

Peer Review File

Article information: <https://dx.doi.org/10.21037/jtd-23-259>

Comment 1: The title needs to indicate the clinical research design of this study, i.e., a retrospective cohort study.

Reply 1: Thank you very much for your comment. This study is a single-center and single-arm observational study.

Changes in the text: We have modified in the article as advised (see Page 2, line 1).

Comment 2: The abstract needs some revisions since it is not adequate. The background did not indicate what the knowledge gaps are on the incidence rate and its associated factors of POD in ICU patients and what the clinical significance of this research focus is. The methods need to describe the inclusion of subjects and assessment of baseline clinical factors. The results need to briefly describe the clinical characteristics of the study sample and quantify the findings on the risk factors by using OR and P values. The conclusion needs more detailed comments for the clinical implications of the findings, not to repeat the findings again.

Reply 2: Thank you very much for your comments and suggestions.

In 2020, there were 2206,771 new cases of lung cancer worldwide, ranking first in mortality rate. Most individuals (about 65%) diagnosed with lung cancer are aged ≥ 60 years. POD in elderly patients leads to adverse clinical outcomes such as prolonged hospital stay. It is necessary to study the incidence and risk factors of delirium in ICU elderly patients after lung cancer surgery. At present, the annual volume of cardiothoracic surgery in our hospital is more than 21,000, ranking among the best in Shanghai. The purpose of this single-center, single-arm observational study was to investigate the incidence of POD in elderly patients with lung cancer and the clinical significance of preoperative cognitive level and postoperative sleep quality in predicting the occurrence of delirium. The inclusion of subjects and assessment of baseline clinical factors have been added as suggested.

The results of this study showed that postoperative blood oxygen level, preoperative cognitive level score and postoperative sleep quality score in delirium group were significantly lower than those in non-delirium group (P values were 0.002, 0.000, 0.000, respectively). The proportion of previous coronary heart disease and postoperative sedation use in delirium group was significantly higher than that in non-delirium group (P = 0.008 and 0.008, respectively). Patients with MMSE score higher than 27 had a 94% lower risk of delirium than that in the group less than 27 (OR=0.056). Patients with RCSQ scores higher than 20 had a 25% lower risk of delirium than that in the group with RCSQ score less than 20 (OR=0.75).

This study found that the incidence of delirium in elderly patients with lung cancer after surgery is basically the same as that in the world, which should be paid attention to by clinical medical staff. Early detection of postoperative high-risk groups, early intervention, so as to further reduce the adverse outcome of delirium is the direction of the next research.

We have carefully studied your comments and made corrections, which we hope will be accepted by you.

Changes in the text: We have modified in the article as advised and we also have added some data to quantify the findings on the risk factors. (see Page 1, line 28; Page 2, line 4; Page 2, line 18 and Page 2, line 28)

Comment 3: The introduction of the main text needs to describe the negative results associated with POD, review what has been known on the POD in the medical clinical practice including its incidence rate and associated factors, and what has been known on POD in ICU.

Reply 3: Thank you very much for your comments and suggestions.

Changes in the text: We have added the negative results in the article as advised. (see Page 7, line 3; see Page 8, line 7)

Comment 4: The methodology of the main text needs to be rewritten with different headlines such as subjects, assessment of clinical covariates and diagnosis of POD, and statistical analysis. Please clearly indicate the clinical research design and correct sample size estimation procedures because incidence rate is also a primary outcome of this study, not associated factors only. The authors need to describe the details of CAM-ICU. I do not agree with the inclusion of postoperative sleep quality as a potential factor associated with POD since it was not assessed before the occurrence of POD and it cannot be a risk factor due to lack of evidence of chronological order. In statistics, please describe the P value for statistical significance and details of the multiple logistic regression analysis.

Reply 4: Thank you very much for your comments and suggestions. We have carefully studied your comments and made corrections, which we hope will be accepted by you.

① We have rewritten different headlines in the article as advised. This was a single-center, single-arm observational study. A total of 208 patients were analyzed for risk factors. Due to a small sample size, the study was unable to perform propensity score matching. The occurrence of delirium was taken as the dependent variable and the covariable was referred to the results of single factor regression analysis. A total of 22 covariables were included.

② Since this study is a pilot study to observe the incidence of postoperative delirium in lung cancer patients ≥ 60 years from September 2019 to May 2020. All patients who met the inclusion criteria during this time period were observed in this study.

③ Specific details of the CAM are shown in the Picture 1.

④ Thank you very much for your suggestion. The weakness of this study is that we did not include preoperative sleep quality in it. The high-risk period of POD was within 72 hours after surgery. The special environment of ICU makes the sleep quality of patients after surgery very poor and sleep deficiency has been considered by many guidelines (2019 SIGN 《Risk reduction and management of delirium》、2020 ASER 《American Society for Enhanced Recovery and Perioperative Quality Initiative Joint Consensus Statement On Postoperative Delirium Prevention》) as one of the high risk factors affecting the occurrence of delirium. In this study the sleep quality of elderly patients with lung cancer was evaluated daily after surgery. The results of this study were based on the mean daily postoperative sleep quality scores. Clinical care providers can evaluate patients' sleep quality by dynamically observing the scoring trend. The study also showed a significant correlation between the decline of postoperative sleep quality score and the occurrence of postoperative delirium. Therefore, we used postoperative sleep quality as a variable in order to find out the clinical significance of sleep deficiency in the prediction of delirium.

Changes in the text: We have modified in the article as advised and we also have added some headlines as advised (see Page 4, line 24; see Page 4, line 25).