Asthma Triggers And Management

Introduction

Asthma is chronic condition affecting millions in clinical medicine today. It is estimated that asthma is linked to a multitude of lost school days, missed work days, and infinite number of doctor visits along with many hospital outpatient visits, and countless hospitalizations. 1 The respiratory therapist role include educating the patient and their families on diagnosing, preventing, and managing asthma.1 Our present-day understanding of the pathophysiologic mechanisms, clinical manifestations, and recommended treatments used to control asthma are the guidelines used to inform patients and their families.1 Currently, the treatment for asthma are more effective, and even though the disease is not curable it is controllable with proper treatment strategies and managed care.

Diagnosing Asthma

Symptoms of asthma include the following: coughing, wheezing, chest tightness, and shortness of breath. The airways of the lungs are sensitive to different inducements such as drugs (aspirin, beta-blockers), allergens, exercise, pollen, tobacco smoke, respiratory infections(viral), strong emotional expression, and environmental conditions. The presence of eczema, hay fever, or a family history of asthma or atopic disease might also be an indicator.

The most widespread and common tests used today to assess and monitor a patient’s airflow for the population over 5 years of age are as follows: Forced expiratory volume in 1 second (FEV), Forced expiratory volume in 1 second to forced vital capacity ratio (FEV/FVC ratio), and Peak expiratory flow ratio rate (PEFR). In addition, to the diagnostic tests, inhalation challenge tests, such as measuring the airway responsiveness to inhaled histamine or methacholine, or indirect challenge test to inhaled mannitol may be performed on patients who has an FEV of 80% or greater.1

In older children and adult’s alternative diagnosis include; upper airway obstruction or inhaled foreign bodies, vocal cord dysfunction, and pulmonary oedema.1 In the elderly because several variants can complicate the proper diagnosis of asthma such as left ventricular heart failure a comprehensive history of the patient along with a physical examination, chest x-ray, and electrocardiogram should be performed.

Triggers

As aforementioned, some patients develop asthma symptoms after administration of drugs such as beta-blockers, aspirin or other non-steroidal anti-inflammatory medications (NSAIDs). At least 5 of adults with asthma experience severe and even fatal exacerbations of asthma after taking these drugs.2 Patients who are sensitive to NSAIDs should use alternative medications to relieve pain such as acetaminophen.

Allergens from gas and biomass fuels from heating and cooling along with dust, pollen, mould,

cockroaches, mice, pet dander have contributed to asthma exacerbations. It is best to avoid or limit contact with known allergens to decrease asthma episodes.3

Exercise induced bronchoconstriction (EIB) particularly in cold air is triggered by physical activity. Heat loss from the airways seems to be a primary trigger.2

Tobacco smoke has more than 7,000 chemicals of which 70 are cancer causing.3 There is a greater risk of developing asthma if exposed to tobacco smoke prenatally and afterbirth. Respiratory viral infections such as the common cold, pneumonia, and the flu can cause inflammation (swelling) and narrowing of the airways. These conditions can trigger an asthma episode along with emotional stress and other psychological factors.

Managing Asthma

The Global Initiative for Asthma (GINA) and the National Asthma Education and Prevention Program (NAEPP) have provide clinical guidelines for managing and treating asthma. The foremost goals of asthma management are to; attain and maintain “control” of the clinical manifestations associated with asthma, maintain normal activity levels, maintain pulmonary function as close to normal as possible, prevent asthma exacerbations, avoid adverse effects from asthma medications, and prevent asthma mortality.1

GINA established that asthma can effectively be controlled by intervening to suppress and reverse the bronchial inflammation, and by treating the bronchoconstriction and related symptoms.1

Corticosteroid such as Flovent is a bronchial anti-inflammatory inhaler used to suppress inflammation in the airways, decreasing bronchial hyperactivity and airflow obstruction along with reducing the symptoms and mortality rate from asthma. Another corticosteroid is Prednisone. Prednisone is used as a short-term anti-inflammatory during exacerbations to reduce the severity and duration of asthma attack.

[bookmark: _Hlk3472516]Albuterol oral inhalation is the drug of choice for acute emergency management of asthma; the class of medication Albuterol belong to is beta-2-adrenergic agonists. They are the most rapid and effective bronchodilators providing protection from all bronchoconstrictor challenges when given prophylactically. They exert their action by attaching to beta receptors on the cell to produce smooth muscle relaxation and by blocking mediator release from mast cells.2p.529

Anticholinergic such as Duoneb is a combination drug made up of Ipratropium bromide and Albuterol. This drug is used when a patient is not responding to Adrenergic alone and can be used in treating acute asthma when first-line bronchodilators fail. Tiotropium is a long acting agent anticholinergic agent that has been shown to enhance asthma control when added to an inhaled corticosteroid.2

Some asthma patients have severe allergies to different environmental triggers. These patients sometimes benefit from biologics therapy. Biologics therapy is shots patients get every week or every few weeks. They work by targeting a protein in the body to prevent airway inflammation and help patient keep allergies under control which helps keep asthma managed also. Along

with the therapy just mentioned patients sometimes benefit from being put on a non-steroid anti-asthma medication such as Singular that they take every day.

Summary

Asthma remains one of society's most common illness with numerous days missed from school and work. With pharmacotherapy and a conjunction partnership between the professional and the patient or parents/caregivers of young children with asthma an effective management of asthma can take place. The objective of the partnership is to educate the patient so that they can control their own condition with guidance from professionals. To improve the life of asthma patients and reduce the need for medication the patient must avoid all risk factors (triggers) or reduce exposure to such. As noted in the outset, there is no known cure for asthma but with proper strategies and care it is controllable.

References

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