Reviewer’s report

Title: Early antibiotic exposure and development of asthma and allergic rhinitis in childhood

Version: 0 Date: 01 Feb 2019

Reviewer: Kiwako Yamamoto-Hanada

Reviewer’s report:

This study reported the association between antibiotic exposure and allergic diseases such as asthma and eczema.

Introduction

It seems to be strange that the authors evaluate allergic outcomes and obesity in the same study. These outcomes have different background.

Methods

The authors mentioned target population was children, however they did not set the limit of age including in this study.

Oral antibiotics and venous antibiotics are difference exposure levels. The authors should distinguish between these different exposure routs.

Please specify a designated time frame.

Eczema definition is not appropriate. Eczema of ICD-9 included contact dermatitis mainly, but eczema of ICD-10 did not include contact dermatitis. The list of ICD-9 and 10 should include atopic dermatitis. The definition of eczema was not appropriate for evaluating eczema. Usually, eczema means atopic dermatitis. Atopic dermatitis is different from contact dermatitis, and these mechanisms also differ. Eczema definition need to have major revision. Please contact at dermatologist.

I think some children had eczema before antibiotic exposure. All outcomes came after antibiotic exposures?

The authors mentioned that prematurity and birth weight as covariates. Did they check multicollinearity, evaluating VIF?

Results
"Children younger than one year of age at the time of our study were excluded." This sentence should be written in the method section.

"similarly, children younger than….were excluded " this sentence should be written in the method section."

"our disease prevalence rates were comparable…however, fewer children…..data" should be written in the discussion section.

Table 2: poverty status might be changed to living area with poverty

The authors mentioned that 44.2% of children were exposed to antibiotics within the first year of life. They could obtain the information of the visiting timing. How did they obtain all antibiotics information? Children usually obtain antibiotics in primary care clinic. This study was done in the large academic center. I believe it was impossible to obtain all past history about antibiotic exposure.

The authors did not show details of exposure status. They should add another table showing background information of each antibiotic exposure status.

Discussion

This study could not actual causal relationship between antibiotic exposure and future likelihood to have allergic diseases.

The authors should review past reports about the relationship between allergic disease and antibiotic exposure.

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

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

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