A Clinical Prediction Score for Ruptured Appendicitis in Emergency Departments

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Abstract

Background Acute appendicitis is a common surgical condition in emergency departments. Ruptured appendicitis has a high morbidity and mortality and requires immediate surgery to remove the appendix and clean the abdominal cavity. The Alvarado Score is used as a tool to predict the risk of acute appendicitis, but there is no such score for predicting rupture. This study aimed to evaluate which clinical prediction factors are associated with ruptured appendicitis in an Asian population and to develop clinical predictive score.

Methods The study was conducted retrospectively using an exploratory model at the Emergency Medicine Department of Ramathibodi Hospital, a university-affiliated super tertiary care hospital in Bangkok, Thailand. The study period was between March 2016 and March 2018. The inclusion criteria were age >15 years, visit to the emergency department, and an available pathology report after appendectomy. Those patients with appendicitis and no pathology report were excluded. The predictive model and prediction score for ruptured appendicitis was developed by multivariate logistic regression analysis.

Result During the study period, 480 patients met the inclusion criteria; of these, 77 (16%) had ruptured appendicitis (positive pathology result). Five independent factors were predictive of rupture. The clinical risk score we developed to predict ruptured appendicitis had an accuracy of 81%. A score of >2 increased the likelihood ratio of ruptured appendicitis by 0.55 times

Conclusion Using the RAMA-We Ruptured Appendicitis Risk Score developed in this study, a clinical predictive score of >2 was associated with ruptured appendicitis.

Keyword predictive model, risk score, ruptured appendicitis