

Purpose: In the management of patients with an open abdomen (OA), failure of fascial closure, decreased GCS, and presence of acute renal failure have been identified as having a significant effect on in-hospital mortality. The aim of this study is to develop a probability nomogram in order to predict the likelihood of in-hospital mortality amongst patients being managed with an OA.

Methodology: All patients admitted to the Cairns Hospital from 1999 to 2015 that were managed with an OA were identified. Statistical analysis was performed using multivariate logistic regression methods using 54 prognostic factors in regards to in-hospital mortality.

Results: A total of 133 patients were managed with an OA. 31 (23%) patients died in-hospital. Four prognostic factors were found to significantly contribute to in-hospital mortality. These included APACHE III score (odds ratio (OR) 1.29), presence of one or more cardiac risk factors (OR 5.00), normal pulse rate (50-80 beats per minute; OR 0.19) and the use of enteral feeding (OR 0.25). Probability nomograms were developed in order to demonstrate a patient's likelihood of in-hospital mortality, as well as identify specific aspects that may improve their overall outcome. Internal validation using receiver operator curve analysis showed an area under the curve of 0.825.

Conclusion: Four prognostic factors were identified in regards to in-hospital mortality in patients being managed with an OA. The use of these probability nomograms will not only aid in predicting the likelihood of in-hospital mortality, but also show aspects which can be targeted in order to improve their overall outcome.