Reviewer’s report

Title: Successful Eradication of Newly Acquired MRSA in Six of Seven Patients with Cystic Fibrosis Applying a Short-Term Local and Systemic Antibiotic Scheme

Version: 0 Date: 05 Jun 2017

Reviewer: James Chmiel

Reviewer's report:

In this manuscript the authors report the results of a respective study in which they evaluated the impact of an eradication protocol for first isolation of MRSA. This is standard of care at their center, and they used their usual eradication protocol for this study. Because this is standard of care at their Center, there is no control group. This is a major weakness of the study because some individuals might have eradicated MRSA spontaneously, but I am not sure how it can be addressed otherwise. Overall I find this manuscript informative and easy to read. The following suggestions are offered for consideration to improve the manuscript:

1. The authors have not commented on a recent publication of a randomized controlled trial on an eradication protocol for initial MRSA infection. This might be the most important publication in this field: Muhlebach MS, Beckett V, Popowitch E, Miller MB, Baines A, Mayer-Hamblett N, Zemanick ET, Hoover WC, VanDalfsen JM, Campbell P, Goss CH; STAR-too study team. Microbiological efficacy of early MRSA treatment in cystic fibrosis in a randomised controlled trial. Thorax. 2017 Apr;72(4):318-326. PubMed PMID: 27852955. The authors might consider commenting upon this paper and putting the results of their study in context with this study.

2. The eradication protocol is quite intensive. Do the authors have any assessment of adherence to the protocol by the study participants?

3. Some of the culture results are based on throat swabs in participants who could not expectorate sputum. When discussing the limitations of the study, the authors might consider discussing the issues surrounding the use of throat swabs compared to analysis of expectorated sputum with respect to sampling error and how accurate a throat swab is compared to sputum analysis. There have been several publications on this topic.

4. The study participants were admitted to the hospital to participate in the MRSA eradication protocol. This is not really feasible in many countries. The authors should discuss this, and discuss how feasible it would be to undertake such an intense protocol at home.

5. In Table 2, could genotype data be added?
6. The title of Figure 1 is a bit misleading. The figure is not really showing the Change in FEV1 percent predicted. It is actually demonstrating the FEV1% predicted at MRSA isolation and at the end of follow-up. It would be helpful to change the title.

7. It would be interesting to see how long study participants remained free of MRSA. Is it 2 years, 2 months, etc? Do they have any historical data to add to this?

8. Reviewing Figures 1 and 2, it does not appear that MRSA eradication improved FEV1 in any subject but subject #3. Does MRSA eradication impact any clinical outcome, such as Pulmonary exacerbations, symptoms, prescription of new medications, etc? Is eradication of MRSA beneficial on any clinical outcome? If not, why is it important to eradicate MRSA? Given the costs associated with hospital admission, potential side effects of drugs, and burden of treatment associated with this eradication protocol, what is the cost vs. benefit of instituting such a protocol? Because they have been doing this for quite some time at their Center, are they able to do a slope analysis for people who participated in the MRSA eradication protocol versus those who did not in past years? This would strengthen support for why Centers should institute MRSA eradication protocols.

9. In those who were able to expectorate sputum, do they have any quantitative bacteriology data or inflammatory biomarker data? Was MRSA eradication associated with acquisition of new microorganisms?

**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.

No

**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.

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