Reviewer's report

**Title:** Clinical course following diagnostic bronchoalveolar lavage in critically ill mechanically ventilated patients

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**Reviewer:** Bernard MAITRE

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Schnabel reported an observational study of 164 mechanically ventilated patients who underwent fiberoptic bronchoscopy with bronchoalveolar lavage (BAL). It has to be noted that FOB with BAL are performed in case of suspicious of infectious disease. All patients were sedated using fentanyl and propofol or midazolam but no curare was added.

They found that tolerance of BAL is good and noted that patients with BAL without bacteria had more respiratory and hemodynamic instabilities following bronchoscopy.

Although it is a large study, results add few informations concerning the tolerance of BAL in mechanically ventilated patients and we lacked information to interpret the results.

**Major comments:**

1) The choice to separate analysis of patients with positive results or negative results of BAL is unclear for me. Authors suspect that patients with alternative diagnosis of bacterial infection are more likely to worse their clinical condition following FOB but this has not been describe previously.

2) In the results, we lacked specific information concerning clinical characteristics of patients (comorbidities, immunosupressed host, cardiac and respiratory chronic failure…). These criteria are include in the APACHE II score but have to be detailed in the manuscrit. In a similar way, we need to know if baseline PaO2/FiO2 ratio are significantly differents (202 vs 225) as well as FIO2 (data not shown), Hemodynamic (data not shown), vasopressors and concentrations of drugs used for sedation.

3) Concerning BAL technics, 120 ml of saline were injected for BAL but we lacked information about the quality of this sampling (volume of recovery, cytologic information …).

4) Among the periprocedural complications, respiratory and haemodynamic instabilities are more frequent in the group with BAL-. It is not possible to make any conclusion without the precise information regarding sedative drugs. The PaO2/FiO2 ratio is slightly but significantly decreased one hour after BAL in the BAL – group. Decrease of SpO2 during FOB was detected in 12% in BAL-group and 3 % in BAL+group. But, as it has been noted by the authors in the discussion, PEEP levels were more frequently adjusted in the BAL+ group and no standardized protocol for the PEEP level has been detailed in the methods.
section.
5) I am not convinced that SOFA score is relevant to assess the tolerance of fiberoptic bronchoscopy (renal failure is a very unusual complication of FOB).

Minor comments:
1) The introduction is not focused on BAL tolerance but mainly on the role of BAL in ICU, which may not appropriate for the topic of the study.
2) Table 4: although kPa is the international unit of pressure, it is more usual to give the results of PaO2/FiO2 ratio in mmHg.
3) Table 5: to complete the list of studies, it should be added the study of Turner et al, Crit Care Med 1994 Feb;22(2):259-64.

Level of interest: An article of limited interest

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 interest's below