Reviewer’s report

Title: The association of liver function and quality of life of patients with liver cancer

Version: 1 Date: 30 Jan 2019

Reviewer: Research Square

Reviewer’s report:

"STATISTICAL REVIEWER ASSESSMENT:

Is the study design appropriate for the research question (considering whether the analyzed population accurately reflects the design and whether you see any problems with control/comparison groups, e.g., likely confounders)?

No - there are minor issues

Are methodologies adequate and well implemented (considering whether assumptions are addressed and whether analyses are robust)?

No - there are major issues

Are the analyses adequately communicated (considering whether reporting details are adequate and whether figures and tables are well labeled and described)?

No - there are minor issues

Does the interpretation accurately reflect the analyses without overstatement (considering whether limitations/bias are acknowledged and whether accurate descriptors, e.g., 'significant', are used)?

Yes - interpretation accurately reflects analyses, limitations/bias are acknowledged, accurate descriptors are used

Could an appropriately REVISED version of this work represent a statistically sound contribution?

Probably - with minor revisions

STATISTICAL REVIEWER COMMENTS:
The authors have collected quality of life (QoL), demographic, clinical and laboratory data to examine the relationships between these variables. This is a straightforward design that should allow the study objective to be addressed.

A large number of correlation coefficients are conducted along with regression analyses. In general, these statistics are appropriate, although the authors need to address some of the assumptions and decisions they make (as noted below). Also, it is possible for the authors to conduct biserial correlations rather than univariate logistic regressions, but one is not more correct than the other, so it is a matter of personal preference.

REQUESTED REVISIONS:

It would be useful to know if all of the data was collected for the same time period. In particular, it could be the case that the laboratory data represents results of samples that were taken some time before quality of life data was collected, so they might not represent patient data at the same points in time.

In the statistical analysis section the authors state that QoL variables that had p values less than 0.0001 in univariate logistic regressions were included in multivariate logistic regression. Yet, no justification is provided for choosing variables based on this p value. Choosing variables based on a p value alone is generally a poor idea, especially when many statistical tests are being conducted, as there is the potential to inflate the Type I error rate. Therefore, selecting variables based on a justified effect size would be more appropriate.

The authors indicate that they transformed liver function variables to meet the assumption of normality but for which test? It seems that these transformed variables were used in Spearman's rho and logistic regression tests, so why did the authors assume that normality was required? Also, if transformations were deemed appropriate for liver function variables, why were they not also conducted for the QoL variables?

Correlation values greater than an absolute value of 0.3 were determined to be clinically important. This decision requires further justification, especially as it affects the interpretation of findings.

There is no need to report statistics (such as correlation coefficients and p values) to 4 decimal places - 2 decimal places is sufficient and you should not go beyond 3 decimal places.

The results of the correlation analyses are presented in detail in the text. This is unnecessary as the information is also presented in tables. Rather, a concise summary could be presented in the text.

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.

No

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

Quality of written English
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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