Reviewer's report

Title: No connection between the level of exposition to statins in the population and the incidence/mortality of acute myocardial infarction: An ecological study based on Sweden's municipalities.

Version: 1 Date: 13 October 2010

Reviewer number: 1

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General comments
The research question in this study focuses on detectable relation between incidence or mortality by acute myocardial infarction (AMI) and statin utilisation in the society.

The research question is both interesting and important. The content and results should be of great interest both for researchers, policy makers, clinicians, and the general reader. The study is based on large material and nation-wide health statistics, especially valuable database regarding AMI which is available from 1987 and based on National Patient Register and the Cause of Death Register in Sweden, and the prescription database including the amount prescribed calculated in DDD/1000 inhabitants.

I do, however, have some concerns and comments which could be evaluated before a final decision is taken regarding publication.

Specific comments
Background:
1. First sentence: Instead of mentioning narrow and exact data (1987-2002) regarding the decline of AMI, I would have preferred more general comment on the decline as for example: The premature mortality rate of CVD has been declining the last decades in Sweden as well as in many other countries. This is true regarding AMI as well according to nation-wide Swedish statistics of AMI covering the period from 1987 to present.

The main background information here is to mention that the decline started long before the introduction of statins

Methods
2. In the method chapter the authors describe the material, definitions and statistical methods. I would like some description (perhaps in the background chapter) the importance of revascularisation, as the authors do not use that variable in their statistical analyses to answer the research question. Use antidiabetic drugs are independent variable. I wonder if something should then be said about use of antihypertensives?

3. Use of mathematical formula or descriptive text: It is not clear if “—” in the text
means subtraction or hyphen.

4. Although probably mentioned in reference 12, it would be of help to tell the readers about the range of inhabitants included in the definition of big cities, larger towns, etc.?

5. It should be explained why the authors use different years (periods) in their analyses, and why these years particularly, but not others.

6. As I consume that the delay in use of statins and mortality is chosen arbitrarily (min 2 years) it may need better arguments in the text.

Results

7. In the results chapter, I should prefer something more regarding the statistical tests, such as p values, confidence intervals, or standard deviation, not only range

8. Page 9, top paragraph: The abbreviation SD within brackets is probably standard deviation?

9. Page 10 in Bivariate correlation chapter, line 2. “… antidiabetic drugs, statin utilisation… etc” Here in line 2, statin utilisation should be skipped as Statin utilisation can not be adjusted for statin utilisation.

10. Page 10 statistical significance should perhaps be used in stead of “significant” and “significances”

Discussion

11. Page 9. I wonder if change of cut-off values for AMI can be expressed as “complication”

12. Page 10, 2 paragr. “ both primary and secondary randomised controlled trials…” This should be expressed as ..”randomised controlled trials in both primary and secondary prevention”

13. NNT could be explained better or filled up exact figures

Conclusions

14. Could be formulated in a better (sharper) way.

Tables

15. Explain Abbreviations in tables

Figure

16. Figure 1. Explain abbreviations

17. Figure 1. At the Y axis I think that “person years” is lacking?

18. Figure 2. Difficult to understand this figure needs more text or skip. Explain “municipality group”

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.