Reviewer's report

Title: Is depression a real risk factor for acute myocardial infarction mortality? A retrospective cohort study

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Reviewer: Jaakko Keinänen

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This retrospective cohort study investigates the effect of depression on the mortality after myocardial infarction (AMI). Depression is defined as per drug prescriptions for over 24 months prior to the AMI. Survival after discharge was analyzed with Kaplan-Meier curves and with Cox's proportional hazards analysis.

The study's cohort is large and the follow-up time is sufficient. The limitations of the study are its' retrospective nature and use of medication prescription as a proxy for depression diagnosis rather than data on the actual diagnoses. It is also unfortunate that there is no data on sociodemographic factors such as marital status, income or education which could also be confounding factors when assessing mortality in AMI.

Questions to the authors:

1) It is not clear whether the hospitalizations were first time hospitalizations due to AMI. The Figure 1 says this was the case, but this could be clarified in the Methods.

2) Drug prescriptions were used as a proxy for medication adherence. Were the drug purchases recorded or only prescriptions? Using drug purchase data would give a more accurate estimate of the adherence than data on prescriptions. Methods section mentions that patients were considered depressed if they "took medication continuously". I suggest that the authors clarify how drug adherence was estimated.

3) Was the Cox's proportional hazards assumption tested before running the analysis? This is not mentioned in the Methods section.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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

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I am able to assess the statistics

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