Reviewer’s report

Title: The Association of Quality of Life with Potentially Remediable Disruptions of Circadian Sleep/Activity Rhythms in Patients with Advanced Lung Cancer

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Reviewer: Mei-Ling Chen

Reviewer’s report:

This paper explored the relationship between the circadian organization quality of life in patients with advanced lung cancer. The results of the study were very interesting. However, the manuscript has the following weakness.

1. Many actigraphy parameters were presented in this article. It is very difficult for a reader who is not so familiar with these parameters to immediately grasp the main findings of this study. Although the authors have mentioned the meaning of the individual parameters whenever they appeared, I think it would be better to describe, under heading of actigraphy, these parameters in detail in terms of their definition and clinical meaning. By doing so, a lot of space of the result section can be saved. For a paper involving many variables, brevity and clarity is definitely needed.

2. On page 11, line 18, when describing the differences of quality of life between study population and general/reference population, I suggest not to use the word “significantly” to prevent confusion with “statistical significance”.

3. Only statistical findings should be presented in result section. Judgmental statement or explanation should be saved for discussion. Therefore, the first sentence under the heading “Correlation of QoL and actigraphy among inpatients” may be deleted.

4. The last three parts of the result section (COPD vs. actigraphy, relationship of quality of life scores to one another and to circadian organization, effect of prognostic factors on quality of life) are less relevant to the main focus of this paper. I would suggest delete these parts and related figures to make the paper more focused.

5. Tables and figures:
   (1) Again, parameters listed in Table 6 should be defined and explained first.
   (2) Table 4 and 5 can be combined into one table and reverse the column and row to make it consistent with other tables.
   (3) A big table presenting the correlation between all the sleep parameters and quality of life domain/symptom scores may be needed. Consequently, figure 2 can be deleted because it failed to provide neither comprehensive nor clearer information than a table.
6. In discussion section, the author stated that “There was a counter-intuitive finding that no significant relationship was found between self-reported insomnia and any objectively measured actigraphy parameter.” (page 19, line 11-12) This statement is conflict with the study result described on page 13-14 where a negative correlation between insomnia and 24-hour autocorrelation ($r = -0.48$, $p = 0.003$) was indicated.

7. This paper did not discuss the main study results (i.e., the sleep disturbance and the correlation between actigraphy parameters and quality of life in advanced lung cancer patients) in terms of how they differ from or conform to findings from others’ work.

8. Compared to general population, the study population had lower scores on health/functioning domain of Ferrans and Power QLI but not on the other three domains (i.e., social/economic, psychological/spiritual, and family domains). This finding is interesting and the authors suggested that there is a resilience of human spirit when facing the lethal disease. From the perspective of measurement, the author may also want to discuss the phenomenon of “response shift” for quality of life.

9. There are many writing errors that make the reading of the manuscript a little bit difficult. For example, on page 9 in describing the grades of COPD, the FEV1% for moderate COPD should be 50% to 80% (not 89%). On page 12, line 3, “… patients with stage II and IV disease.” should be “…patients with stage III (?) and IV disease.” Other examples of grammatical errors or confusing sentences can be found on page 12-line17 &21, page 12-last sentence, page 13-line 5 to 6, page 14-line 18 to 22. In addition, the use of abbreviations in this manuscript is inconsistent. The organization of the result section can be improved too. I strongly suggest that a professional editing is needed before submitting this manuscript for further review.

Level of interest: An article of importance in its field

Quality of written English: Not suitable for publication unless extensively edited

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests