Abstract

Background: This study aimed to describe the characteristics of children with autoimmune inflammatory rheumatic diseases (AIIRD) who were admitted to the pediatric intensive care unit (PICU). The accuracy of the Pediatric Risk of Mortality (PRISM) III and Pediatric Index of Mortality (PIM) 3 scores to predict the mortality were investigated.

Methods: This was a retrospective cohort study. Patients with AIIRD aged ≤ 18 years who were admitted to the PICU at the largest tertiary referral center in Thailand during July 2011 to July 2021 were included.

Results: There were 122 PICU admissions from 74 patients; mean age of 10.75±3.89 years, 74.3% female. Majority of AIIRD were systemic lupus erythematosus (SLE)(83.8%). The main cause of admission was combined infection and disease flare (29.5%). The mortality rate of PICU admissions was 14.8% from 18 deaths; 17 of them were SLE and 1 with juvenile dermatomyositis. Mechanical ventilation (aOR 33.09, 95%CI: 4.32-252.93, P<0.001), thrombocytopenia (aOR 10.54, 95%CI: 2.61-42.60, P<0.001) and pneumothorax (aOR 9.68, 95%CI:1.54-60.66, P=0.015) were associated with mortality. The area under the ROC curve for the PRISM III and PIM 3 scores was 0.741 (95%CI: 0.633-0.849), P=0.001 and 0.804 (95%CI: 0.685-0.94), P <0.001, respectively. The model calibration demonstrated a chi-square of 4.335, P=0.826 for PRISM III and 7.879, P=0.435 for PIM 3.

Conclusion: SLE was the main AIIRD that required admission to the PICU. The PRISM III and PIM 3 scores demonstrated good calibration, while the PIM 3 score provided better discrimination ability in the prediction of mortality for pediatric AIIRD.

Key words: pediatric intensive care unit, PIM 3, PRISM III, systemic lupus erythematosus, rheumatology