Clinical Characteristics and Treatment Outcomes of Life-threatening Asthma Exacerbation

Chontida Krobpornchai

Hiroshi Chantaphakul

1Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand,
2Division of Immunology, Department of Medicine, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand

Background: Although treatment of asthma has progressively evolved, a significant number of patients still have a life-threatening exacerbation. Data on treatment outcomes of this condition is limited.

Objective: To determine clinical characteristics and treatment outcomes of patients with life-threatening exacerbation.

Methods: A retrospective study was conducted in a university hospital. All patients with asthmatic attack who were hospitalized between 2008 and 2016 were identified. The patients were divided into 2 periods, i.e. admission between 2002 and 2008 and between 2009 and 2016 for evaluating a trend of treatment. The year 2008 was used as a cut point because Thai CPG guidelines for asthma were renewed in 2008. Electronic medical records were reviewed. Data on baseline characteristics, previous treatment, treatments at emergency room (ER), laboratory data, and outcomes were analyzed using Chi-square test and Fisher’s exact test.

Results: There were 624 patients admitted due to asthmatic attack during the study period. Thirty nine (6.25%) patients required endotracheal intubation. Of these 39 patients who were intubated, 14 (35.9%) were males, with mean (±SD) age of 57 (±22.4) years. Seventeen (43.6%) patients were admitted for the first time. Fifteen (39.5%) patients used to be previously evaluated at asthma clinic. Intubated patients who were admitted during 2009-2016 had more history of treatment with short acting anticholinergics (n=9 vs 0; p=0.018) and long-acting beta-agonists (LABAs) (n=14 vs 1; p=0.001), but less history of treatment with inhaled beta-2 agonists (n=14 vs 13; p=0.003) than patients who were admitted during 2002-2008. At ER, patients who were admitted during 2009-2016 received significantly more work-up on CBC, electrolyte, and lactate than those admitted during 2002-2008. Patients who were admitted during 2009-2016 also received more antibiotics and magnesium at ER. The mean length of hospital stay in intubated patients was 7.9 days (range 1 to 87 days). Only 1 of 39 patients (2.6%) who were intubated died during hospitalization.

Conclusion: Intubation rate of asthmatic attack patients in a university hospital is comparable with those reported in other studies. Due to advancement in ventilator machine and critical care, the mortality rate of intubated patients is relatively low.

Keywords: asthma exacerbation, asthmatic attack, Intubated patient