Reviewer’s report

Title: Prevalence of Type 2 Diabetes Mellitus among Hepatitis C Virus-Infected Patients: Protocol of a Systematic Review and Meta-Analysis

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Reviewer: Katherine Ogurtsova

Reviewer’s report:

The manuscript presents a protocol of the systematic review and meta-analysis of the prevalence of type 2 diabetes mellitus (T2DM) in people with Hepatitis C Virus (HCV). I find the issue is very interesting and the research questions definitely need to be answered since the risk of developing T2DM later in life increasing 2.5 folds in people with HCV comparing with a general population. It lays a double burden on a health care system and is worsening a patient' outcomes.

While the protocol is clear and structured, I have some remarks and comments to address.

General remarks:

The authors claim that they would like to estimate "global" prevalence of T2DM among people with HCV. However, they expect that "some" countries may not be available. Honestly speaking, I would say that it is quite ambitious statement. There is a huge lack of data sources with respect to T2DM in general population of at least half of countries in the world, and I'm afraid that the evidence in rages to T2DM in people with HCV is even more scarce and few and far between. I would say that the authors should be happy to find at least some studies done outside of the high-income countries.

I would suggest that the biggest heterogeneity factor would be a variation in original study cohorts. The authors did not mention sampling design anywhere while it might vary substantially from source to source.

Also, age and time since diagnosis of HCV are the important risk factors that might play a big role in the study variations.

Concrete remarks:

There are a lot of studies, including systematic reviews, that discuss HCV and DM in different aspects. It would be great if the authors provide a brief overview in the introduction.
How HCV will be defined - as a chronic known infection? For what time it should last? How should it be diagnosed/proved?

The authors defined T2DM by OGTT, FBG and RPG. What is about HbA1c that is quite common as diagnostic criteria? Also, except WHO criteria for diabetes, there are ADA criteria. Do the authors check for it as well?

What is about diagnosed/known diabetes? Or do the authors include only screenings for a new cases of T2DM? If we talk about observational cross-sectional studies, the true prevalence of diabetes would contain previously diagnosed cases and new cases found after a test.

Do the authors control if diabetes was diagnosed before an infection or refer only cases that happened after HCV infection?

It would be great if the authors will present the items of this protocol in accordance with the PRISMA-P checklist as an additional file. The PRISMA-P checklist contains 17 items considered to be essential and minimum components of a systematic review or meta-analysis protocol.

Also, even it is not fully relevant for a prevalence meta-analysis, it would be great to asses your research question in regards to PECO (analogue of PICO for observational studies), the components of a population, exposure, comparator, and outcome list.

Do the authors exclude mathematical models, conference abstracts, thesis or other non-primary research articles and if not/yes, why? Would unpublished literature be eligible?

Do the authors extract more information about the eligible study population? Gender distribution, age distribution, adjustments, regionality and specificity of sampling, sampling design (population-based, clinic-based, local, regional, cohort-specific etc), non-institutionalised. I would suggest that is some specific populations the prevalence of T2DM might vary quite widely.

The authors include the keyword "prevalence" in the search terms. Why? Do the author aim only for studies where prevalence of T2DM is a primary aim? Would it be better if all other studies on people with HCV also will be included where a study population might be stratified and described in regards to a wide list of chronic conditions?

Did the authors run a sensitivity/specificity pilot search to see of what kind of studies might be found?

It would be great if the authors provide an example of search terms for one of the search engines.

The authors mentioned language restrictions in the limitations. I would recommend to mention in in the methods as well. Anyway, would the authors suggest using Google Translate for non-English publications?
Do the authors limited a publication date range? Is the search limited by study design?

Are the authors consulted by a professional librarian in preparation of the search strategy?

Do the authors plan to search the citation lists of included studies (i.e., a snowball search)?

How do the authors going to work in Google Scholar while it returns all kinds of documents including not peer-reviewed?

The authors mentioned that the sub-group analysis will be conducted based on geographical region. How do they plan to define "a geographical region"? By UN classification? Any other?


Small remarks:

Abstract: abbreviations "DM" and "HCV" are used without definition

Objectives: abbreviation "T2DM" is given without definition

Ethics statements: do the review require an ethics committee approval or written informed consent?

Introduction: Ref 6 and 7 are quite old. I'm sure there are a plenty of new studies on incidence and mortality from HCV in the world. I would suggest that the authors should update the sources.

Introduction: Ref 3 is very old. Since 1993 a huge amount literature has been written about diabetes and its complications as well as their pathogenesis.

Inclusion criteria: I would substitute "diabetes events" to "diabetes cases" since the authors are searching for prevalence and not incidence.

Search strategy: I would say that mentioned source are search engines and not just bibliographical databases.

I assume that the authors mean "data extraction" except "data abstraction".

What does "study setting" mean in this case?

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