durations may depend both on medical factors and institutional policies for ICU discharge. Models for prediction of prolonged mechanical ventilation may provide better approximations for a prolonged ICU stay than mortality models. However, good discrimination does not necessarily translate to good calibration or clinical usefulness of any model.

FUNDING

Yunita Widyastuti was supported by a scholarship from the Indonesian government.

Conflict of interest: none declared.

REFERENCES


eComment. Organism functionality parameters in predicting the length of intensive care unit stays?

Authors: Juan Bustamante, Sergio Canovas, J. Aurelio Sarralde and Eduardo Tamayo

1Department of Cardiovascular Surgery, Hospital Universitario La Princesa, Madrid, Spain
2Department of Cardiac Surgery, Hospital General Universitario de Valencia, Valencia, Spain
3Department of Cardiovascular Surgery, Hospital Universitario Valdecilla, Santander, Spain
4Department of Anaesthesiology and Reanimation, Hospital Clinico Universitario de Valladolid, Valladolid, Spain
doi:10.1093/icvts/ivs434
© The Author 2012. Published by Oxford University Press on behalf of the European Association for Cardio-Thoracic Surgery. All rights reserved.

We read the article by Widyastuti et al. [1] with great interest and it is true that cardiac surgery results have improved in accordance with improvements in cardiac techniques and perioperative care. This has led to the fact that the current profile of patients undergoing cardiac surgery is becoming an increasingly more elderly one with greater co-morbidity, thus implying an increase in surgical risk and, likewise, an increase in in-hospital stay, whether in the intensive care unit (ICU) or in total [2]. The currently most-used risk prediction scales have certain limitations and this means that, for specific groups of patients, they are not capable of a correct risk fit [3]. Moreover, it is difficult to know what the evolution of a patient who has been operated on will be, due to the large number of variables that may exert an influence on this aspect, and, therefore, how long the length of ICU stay will be.

The variables that measure the organism functionality parameters once the surgical procedure is over could be of great use in estimating subsequent evolution in conjunction with the preoperative risk scales. Many authors, and even various scales, have highlighted the importance of bearing in mind the parameters related with the inflammatory response and haemodynamic state of the patient, such as: hyperflectaemia, bicarbonate, heart rate, lactate and creatinine upon admittance to an ICU in order to establish predictive models that increase the precision of such an estimation [4, 5].

Another important aspect in analyzing immediate postoperative evolution is evaluating the development of complications during the surgical procedure (e.g., bleeding, acute myocardial infarction, inadequate myocardial protection, etc). These are going to be reflected in a series of metabolic alterations like: creatinine, haematoct, troponin T (TnT), pH, bicarbonate (HCO3−) or the ratio of partial pressure of arterial oxygen to the fraction of inspired oxygen (PaO2/FiO2), etc.

With regard to the intraoperative variables to which the authors refer, these are fundamentally centred on bleeding and the need for haemoderivatives [1]. Such variables may give rise to multi-colinear phenomena and it would therefore be advisable to carry out a check with an analysis of tolerance in order to determine
the impact that these could have. Another interesting piece of information would have been the comparison that could have been made between the proposed model and other scales based on variables upon ICU admittance, such as APACHE, SAPS II, and MPM II, with the aim of more broadly evaluating its validity.

Thus, intraoperative factors may probably modify the preoperative risk stratification: poor operative results, inadequate myocardial protection, etc. All these, and other, serious intra-operative factors could increase the risk of operative mortality to values above those indicated by preoperative risk models or increase the length of ICU stay. It is for this reason that the evaluation of the intraoperative and immediate postoperative variables that reflect the haemodynamic and functional state of the patient, in addition to the predictive risk-scales based on preoperative variables, could help in carrying out a more accurate estimation of the duration of ICU admittance.

Conflict of interest: none declared

References


eComment. Costs, nursing administrators and predictors of intensive care unit length of stay

Authors: Hudorovic Narcis and Vicic-Hudorovic Visnja

University Hospital Centre “Sestre milosrdnice”, Zagreb, Croatia
doi:10.1093/icvts/ivv436
© The Author 2012. Published by Oxford University Press on behalf of the European Association for Cardio-Thoracic Surgery. All rights reserved.

The intensive care unit (ICU) takes a significant proportion of the total healthcare cost, and therefore patients with prolonged lengths of stay (LOS) have serious cost implications. The authors have developed a model to more specifically predict ICU-LOS as compared to other mortality-prediction risk models [1]. Moreover, the authors have identified a significant correlation between preoperative and intraoperative variables and prolonged ICU-LOS. The present study allows members of the cardiac surgical community in low and middle income countries to reach significant conclusions regarding the preoperative and intraoperative factors that could influence the ICU-LOS among cardiac surgery patients. In addition, this study is among few European studies aiming to investigate parameters that could predict ICU-LOS and, consequently, to help in making administrative decisions regarding the planning of operations, provided care and ICU resource allocation, especially when it comes to reducing healthcare costs [2, 3]. Most importantly, the ICU-LOS is often a subjective outcome that is affected by the opinion of the intensive care specialists or a busy operations schedule [4].

To the best of our knowledge, some hospitals are more comfortable transferring patients out to a lower acuity nursing environment (nurse-led clinics) than other hospitals [5]. The different cut-off points of the ICU-LOS impede the ability to compare findings from corresponding international literature. Nursing administrators may use this knowledge for the appropriate use of the limited ICU, human and financial resources in today’s healthcare systems in middle income European countries. In addition, they have the opportunity to more efficiently and effectively plan operations, select low-risk patients despite significant restriction in the ICU beds availability. This is of great importance, especially for public healthcare systems in middle income European countries, characterized by limited resources, nursing staff and ICU-bed shortage.

Conflict of interest: none declared

References