Reviewer’s report

Title: Clinical effects of direct hemoperfusion using a polymyxin B-immobilized fiber column in clinically amyopathic dermatomyositis-associated rapidly progressive interstitial pneumonias

Version: 0 Date: 31 May 2017

Reviewer: Chung-Tat Lun

Reviewer's report:

Strength:

The authors were experienced with 14 dermatomyositis patients treated with hemoperfusion. They manage to identify factors associated with mortality in CADM with RPIP.

Limitation:

1. Small sample/retrospective.

It is difficult to recruit patients with rare condition for a prospective study, but the small sample size of only 14 patients would definitely be prone to bias and type 2 error.

2. There was no predefined protocol for the choice of immunosuppressant and no data about the dosage of pulse steroid therapy, although there is no significant difference between survivor and non-survivor with regards to the choice of immunosuppressant.

3. The primary outcome is to identify the risk factors for mortality in patients with hemoperfusion. The risk factors include presence of anti-MDA5 antibodies, low PF ratio, low platelet, elevated LDH, low SP-D and higher ferritin. Recently, there has been increasing evidence that the presence of anti-MDA5 antibodies is associated with poor outcome and presence of anti-MDA5 antibodies is associated with high ferritin and low SP-D. [satoshi I. Interstitial lung disease in clinically amopathic dermatomyositis with and without anti-MDA-5 antibody: to lump or split. BMC pulm Med 2015; 15: 159] On the other hand, it is not possible to perform multivariate analysis in such small sample size, to assess if ferritin/SP-D level are confounders.

The low PF ratio in non-survivor may suggest they are suffering from more severe disease. I have some interest to know if the severity scores, e.g. APACHE, were similar between survivors and non-survivors.
The platelet counts were lower in the non-survivors, though the median platelet were within normal range. I am curious what is the proportion of the patients diagnosed with thrombocytopenia in each group and the cause e.g. DIC identified in thrombocytopenic patients. You may check if any deranged clotting profile or low fibrinogen.

4. Hemoperfusion were well known to lead to decrease in platelet, white cell, HMGB-1 in septic patients. However the findings may not be translated to a better clinical outcome. In the study, the white cell and platelet counts decreased together with HMFB-1 level but the PF ratio did not improve. On contrary, a case series by the same authors showed improvement in PF ratio and good clinical outcome with hemoperfusion, and I am curious whether if any of the three cases had anti-MDA-5 antibodies. [Ichiyasu H. Favorable outcome with hemoperfusion of polymyxin B-immobilised fiber column for rapidly progressive interstitial pneumonia associated with clinically amyopathic dermatomyositis: report of three cases. Mod Rheumatol 2014; 24 (2): 361-5]

5. The effect of hemoperfusion versus conventional therapy is not well-investigated. The authors were experienced with 14 dermatomyositis patients treated with hemoperfusion. Maybe the authors can compare the survival of patients with and without hemoperfusion.

**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?**
If not, please specify which controls are required in your comments to the authors.

Unable to assess

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

Yes

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics
Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

I declare that I have no competing interests

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal