Reviewer's report

Title: The Effect of Sedation and/or Analgesia as Rescue Treatment during Noninvasive Positive Pressure Ventilation in the Patients with Interface Intolerance after Extubation

Version: 0 Date: 28 Jan 2017

Reviewer: Franco Laghi

Reviewer's report:

In this retrospective investigation, Yue-Nan Ni et studied 80 patients who had received noninvasive positive pressure ventilation (NIPPV) after extubation and who had experienced interface intolerance. Specifically the investigators assessed whether sedation and/or analgesia could reduce the rate of NIPPV failure (i.e., reintubation and reinstitution of mechanical ventilation) among those 41 out of 80 patients with interface intolerance who received sedation and/or analgesia. Secondary outcomes included in-hospital mortality and length of ICU stay after extubation.

Sedation and/or analgesia protected patients from NIPPV failure and death and reduced length of ICU stay after extubation. Accordingly, Yue-Nan Ni et al conclude that "using sedation and/or analgesia in patients with interface intolerance after extubation during NIPPV may offer advantages including in decrease of both the rate of NIPPV failure, hospital mortality and ICU LOS for these patients."

Major comments

The investigators state that "all adult patients received NIPPV after extubation were screened". It would be very informative if the investigators could let their readers know what are the usual criteria to start NIPPV in their ICUs.

Patients were eligible if "they were recorded as interface intolerance in the case history and/or nursing records and received more than 2h of NIPPV after extubation." The problem with this study, as with any retrospective study, is that we cannot know how good the documentation of health-care professionals was. We do not know how many more patients were not tolerant to the interface. We do not know what intolerance meant from one health-care professional to the next. These points need to be discussed in the manuscript.
The most fundamental question I had after reading this paper is why some intensivists would choose to start sedation and/or analgesia and why others would not. Is this a matter of preference by a group of doctors? Is this something that has to do with patients' characteristics not picked up by the phenotype characterization provided by the investigations? Please explain... Can you find out if sedation-analgesia occurred more often in a certain institution or with a certain group of intensivists rather than another one?

The investigators report that "in the unadjusted analysis, sedation and/or analgesia was significant associated with failure of NIPPV (29% vs. 59%, p=0.015)". It is only after correcting for confounders that sedation and/or analgesia comes ahead. I am concerned about this result. The investigators must provide a very strong rationale on why they chose one confounder vs. another confounder. That a confounder was associated with a p<0.10 on univariate analysis is not a sufficient reason to generalize the results of this study to other ICUs.

The use of the medical English can be improved

Specific comments

Abstract ("...whether sedation and/or analgesia can benefit the clinical outcome of the patients with interface intolerance is still unclear"): You must specify which interface you are referring to.

Introduction ("… Patients with short duration of NIPPV were excluded to guard against reverse causality these groups of patients were already discontinued from the NIPPV when sedation and/or analgesia play a role"): I do not understand what you mean. Please, rephrase.

Discussion ("…the rate of delirium can be lowered when using sedation and/or analgesia ..."): The rate of delirium can also be increased when using sedation and/or analgesia.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
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