

Peer Review File

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First Round Peer Review

Reviewer A

In this study, Chenguang Zhao et al. reported clinical characteristics and prognostic factors of pulmonary sarcomatoid carcinoma (PSC). Authors clarified the information regarding main features of the patients with PSC and prognosis including median survival and 1-, 3-, and 5-year overall survival (OS). PSC is a rare form of lung cancer and authors tried to demonstrate these characteristics from their institutional experience. Although this work showed important results, I have several concerns regarding methods and interpretation of results.

Comments

1) In page 2 line 21 and page 13 line 2, authors emphasized the importance of immunotherapy in conclusion, but no patients received this treatment in current study. Therefore, author should exclude this as a conclusion of this study.

Reply1: Thank you for your question. I have deleted these statements according to your advice.

2) In page 4 line 5, the number of enrolled patients should be written in result section. I believe it is a general principle of academic writing. This tendency is also seen in survival section. Therefore, repetition is seen elsewhere.

Reply2: We have modified our text as advised (see page 4, line 2 and line 21-22).

3) Did author receive ethics approval from institutional ethics committee? If so, please include in manuscript. If not, please specify the reason.

Reply 3: Thank you for your question. We didn't receive ethics approval from institutional ethics committee. This is a retrospective study; all of these patients were received therapy in our hospital ten years ago. This study didn't affect the therapeutic method, therapeutic effect and prognosis. All clinical information in our study is confidential. We didn't disclose any information of these patients. Most patients in our study were died because of PSC, it's impossible to sign informed consent.

4) Because there is no standard treatment for PSC, I and readers of this article really

want to know the treatment regimen for future treatment strategy.

Reply4: Just like what we have showed in conclusion. Complete resection of the tumor is one of the main treatments for PSC. Patients may achieve a degree of therapeutic effect through chemotherapy and targeted therapy. Immunotherapy is an emerging therapeutic method, and was widely used in other kinds of cancer and showed better results. Just like what we have described in discussion, we think immunotherapy may be the future treatment strategy.

5) According to the table 1, more than 90% of patients (111 patients) underwent surgery and only 8 patients did not. However, the number of stage IV patients was 13. Moreover, all early-stage patients are not always the indication of surgery because of poor performance status or comorbidities. Why did extremely large number of patients receive surgery in this study? Please specify the possible reason. It seems unusual.

Reply 5: Just like what we have talked in comment 4, surgery is the main treatment for PSC even for other kinds of lung cancer. Tumor may be made up of many kinds of components because of heterogeneity. PSC is also hardly diagnosed through biopsy. Surgery is the only method to achieve the whole tumor. We can get accurate diagnosis by paraffin pathology. We can also get the genetic mutation information through whole genome sequencing of the whole tumor; this genetic mutation information may provide more therapeutic methods for us.

6) In page 11, line 22, the detailed explanation of immunotherapy does not seem necessary because no patients received immunotherapy in this study. Moreover, authors did not evaluate either the expression of PD-L1 or TMB. Similarly, there are so many explanations which is not related to the main theme of this article. This is an original article, not a review. All in all, please simplify the discussion.

Reply 6: Thank you for your question. Just like the 4th question you provided above. As we all know, immunotherapy is also an effective method in other kinds of lung cancer. These patients in our study were underwent operation, chemotherapy or other therapy ten years ago. Immunotherapy is an emerging therapeutic method, these patients in our study didn't have the opportunity to receive this kind of therapeutic method. This paragraph in this part aims to provide a new therapeutic perspective. We have simplified this part according to your advice.

7) Please clarify the meaning of p-values in table 1 and 2. What does the p-values of more than three-category group mean (e.g. symptoms, TNM, and pathological type)? In addition, please indicate the exact p-values (in recent publication, $P < 0.05$ is not enough).

Reply7: P-values in table 1 and 2 were calculated separately through the Kaplan-

Meier method, and indicated whether each factor had a significant impact on survival or not. It also expressed the same meaning in these groups more than three- category. P-values in these groups were more than 0.05, it is unnecessary to analyze the p-value between each subcategory. We have indicated the exact p-values according to your advice.

8) In figure 2, the figure legend is unclear. What do the numbers seen in right side mean? If these numbers represent p-value, please clarify like that.

Reply8: These numbers in figure 2 represent p-value, we have shown them in detail according to your advice.

Reviewer B

Page 8, row 14: I understand you want to express that the OS in patients with T1-T2 tumors differed from those with T3-T4 tumors. The sentence doesn't read well, so please rephrase.

Reply: Thank you for your advice. In order to submit an article with the correct sentence, we found a professional to polish the manuscript before submitting. So, this article what you had saw was had been polished. But we have rephrased this sentence according to your advice.

Page 8, row 16-17: You compare T3&T4 with T3&T4. Is this a typo?

Reply: Thank you very much, it's a really a typo, I have corrected it in the original text.

Page 10, row 2: I understand you are saying that the metastatic locations in your study are in line with the other studies. The sentence doesn't read well, so please rephrase.

Reply: We have rephrased this sentence according to your advice.

Page 10, row 4 and 5: The sentence doesn't read well, so please rephrase.

Reply: We have rephrased this sentence according to your advice.

In the survival analysis section, you mentioned 'it was certain that other tumor characteristics, such as invasion of the pleura and spread through air spaces, also influenced the OS'. What is the supporting data for this conclusion?

Reply: Because these pathologic results were gotten ten years ago, invasion of the

pleura, spread through air spaces and other tumor characteristics were not shown in the final report. We have added some references to support this conclusion.

In the discussion section, you are doing summaries of prior studies most of the time, not what you've found in your study. There is a whole section for survival analysis in the result part, but it is barely mentioned in your discussion.

Reply: Thank you for your advice. We have added part of study results in this part.

For p-values, even though we use 0.05 as the cut-off value to determine the statistical significance, the exact value also matters. Please provide the exact p values.

Reply: We have indicated the exact p-values according to your advice.

Second Round Peer Review

1. Page 2, line 21: The author states that patients who suffer from PSC can easily develop tolerance to chemotherapy. I was not able to find the supporting data from the study. This conclusion was cited from another study (page 10, line 18). Please clarify how this conclusion was drawn from the current study.

Reply: Thank you for your question. Just like what you had asked in comment 1, it is inappropriate to write this sentence in conclusion. We have deleted it and wrote the appropriate conclusion.

2. Page 8, lines 19-20: when presenting the data, try not to draw conclusions in the result section. Leave them to the discussion section. Also, try not to cite other articles in the result section. The result section should include only original data from the current study.

Reply: Thank you for your advice. We have moved this sentence to the appropriate site.

3. Page 9, line 22: It was mentioned that poor nutritional status didn't influence the OS significantly. I'd like to know how this conclusion was drawn.

Reply: Thank you for your question. We have added some data in Figure one. Even if we can see the OS in group of BMI <18.5 Kg/m² was lower than the OS of all patients in our study, but through survival analysis we can't see significant difference in two groups (between BMI <18.5 Kg/m² and BMI ≥18.5 Kg/m²). So, we didn't think poor nutritional status influence the OS significantly. We may enroll more patients to analysis this factor in the future.

4. Page 12: there was almost a whole paragraph discussing immunotherapy while none of the patients in the current study received it. I'd like to recommend that the author try to minimize summarizing previous articles and discuss what has been found from the current study, compare the differences between current and other studies and explain the reason for these differences.

Reply: Thank you for your advice. We have simplified this part according to your advice.

5. Still, as prior mentioned during cycle one of the reviews, there is a whole section for survival analysis in the result part, but it is barely mentioned in the discussion. What are the factors affecting PSC? How does the current conclusion differ from prior studies?

Reply: Thank you for your advice. We added the interpretation of survival analysis in the conclusion part.

6. Page 13, line 7: it is mentioned tumor characteristics is one of the main factors that can influence OS. Please be more specific about what tumor characteristics can affect the OS.

Reply: Thank you for your advice, we modified this sentence.