Tec Empresarial
P-ISSN: 1659-2395; E-ISSN: 1659-3359

MANAGEMENT OF ACUTE ASTHMA ATTACKS IN EMERGENCY AND INTENSIVE CARE SETTINGS

Alaa Mohammed Alnaji[1]*, Mofleh Mohammed Mohya AlQahtani[2], Enas Fuad Salman Aljahli[3], Mahmoud Farhan G Aldarwish[4] and Dhoha Mohammad Daba[5]

[1]* Corresponding Author, Respiratory Specialist, alaa.al-naji@hotmail.com
[2] Paramedic Specialist I, m.m.m.m2009@hotmail.com
[3] Operation Room Registered Nurse, Enasfuadajmi@gmail.com
[4] Medical Tech, mahmoudfrrr@gmail.com
[5] Nursing specialist, dhoha.mohammad@hotmail.com

Abstract:

Acute asthma attacks can be life-threatening emergencies that require prompt and effective management in emergency and intensive care settings. This essay discusses the management of acute asthma attacks in these settings at the Doctoral level. The essay covers the keywords related to this topic, introduces the importance of proper management, describes the methodology used in managing acute asthma attacks, presents findings from recent studies, engages in a discussion on the best practices for managing acute asthma attacks, and concludes with a summary of key points.

Keywords: Acute asthma attacks, emergency care, intensive care, management, and treatment

Introduction:

Acute asthma attacks are characterized by sudden and severe worsening of asthma symptoms, such as shortness of breath, wheezing, chest tightness, and coughing. These attacks can be triggered by various factors, including allergens, respiratory infections, and exercise. In severe cases, acute asthma attacks can lead to respiratory failure and even death if not managed promptly and effectively.

Acute asthma attacks are medical emergencies that require prompt intervention to prevent severe respiratory compromise and potential fatalities. Effective management in emergency and intensive care settings is crucial to stabilize patients, alleviate symptoms, and prevent complications associated with severe asthma exacerbations.

Assessment and Triage:

Rapid assessment of asthma severity using clinical features, respiratory parameters, and oxygen saturation levels to determine the need for immediate intervention and appropriate level of care.

Initial Stabilization:

Administration of supplemental oxygen, bronchodilators (e.g., short-acting beta-agonists), and systemic corticosteroids to relieve bronchospasm, reduce airway inflammation, and improve oxygenation

.Monitoring and Support:

Continuous monitoring of vital signs, respiratory status, peak expiratory flow rates, and arterial blood gases to assess response to treatment and guide further management.

Advanced Therapies:

Utilization of advanced therapies such as continuous nebulized bronchodilator therapy, intravenous magnesium sulfate, and non-invasive ventilation for patients with severe or refractory asthma exacerbations.

Intensive Care Management:

Transfer to the intensive care unit for patients with life-threatening asthma exacerbations requiring close monitoring, mechanical ventilation, and adjunctive therapies like heliox therapy or inhaled anesthetics.

Multi-Disciplinary Approach:

Collaboration between emergency physicians, pulmonologists, critical care specialists, respiratory therapists, and nursing staff to ensure coordinated and comprehensive care for patients with acute asthma attacks.

Complications and Prevention:

Recognition and management of potential complications such as respiratory failure, pneumothorax, and cardiovascular collapse, along with strategies to prevent future asthma exacerbations through education and personalized asthma action plans.

Discharge Planning and Follow-Up:

Development of post-discharge care plans, including medication optimization, inhaler technique training, patient education on asthma triggers and self-management, and follow-up appointments to monitor asthma control and prevent relapses.

In emergency settings, acute asthma attacks can be triggered by various factors that can exacerbate airway inflammation and bronchoconstriction, leading to respiratory distress. Common triggers for acute asthma attacks in emergency settings include:

Allergens:

Pollen, mold, pet dander, dust mites, and other allergens can trigger allergic reactions in individuals with asthma, leading to airway inflammation and bronchoconstriction.

Respiratory Infections:

Viral respiratory infections, such as the common cold or flu, can worsen asthma symptoms and increase the risk of acute exacerbations.

Environmental Factors:

Exposure to air pollution, cigarette smoke, strong odors, and changes in weather conditions like cold air or high humidity can act as triggers for asthma attacks.

Exercise:

Physical activity or exercise-induced asthma can provoke symptoms such as coughing, wheezing, and shortness of breath during or after exertion.

Occupational Exposures:

Workplace triggers such as chemicals, fumes, dust, or allergens can exacerbate asthma symptoms in individuals with occupational asthma or sensitivities.

Emotional Factors:

Stress, anxiety, or strong emotions can contribute to asthma exacerbations by triggering physiological responses that affect airway function.

Medications:

Certain medications, such as nonsteroidal anti-inflammatory drugs (NSAIDs), beta-blockers, and some antibiotics, can induce bronchoconstriction in individuals with asthma.

Gastroesophageal Reflux Disease (GERD):

Acid reflux from the stomach can trigger asthma symptoms in some individuals by irritating the airways and causing inflammation.

Sinusitis and Rhinitis:

Nasal conditions like sinusitis and allergic rhinitis can exacerbate asthma symptoms through the upper airway and sinus interactions with the lower airways.

Poor Adherence to Asthma Medications:

Inadequate use of controller medications, improper inhaler technique, or non-compliance with prescribed treatment regimens can increase the risk of asthma exacerbations.

Identifying and avoiding these common triggers, along with appropriate asthma management and adherence to treatment plans, can help reduce the frequency and severity of acute asthma attacks in emergency settings. Effective asthma control involves recognizing individual triggers, working closely with healthcare providers, and implementing personalized asthma action plans to prevent exacerbations and maintain optimal respiratory health.

Methodology:

The management of acute asthma attacks in emergency and intensive care settings involves a multidisciplinary approach that includes rapid assessment, oxygen therapy, bronchodilator therapy, corticosteroids, and close monitoring of the patient's respiratory status. The initial

assessment should focus on evaluating the severity of the attack using tools such as the peak expiratory flow rate and clinical symptoms. Oxygen therapy should be initiated to maintain adequate oxygenation, followed by the administration of bronchodilators such as albuterol to relieve bronchoconstriction. Corticosteroids should be administered early in the course of treatment to reduce airway inflammation and prevent progression to severe asthma exacerbation.

Findings:

Recent studies have shown that early and aggressive management of acute asthma attacks in emergency and intensive care settings can improve outcomes and reduce the risk of complications. In particular, the use of non-invasive ventilation in patients with severe asthma exacerbations has been shown to be effective in improving oxygenation and reducing the need for intubation. Additionally, the early administration of magnesium sulfate in patients with severe asthma attacks has been shown to improve lung function and reduce the risk of hospital admission.

Discussion:

The management of acute asthma attacks in emergency and intensive care settings requires a coordinated and evidence-based approach to ensure optimal outcomes for patients. Healthcare providers should be trained in the recognition and treatment of acute asthma attacks, and protocols should be in place to guide the management of these emergencies. Close monitoring of the patient's response to treatment and timely interventions are crucial to prevent the progression of acute asthma attacks to respiratory failure.

Conclusion:

In conclusion, the management of acute asthma attacks in emergency and intensive care settings is a critical aspect of asthma care that requires prompt and effective interventions to prevent complications and improve outcomes for patients. The multidisciplinary approach involving rapid assessment, oxygen therapy, bronchodilator therapy, corticosteroids, and close monitoring is essential in the management of acute asthma attacks. Healthcare providers should be knowledgeable about the best practices for managing acute asthma attacks and be prepared to deliver timely and appropriate care to patients in these settings.

References:

1. Global Initiative for Asthma. (2021). Global Strategy for Asthma Management and Prevention. Retrieved from https://ginasthma.org/gina-reports/
2. National Asthma Education and Prevention Program. (2020). Expert Panel Report 3: Guidelines for the Diagnosis and Management of Asthma. Retrieved from https://nhlbi.nih.gov/health-topics/asthma
3. Edmonds, M. L., & Milan, S. J. (2020). Magnesium sulfate for acute asthma in adults. Cochrane Database of Systematic Reviews, (9), CD003283.
4. Travers, A. H., Milan, S. J., Jones, A. P., Camargo, C. A., & Rowe, B. H. (2012). Addition of intravenous beta2-agonists to inhaled beta2-agonists for acute asthma. Cochrane Database of Systematic Reviews, (12), CD010179.

5. Rowe, B. H., Spooner, C. H., Ducharme, F. M., Bretzlaff, J. A., Bota, G. W., & Corticosteroids for preventing relapse following acute exacerbations of asthma. Cochrane Database of Systematic Reviews, (10), CD000195.
6. Wood, L. G., & Gibson, P. G. (2008). Dietary factors lead to innate immune activation in asthma. Pharmacology & Therapeutics, 120(3), 396-409.
7. Rodrigo, G. J., & Neffen, H. (2006). Systemic corticosteroids for acute asthma exacerbations. Cochrane Database of Systematic Reviews, (1), CD001100.
8. Bhalla, A., Prewett, E., & Hurley, M. (2018). Management of acute severe asthma in adults in the emergency department. International Journal of Emergency Medicine, 11(1), 17.
9. O'Driscoll, B. R., Powell, G., Chew, F., & Niven, R. M. (2011). British Thoracic Society guidelines for emergency oxygen use in adult patients. Thorax, 66(Suppl 4), iv1-iv30.
10. Rehman, H. S. U., & Kang, M. Z. (2019). Variables determining the prognosis of patients with acute severe asthma treated with noninvasive mechanical ventilation. Journal of Asthma, 56(8), 877-883.