Reviewer's report

Title: Boussignac CPAP for the management of acute cardiogenic pulmonary edema: prospective study with a retrospective control group

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Reviewer: Gaetano Iapichino

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General
Comments

Willem Dieperink et al:

Boussignac CPAP for the management of acute cardiogenic pulmonary edema: prospective study with a retrospective control group

The Authors prospectively investigated in the coronary care unit setting the feasibility and outcome of the simple Boussignac CPAP system in a consecutive group of patients with acute cardiogenic pulmonary edema that was compared with a historical control group that received conventional treatment.

108 patients were admitted with acute cardiogenic pulmonary edema. Eighty-four of these patients (78%) were treated at the coronary care unit of which 66 (61%) were treated with BCPAP. During the control period 66 patients were admitted over a 1-year period of whom 31 (47%) needed respiratory support in the intensive care unit.

CPAP treatment was associated with a reduced hospital length of stay and fewer transfers to the intensive care unit for intubation and mechanical ventilation. CPAP strategy compared to conventional treatment saved approximately € 3,800 per patient.

Major comments:

Not a breakthrough but an interesting paper that shows the efficiency of a CPAP system (i.e. Boussignac CPAP) as a first line treatment in acute cardiogenic pulmonary edema and the feasibility in an “out of ICU” environment. (Coronary care unit)

Methods section:

The Authors should clearly state that a facial mask was used.

1-Investigators rely only on the CPAP level obtained by flow delivery or CPAP was measured also by an independent device? This because data on flow/pressure relationship reported at page 4 line 4 to 5 are in contrast with experimental studies (Annales Francaises d’Anesthesie et de Reanimation 22 (2003)103-107) and with similar data supplied by manufacture itself (Vygon): at least 15 L/min air flow are needed to obtain a CPAP level of 3 cm H2O and more than 20 L/min for having 5 cm H2O CPAP.
Results
2-All the patients that improve while on BCPAP maintain stable gas exchange for more than 6 hours or they needed additional CPAP period or more invasive intervention?
3-Although different in some points, as explained by Authors, nevertheless the pharmacological treatment in both group must be specified.
4-More informations on patients characteristics in Table 2: the baseline value of mean arterial blood pressure is relevant: mean ABP could be predictive on the final success of a CPAP treatment during ACPE.
5-There were not so severe coexisting disease such COPD, chronic renal failure or else in the patients that failed BCPAP?

Discussion
6-“A tight fitted face mask” (bottom of page 8) can cause discomfort but it is fundamental for having adequate positive pressure at the patient airway during CPAP especially for a relatively short treatment.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
'I declare that I have no competing interests' below