Author's response to reviews

Title: Lung cancer symptoms and pulse oximetry in the prognostic assessment of patients with lung cancer

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Author's response to reviews: see over
Title: The prognostic role of Lung Cancer Symptom Scale (LCSS) and pulse oximetry data in patients with lung cancer.


Answer to Reviewer's report

Major Compulsory Revisions

1) It is important to demonstrate that the Lung Cancer Symptom Scale symptoms or summary scores have a contribution independent of the Karnofsky Performance Status. This is not clear from the description of the analyses or from Table 4. Perhaps the authors could list the initial set of variables they used for the step-wise Cox model.
   - KPS usually is the most important clinical prognostic factor in lung cancer. We stated in the Results section that ‘Age (p = 0.92), gender (p = 0.79), and Karnofsky performance status (p = 0.94) were not retained at the final prognostic model’.

2) The Discussion is disjointed and should be reorganized and rewritten. I would start the Discussion with “Despite significant advances……and the FACT Lung Questionnaire”. The next paragraph might be “in our cohort study of lung cancer patients, we found that SpO2, appetite and fatigue were associated with an increased hazard of death. [Then review the literature on these symptoms as predictors]. Generalization of this model is limited by….The next paragraph on bias and underestimation of fatigue (and other symptoms, symptom burden index) by health care professionals. Conclusion that further research should be performed with the LCSS and pulse oximetry as prognostic guides.
   - We have rewritten the Discussion section. The Reviewer’s clue offered us the opportunity to make clear our point.

3) More of the data on the SpO2 should be summarized? What percentage of patients had SpO2 less than 90%, and were they placed on oxygen? To what extent is the SpO2 a measure of COPD as well as lung cancer severity?
   - We have addressed these points in the Results (Pulse oximetry) and Discussion (paragraph # 2).

4) A model with 14 variables has been tested on a sample of 41 patients. I am not sure if this is valid, or how this will limit the value of the results.
   - In regression modeling, sample size is critical to handle multicollinearities and to keep small standard errors of regression coefficients. We stated in Discussion, with a proper reference: ‘Our four-variable model was fit with data on 41 patients and 38 events, and thus could not incorporate further prognostic information. In order to arrive at reliable estimates of the three major functions (survival, probability density, and hazard) and their standard errors at each time interval by Cox regression, the minimum recommended sample size is 30 with five to ten events per factor in the equation’.
5) The LCSS was designed in English. Presumably these patients were asked to use a Portuguese version. Can the authors provide a reference for their version, or describe how it was translated?

- An appropriate Portuguese version of LCSS was used. We have rewritten part of the method section to make this clearer.

Minor Essential Revisions

6) In the design section, “A convenience sample of ambulatory patients with lung cancer….. New patients admitted for lung cancer therapy were deemed eligible…” How the cohort was developed should be clarified. “It might be simplest to say that consecutive patients with advanced or metastatic lung cancer seen from October 2000 to April 2001 were recruited to participate. Outpatients who attended the Pulmonary Division and inpatients admitted for lung cancer therapy were asked to participate.”

- We have revised this section for clarity.

7) In the Discussion… A SpO2 bellow (below)

- It was corrected.

8) In Discussion “Notwithstanding measurement of pulse oximetry and LCSS administration were fast and did not burdened health care staff, generalization of our model should await may be hampered by limitations of our study” could be changed to “Measurement of pulse oximetry and completion of the LCSS form were fast and were not burdensome for the health care staff. Generalization of our model is limited by the small sample size, heterogeneity of therapeutic approaches, and absence of comorbidity data.”

- We have adopted the Reviewer’s suggestion.