Reviewer's report

Title: Antibiotic perturbation of mixed-strain Pseudomonas aeruginosa infection in patients with cystic fibrosis

Version: 0 Date: 02 Jul 2017

Reviewer: Andrew M. Jones

Reviewer's report:

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The paper details an impressively comprehensive analysis of P. aeruginosa isolates from 4 patients with CF at the start, during, end, and follow up visit, after IV treatment of an acute exacerbation. The investigators should be congratulated on delivering this study.

The authors state that the patients with mixed strains show consistently more severe/advanced disease. I am unclear how this is defined? They have increased treatment requirements but similar %pred FEV1 - can the authors further clarify this.

The study addresses P. aeruginosa, but do the authors have any data of co-pathogens in any of the samples?

Total viable P. aeruginosa count - the numbers are small - there does seem to be a trend that total count does seem to fall during iv treatment in comparison with end of treatment, although this with the numbers of participants involved will not be significant, - if so this would be intriguing, does this warrant discussion

Methods - the inpatients shared room facilities - does this means they shared bathrooms? did they have individual bedrooms or did they have beds in shared bays?

Methods - Did the patients continue to take their usual long term antibiotics during the inpatient episode?
Methods - What was the mean/median and range of time difference for sampling for the follow up sputa taken after admission?

Results - clinical response to antibiotic treatment - the authors compare a mean change for patients with single strain infection in comparison with a median change for mixed strain infection - these are very different and should not be used to compare the 2 groups

Discussion para 2 -the authors could additionally state that this present data would suggest that IV antibiotic courses do not seem to be the driver for evolution of single strains dominating infection in CF patients.

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.

Yes

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

Yes

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I am able to assess the statistics

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