Reviewer’s report

Title: Efficacy and safety of insulin in type 2 diabetes: meta-analysis of randomised controlled trials

Version: 0 Date: 29 Apr 2016

Reviewer: Jochen Schneider

Reviewer's report:

Summary:

The authors performed a meta analysis of randomized trials on the efficacy and safety of insulin vs. other hypoglycemic drugs or diet/placebo. They look at the finally used 20 trials from a total of 1632 initially identified studies with a total of 18599 patients. The authors found that insulin had no beneficial or adverse effect on the main outcome parameters all cause mortality, cardiovascular mortality and on the secondary parameters non fatal CVD events, hypoglycemia, cancer related death, or complications. As expected, they found an increased incidence of hypoglycemia in insulin treated subjects.

The authors conclude that there is no significant evidence of long term efficacy of insulin on outcome of type 2 diabetes treatment, but harmful events such as hypoglycemia are increased as well as weight gain in insulin treatment.

Comments:

The article somehow tries to achieve a risk benefit analysis on the use of insulin in the treatment of type 2 diabetes. To tackle this, a meta-analysis was performed using articles published between 1950 and 2013. Meta-analyses are popular these days as a tool to gain an overview on topics of that were extensively published on in the literature. This reviewer, however, believes that the article presented here, does not add sufficient novelties to the existing body of literature, and therefore simply does not warrant publication in BMC Endocrine disorders.

Few technical issues:

1. The comparison of insulin versus oral anti-diabetic agents is not novel, neither it its efficacy or the trend towards hypoglycemia or on the outcome parameters studied.

2. Technically, the analysis suffers from the fact that the trials all had different duration which makes it hard to draw conclusions, especially as it totally unclear whether the subjects were adherent to the study drug.
3. No doses or formulations are taken into consideration.

4. The manuscript discussion is lengthy, the conclusion drawn is exaggerated based on the limitations listed above.

**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.

No

**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

**Quality of written English**
Please indicate the quality of language in the manuscript:

Acceptable

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