andalucia.es)

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Few actions taken by intensivists are as effective and inexpensive as application of positive end-expiratory pressure (PEEP). However, the use of this ventilatory modality is highly susceptible to fashions and trends that are rarely supported by scientific evidence. Prophylactic PEEP can be considered an exception, in that there is scientific evidence that it offers no benefit. Nevertheless, we must confess that we use prophylactic PEEP. The issue is worthy of some reflection.

At the end of the 1970s it was thought that PEEP not only improves hypoxaemia but also reduces the incidence of acute respiratory distress syndrome when used prophylactically [1,2]. At that time, we generally used PEEP at 5 cmH<sub>2</sub>O prophylactically in all patients with no contraindications (no hypovolaemia, no bullae on the chest radiogram, no emphysema).

This approach appeared less reasonable after the publication in 1984 of the influential report by Pepe and coworkers [3], which concluded that PEEP confers no protective effect. Several experimental studies published at the same time supported this new outlook [4]. Those reports brought about a change in attitude, leading to a general consensus that prophylactic PEEP was of no utility and should therefore be abandoned. Indeed, since then its use has been virtually proscribed.

Although no new clinical studies have been reported that endorse the use of prophylactic PEEP, overwhelming experimental evidence has emerged that the use of a certain amount of PEEP reduces the intensity of lung injury from different aggressions [5] and that this effect is lessened when application of PEEP is delayed for a few hours [6]. Further backing for the use of prophylactic PEEP is derived from an awareness that many patients without lung injury who are ventilated develop evident basal atelectasis that practically disappears with PEEP application [7]. This atelectasis is of

little importance during anaesthesia of short duration in a patient who will be extubated after a few hours, but in patients ventilated for several days it may not be so innocuous.

The above observations encouraged us to change our position, and in our intensive care unit we routinely use prophylactic PEEP of 5 cmH<sub>2</sub>O (8–10 cmH<sub>2</sub>O in obese patients). In our view, there is a need for new clinical studies to reassess the value of prophylactic PEEP. Meanwhile, we shall continue to use prophylactic PEEP, without solid evidence that it improves the prognosis but with the best of intentions.

**Competing interests**

None declared.

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