Reviewer's report

Title: Identification and characterization of the bacterial etiology of clinically problematic acute otitis media after Tympanocentesis or spontaneous otorrhea in German children

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Reviewer: Anne Vergison

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The authors present monocentric (?) data on bacterial aetiology of mainly spontaneously perforated acute otitis media (AOM) and some cases with tympanocentesis in children 3-60 months of age. The study was undertaken during 18 months after PCV7 was largely used all over the country. The data could present some scientific interest, as few data are available in Europe on bacterial aetiology of AOM after PCV7 widespread use. However, the children enrolled in the study are not a representative group of German children with AOM as ¾ of them had spontaneous perforation and the rest underwent tympanocentesis for complications or treatment failure. Moreover the number of enrolled subject is quite limited (100) and total number of children with positive bacterial culture is only 59/100, which represents a low yield for culture. The pathogen distribution is more the one expected in recurrent/failure AOM with 15 positive MEF samples growing P. aeruginosa and S. aureus. The classical acute AOM pathogens were only found in 45/100 cases which makes a very low number for each of the pathogen and certainly does not allow for firm conclusion and age/pathogen subgroup analysis/comparison as performed by the authors.

Major Revisions

1. The Title does not reflect the article content; it is an overstatement of what has been performed.

2. Methods do not describe accurately which population of children were enrolled: it is unclear whether the study was conducted in one centre or several over the country. Likewise the result section does not provide an accurate description of the enrolled children: 24 children underwent tympanocentesis, reasons should be specified: treatment failure? Complication?

3. Back to the methods: culture methods are not described: how long was the interval between sampling and culturing? Which media were used? The authors allude to the fact that microbiological methods were improved during the study. This should be clearly explained in the method section.

4. Results are not clearly presented and percentages should not be used to present so small numbers. Only 45 patients had one of the 4 classical AOM pathogen (Pneumococcus, NTHi, S. pyogenes, M. catarrhalis) isolated distributed in 5 age categories made by the authors. In that respect, Figure is inadequate.
5. Other pathogens are worth mentioning. A full Table with all pathogens recovered would be of interest. Together with a discussion more focused on these results.

6. The authors mention that 3 NTHi isolates were multi-drug resistant. They should define multi-drug resistance in NTHi.

7. S. pyogenes was recovered from 2 children over 8 in the age group 3-11 months. This does not allow for drawing any conclusion due to the small number as the author do in the discussion section.

8. Also in the discussion the author calculate theoretical vaccine coverage for various PCV; on ten S. pneumoniae isolates and in a very specific population, this is irrelevant.

9. Lastly, the conclusions in the last paragraph are certainly not supported by the present study results. Although it might be supported by other data from other publications.

**Level of interest:** An article of insufficient interest to warrant publication in a scientific/medical journal

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I have received speaker fees, advisory board member honoraria and travel fees from Pfizer and GSK both companies producing a conjugate pneumococcal vaccine.