Author's response to reviews

Title: Long-term survival rates of laryngeal cancer patients treated by radiation and surgery, radiation alone, and surgery alone studied by lognormal and Kaplan-Meiers survival method

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To the Editor:

Response to Reviewer 1 (Jill Barnholtz-Sloan)

Major Points:
1. Detroit and Connecticut registries were chosen because they have the earliest data starting from 1973 and they include a large population of both white and black patients.
2. A table of patient characteristics is added.
3. The number of patients with missing treatment information is added. Generally cause-specific death rates underestimate the mortality associated with a diagnosis of the specific cancer, because some patients died of other causes. (Ref. Brown BW, Brauner C, Minnotte MC. Noncancer deaths in white adult cancer patients. J Natl Cancer Inst. 1993;85:979-987.) This reference is added to the text.
4. The log-rank test can compare different Kaplan-Meier curves. It cannot compare Kaplan-Meier with the predicted survival curve, so standard errors were used to show that the predicted survivals were within one standard error of the Kaplan-Meier estimations.
5. The numbers of patients are added for localized stage and regional stage. The treatment results are marginal different for localized stage (p=0.08, log-rank test for the three treatments) and the treatment results are similar for regional stage (p=0.76, log-rank test for the three treatments). The predicted survivals were within one standard error of the Kaplan-Meier estimations for both localized and regional stages. It shows that the prediction method can work for both good and poor prognosis cases. The three treatments were different for localized stage because they were diagnosed earlier, and combination radiation and surgery may have more certainty of disease control and hence long-term survival benefit. The treatment results were similar for regional stage because the patients were diagnosed later and disease control may be more difficult.
6. Comparisons of the present results with literature are added to the discussion.

Response to Reviewer 2 (Giovanni Franchin)

Major Points:
1. Title changed to: Long-term survival rates of laryngeal cancer patients treated by radiation and surgery, radiation alone, and surgery alone studied by lognormal and Kaplan-Meier survival method.
2. Background.
 a.) The method can be used for randomized clinical trial. Generally cause-specific death rates underestimate the mortality associated with a diagnosis of the specific cancer, because some patients died of other causes. (Ref. Brown BW, Brauner C, Minnotte MC. Noncancer deaths in white adult cancer patients. J Natl Cancer Inst. 1993;85:979-987.) This reference is added to the text.
 b.) Cancer of the prostate has good prognosis, while metastatic breast cancer and small cell lung cancer have poor prognosis. It shows that the prediction method can work for both good and poor prognosis cases.
 a) The numbers of patients are added to the text.
 b) The test statistic of the minimum chi-square test was minimized by varying the parameters and the
p-value gave the significance of the test. The class intervals were in the powers of 2 in months of the survival time, such as 0-2, >2-4, >4-8, >8-16, and so on. The number of cases in each interval should not be less than 5. These descriptions are added to the text.

c) The minimum chi-square test is to test no difference between the observed survival times and the expected survival times calculated from a lognormal distribution. The text is changed to: "the null hypothesis is rejected if P<0.05."

d) The contents of the appendix are moved to the Methods.

e) The follow-up time should be one standard deviation beyond the mean of the survival time so as to obtain stable results. (Ref. Gamel JW, Greenberg RA, McLean IW. A stable linear algorithm for fitting the lognormal model to survival data. Comput Biomed Res 1988,21:38-47.)

4. Discussion.
The discussion section is re-written with limitation of the method.