Reviewer’s report

Title: Persistence of Cervical High-Risk Human Papillomavirus in Women Living with HIV in Denmark – the SHADE

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Reviewer: pierre Debeaudrap

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Women infected with HIV are at increased risk of HPV infection, cervical precancerous lesions and cervical cancer. Cervical cancer screening has improved dramatically over the last decade with the introduction of HPV testing. Yet there are a number of issues that need to be addressed in women infected with HIV. One of these issues is the identification of the women at need of treatment among those detected with high-risk HPV (hr-HPV). One way to address this problem is through the identification of persistent hr-HPV infection. The authors of this manuscript examined the factors associated with persistent HPV infection (in terms of HPV types and patients characteristics) through a secondary analysis of data collected in a prospective cohort in Denmark. This manuscript is well-written, clear and will add significantly to the available literature in the topic. Its main limitation is related to a lack of detail on the selection of the study population and a possible selection bias. Please find below few comments to each of the sections of the manuscript for consideration:

Introduction

- While the author introduced clearly the topic, the rational for the paper is restricted to one sentence on the lack of data on hr-HPV persistence. The introduction would therefore benefit from a more detailed presentation of this (lack of) evidence.

- Minor: line 124 page 5: last sentence is a repetition of the first sentence.

Method

- The manuscript should provide a more detailed presentation of the selection of the population at each evaluation: was HPV testing systematically proposed? If not, what were the criteria for being tested?

- Was cytology performed only in participants who were HPV positive?

- Page 8: the authors used different labels for the CD4 variable ("latest CD4" and "CD4 at inclusion"), which may result in a lack of clarity. Was the nadir CD4 available?
Page 8: Instead of excluding observations with missing explanatory variables, the authors could have considered using multiple imputation (if missingness could be considered as random);

Results

- Related to the previous comment: how many participants were tested for HPV at each time point?
- What are the characteristics of the participants (and of HPV) who were HPV+ but did not have a second test?
- Factors associated to the presence of HSIL: is there any association between this outcome and the HPV type?

Discussion

- Related to the previous comment: a possible selection bias should be discussed if all participants did not receive an HPV testing; the relatively high proportion of participants who were excluded because they did not have a follow-up test (25%) should also be discussed.
- Page 10, line 307: it is only HPV 33 outside HPV 16
- The fact that HPV infection was not associated with any of the cytology outcomes should be further discussed.

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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Please indicate the quality of language in the manuscript:

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