Reviewer's report

Title: Prevalence and impact of alcohol and other drug use disorders on sedation and mechanical ventilation: a retrospective study

Version: Date: 18 December 2006

Reviewer: Clemens A Greim

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General
This is an interesting statistical evaluation on the interference of alcohol and other drug use disorders on sedation and the time duration of mechanical ventilation. The manuscript is well prepared, the question is well defined and the results allow for the authors’ conclusions. My major concern is the retrospective study design, which bears some typical problems concerning the homogeneity of the study population and the grouping of patients. A minor concern is that I cannot find specific information on the sedation management. Apart from referring to guidelines, it would be interesting to know the medical ICU algorithm that is mentioned on page 6, para 1. What is the rational approach towards the dosage of and choice between lorazepam and morphine, when additional sedation was required?

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached):

The causes of anxiety and restlessness in critically ill patients are numerous: inability to communicate, continuous stimulation with noise, inability to control physical interventions, sleep deprivation, inadequate level of analgesia etc. This implies some questions:
1. Alarms and restless patients in the close vicinity can be very disturbing for the individual patient. Did all patients have a similar surrounding (number of beds, equipment alarms etc.)?
2. Pain is an important trigger for restlessness in patients. Did the study patients have another pain source than those affiliated with the diagnoses given in table 3? Were some of them traumatized? On page 2, para 3 it is mentioned that “patients who presented ... with trauma and intoxication were diagnosed with AOD.”
3. The diagnoses of the patients are not well elucidated. Were the reasons for mechanical ventilation identical with the major diagnosis? For example, “sepsis” can be based on various causes ranging from oncological to surgical diseases. If one “AOD-patient” with sepsis was suffering from peritonitis, he certainly would have a greater demand for analgesia, i.e. morphine, than those four “Non-AOD-patients” with sepsis due to some myeloproliferative processes. The same applies to the diagnosis of “hemorrhagic shock.” Was there underlying various trauma and could there have been different pain levels independently of AOD?

Another important question is whether other sedatives/analgesics than lorazepam/morphine or propofol were administered in the study patients. From page 8, para 3 I understand that benzodiazepines other than lorazepam and barbiturates were used and “converted to lorazepam equivalents” as “opioids were converted to morphine equivalents”. This approach should further be elucidated in the methods section and be mentioned in the discussion section. My questions are:
1. Were any other sedatives administered in addition to benzodiazepines, barbiturates or opioids, e.g. butyrophenones and phenothiazines, which frequently are used in the treatment of AOD patients at least on our ICU?
2. The conversion of opioids to morphine equivalents is based on the analgesic potency, not the sedative component. Which other opioids were used in which group?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

none

Discretionary Revisions (which the author can choose to ignore)
What next?: Accept after minor essential 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.