

Peer Review File

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Reviewer A

1) which surgeries were done to patients before both elective and emergency admission to ICU: cancer surgery, non-cancer surgery, major or minor, were the surgeries complicated?

Reply: There are about 100 types of operations and operations involved in the database, including liver transplantation, partial hepatectomy, tracheotomy, brain tumor biopsy, tumor resection and so on. The type of surgery is mainly complicated operations related to tumor resection for elective admission and for emergency admission the surgery is to solve postoperative bleeding and infection.

2) which precise reasons were observed for elective admission on medical intensive care?

Reply: We regret that there is no clear statement in the database for the reason for the patient's admission to the ICU. We identify the reason for the patient's admission to the ICU through the highest score in the SOFA score on the first day of admission to the ICU (see Page 4, line 122-123). In table 1, we can see that the most common cause in MICU is cardiovascular events, including shock and frequent heart rate.

3) how was the outcome affected by the type of surgery?

Reply: The type of surgery in SICU is mainly the removal of related tumors, and their prognosis can be obtained from Table 2. 28-day survive rate was lowest were patients who have bone or pancreas cancer related to operations, and patients who were performed bladder cancer resection have highest 28-day survive. (see Page 6-7, line 224-251)

4) how many patients had DNAR decisions prior to ICU?

Reply: Unfortunately, the relevant information is not described in the database. Among the population we included, 799 people died in the hospital. We have counted the number of patients undergoing cardiopulmonary resuscitation in the database. There are about 65 cases in total, and therefore, the proportion of patients who did not undergo cardiopulmonary

resuscitation is quite high. (see Page 6, line 218-220).

5) did any of the patients have treatment will?

The authors should also clarify why did they only analyse 4836 of all (8,308) cancer patients. It would also be good to know if renal replacement therapy was given to any of cancer patients in the ICU.

Reply: Among the included patients, 799 people died in the hospital. We have counted the number of patients undergoing cardiopulmonary resuscitation in the database. There are about 65 cases in total, most of them are patients admitted by SICU. (see Page 6, line 218-220). Once a cardiac arrest occurs in MICU, most of them do not choose cardiopulmonary resuscitation.

There are five types of ICU in the database, including SICU, MICU, CCU, CSRU and TSICU. CCU is mainly for patients after cardiac surgery, TSICU is mainly for patients with traffic accidents and trauma, and CSRU is mainly for patients with respiratory insufficiency. The characteristics of these ICUs cases are relatively single. In addition, we excluded patients with hematological tumors. Therefore, we selected patients with solid tumors in MICU and SICU as the research object. In Table 1 we describe that there were 27 and 63 cancer patients in SICU and MICU who underwent renal replacement therapy, respectively.

Reviewer B

1) Please briefly describe the reason of admission, especially for “mental disorder” and “cardiovascular”.

Reply: The reason for entering the ICU is determined based on the items in the SOFA score on the first day. Mental disorder means that the GCS score is less than 9 points, and the cardiovascular disorder mainly refers to the SOFA score involving circulation items with a score of 4 points, which mainly represents patients with severe shock. (see Page 4, line 123-127)

2) More patients admitted to SICU were elective, which could be due to post-operation care. The outcome of these population could be better.

Reply: It is true that a larger proportion of elective ICUs are admitted to the

surgical ICU. Most of these people are mainly in need of intensive care after surgery. Therefore, compared with the people in MICU needing to intensive treatment because of organ dysfunction, and their prognosis is better. (see Page 5, line 211-231)

- 3) Please add the length of ICU stay, and the ratio of do not resuscitate.

Reply: Thanks for your suggestion, we have added ICU stay. In Table 1, we have added the length of ICU stay of two groups, patients in SICU stay slightly longer than patients in MICU (3.9 ± 0.2 Vs 3.5 ± 0.1 $P=0.002$)(see Page 5-6, line 181-203). Among the population we included, 799 people died in the hospital. We have counted the number of patients undergoing cardiopulmonary resuscitation in the database. There are about 65 cases in total, and therefore, the proportion of patients who did not undergo cardiopulmonary resuscitation is quite high. (see Page 6, line 218-220).

- 4) In addition to cancer status, history of recent chemotherapy or immunosuppressive therapy should be added.

Thanks for your suggestion, I have added relevant information in Table 1 and Table 3. In SICU, fewer patients receive adjuvant therapy (including chemotherapy or immunosuppressive) compared patients in MICU.) (see Page 6, line 210-211).

Reviewer C

- 1) Introduction: It is too brief and the references that support it are from more than 5 years ago. I would suggest updating the introduction with more recent data, including epidemiological data on the rate of oncological patients who require ICU admission.

Reply: Thanks for your suggestion, I have updated the introduction with more recent data, including epidemiological data on the rate of oncological patients who require ICU admission. (see Page 3, line 70-83).

- 2) Methods: Although the characteristics of the hospital and of both types of ICUs are described, there is a lack of information regarding the predefined criteria for admission to these ICUs. This is of great importance because of the improvement in oncological treatments, some restrictions to ICU admission based on poor vital prognosis might have disappeared, with higher access to life support measures for these patients. In this sense, the very long period of the study (11 years) is striking. Therefore, it would be interesting to add to the manuscript the temporal analysis of ICU admissions for these patients to assess

whether there has been a change in recent years compared to the earlier.

Reply: Respiratory failure and sepsis are the main reasons for cancer patients to be transferred to the ICU In previous literature. Mechanical ventilation (MV) was the most common way of support for both groups at 41.5% (694 of 1,671 patients) in SICU and 29.4% (931 of 3,165 patients) in MICU. (see Page 6, line 211-213).This database does not describe the indications for patients to be transferred to the ICU.

In order to protect the privacy of patients, the time when patients enter the ICU in the database is shifted to an uncertain time in the future. And the time for each patient is different. We regret that we were unable to do this research to assess whether there has been a change in recent years compared to the earlier. (see Page 9, line 342-346)

- 3) It is surprising the lower rate of respiratory support of patients admitted to the MICU as compared to the surgical SICU (29.4 % vs 41.5%), especially considering that patients admitted to the MICU were older, had higher severity scores on admission and had greater comorbidity. Therefore, it raises the doubt that these patients might have received any type of limitation of therapeutic effort. In this sense, the manuscript lacks information regarding the number of deaths due to the limitation of therapeutic effort. Please, add this information. Besides, it is striking that high-flow oxygen therapy is not mentioned as a first-level therapeutic tool before the need to start any mechanical ventilation modality, since many of these patients can benefit from this much less invasive therapy.

Reply: In MICU, the cancer stage of patients is relatively late, or they usually have experienced a long period of treatment and have a poor short-term prognosis. Therefore, the proportion of mechanical ventilation in MICU may be lower compared with SICU patients. Among the included patients, 799 people died in the hospital. We have counted the number of patients undergoing cardiopulmonary resuscitation in the database. There are about 65 cases in total, of them, 5 are from MICU. (see Page 6, line 218-220)

The patient population included in this database was from 2001 to 2012. During that period, high-flow treatment is not common, so it was not included in our study.

- 4) Follow-up was conducted at 28 days, 1 year, 2 and 3 years. However, data on

the number of patients lost to follow-up is not provided. Please, add this information.

Reply: The information collected in the database is complete, and no patients are lost to follow-up. (see Page 4, line 128-129)

- 5) There is a mistake in the legend of the x-axis in figure 1. The units of time should be days instead of months.

Reply: Thanks for your suggestion, I have corrected the error in figure 1.