Reviewer's report

Title: Alcohol consumption and risk of incident ovarian carcinoma: a pooled analysis of 5,342 cases and 10,358 controls from the Ovarian Cancer Association Consortium

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Reviewer: Jeanine Genkinger

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The manuscript, entitled “Alcohol consumption and risk of incident ovarian carcinoma: a pooled analysis of 5,342 cases and 10,358 controls from the Ovarian Cancer Association Consortium” examines the association of alcohol intake and risk of total ovarian cancer and histological subtypes of ovarian cancer. The authors examined this association in one of the largest studies to date, particularly for histological subtypes of ovarian cancer and borderline tumors. Overall, the manuscript was well-written and the authors conducted a thorough and appropriate analysis for this research questions. A few comments or clarifications, listed below, need to be addressed prior to publication:

Major Compulsory Revisions

1. In your tables, it appears that you include a missing indicator variable for covariates included in the model. However, in the supplementary table, it appears that some of those variables have a higher percentage of missing data (e.g., family history, ethnicity). With a higher percentage of missing data, it may introduce bias into your analysis. Have you considered or examined other models taking into account missing values? If so, were the results similar?

2. The categories for some of the analyses include a small number of cases (>3 drinks/day), particularly when examining by histology. I believe it would be worthwhile to collapse the top categories for these analyses. Or where the results similar to what was presented when collapsed?

Minor Essential Revisions

1. A clarification – the analysis conducted within the Pooling Project for mucinous ovarian cancer was based on continuous models of alcohol intake and not comparing >30g/day compared to 0g/day.

2. Although you discuss heterogeneity of your results when you examine the different histological types, did you observe statistically significant heterogeneity of your risk estimates across studies for the analyses of total ovarian cancer?

3. You stated that you reclassified the outcomes of select types of ovarian cancer as the classifications may not accurately represent the type of ovarian cancer. Please include the N(%) of those that were changed. Did you examine the associations without the change and were the results similar?
4. The discussion should also include statements on recall and selection bias as potential concerns with this data.

Discretionary Revisions

1. Under the statistical analysis, I believe it would be helpful for the reader to state that you combine the data from each of the studies into a single dataset to examine these associations instead of doing analyses within each study and then pooling the estimates across the studies.

2. Do you have the ability to examine long term drinking patterns, “binge drinking” or even conduct analyses on former drinkers? If so, this would greatly add to the literature to date on this topic.

3. You state in the discussion that “alcohol, in general, has been reported to reduce cellular proliferation by influencing the insulin-insulin-like growth factor (IGF) pathways [68,69], which have been implicated in early development and prognosis of these carcinoma types[70,73].” Did you also see if the association held, if you adjusted for diabetes? Or stratified on whether an individual had been diagnosed with diabetes or not? This would similarly hold for stratifying on obesity? In addition, there is an extra “insulin” in “insulin-insulin-like growth factor”.

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests