Reviewer's report

Title: Partial Palivizumab Prophylaxis and Increased Risk of Hospitalization Due to Respiratory Syncytial Virus in a Medicaid Population: A Retrospective Cohort Analysis

Version: 2
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Reviewer: Estelle Naumburg

Reviewer's report:

This paper is well written and tables are well labeled. The study addresses RSV hospitalization and the effect of prophylaxis with palivizumab to RSV infections. It is an impressively large study covering RSV-related hospitalizations in a Medicaid population from all over US. The study concludes, which is well known from several previous studies, that the timing and start of the prophylaxis and the number of injections correlates to risk of hospitalization and the severity of the disease.

I have a number of comments and questions, which should be addressed by the authors to improve the paper.

Major Compulsory Revisions

1. The study includes all infants born between May and September during five years and excludes infants born during RSV season. The reason for this, according to the authors, is that dosing of palivizumab during birth hospital stay cannot be identified. However, it is well known that infants born during season have a high risk of hospitalization due to RSV. Further discussion on the effect of the risk estimate by not calculating high-risk infants born during season is of great interest.

2. In the US, as in many other countries, RSV-testing is not used mandatory once the RSV season has started. This study includes not only RSV-related diagnosis but acute bronchitis and pneumonia due to other unspecified infectious organisms as well. This inclusion may have an impact on the outcome as the study intends to measure the effect of prophylactic treatment with palivizumab, which is only effective against RSV-infections. The authors comment correctly that the high prevalence of virus comorbidities among infants may contribute to the higher hospitalization rates. Analyzes of the impact on palvizumab on only cases with RSV-diagnosis and if this altered the result had been helpful.

3. The authors commented on the fact that some high-risk infants did not receive any prophylactic treatment with palivizumab and remained unprotected throughout the RSV season. Were they included in the study? If so, the authors must explain why, as they did not fill the inclusion criteria. According figure 1, only infants with at least one dose of palivizumab were included.
4. Only 1% of all infants born during the study period were considered as high risk infants, which is much lower than expected. There can be a risk of selection bias in the study. This has to be further discussed by the authors.

Minor Essential Revisions

1. All references are placed after the period in a sentence.

2. None of the figures are explained by label. Is recommended to be included in the paper.

Discretionary Revisions

1. Why has the authors included all types of CHD? Several countries are including only the most severe CHD in the recommendations of prophylactic treatment.

2. The authors use healthcare utilization as a proxy for overall health status. This may not be correct as inpatient admissions can have other causes than severe illness. In some countries even low income status, worried parents or long distance to hospital can be reasons for inpatient treatment.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

During the past five years I have been head of a group working on revising Swedish national guidelines on infants with CHD and prophylactic treatment with palivizumab. A national prospective study was the base of this work, and the paper covering that study has recently been submitted to a journal. We are planning to continue the work on RSV and CHD children, and part of this previous and future work has and will be founded by Abbvie.

I have no other financial or non-financial competing interests.