Asthma: Causes And Treatment

Asthma has been around for centuries. Asthma is derived from the Greek word panos, which means panting. Physicians in ancient Greece used the word asthma to describe improper breathing and breathlessness. Ancient Greeks believed that asthma was caused by an internal imbalance within the body, which could be healed by a healthy diet, herbal remedies, and exercise. Doctors in China understood asthma to be a sign of an imbalance in the soul or life force which they called “Qi”. Qi would then have to be restored by herbs or acupuncture. Hindu philosophers believed that the soul and spirit was a part of breathing. They used yoga and meditation as techniques to help manage asthma (Asthma, 2016).

The underlying pathophysiology of asthma is reversible airflow obstruction. There are three main mechanisms that cause this obstruction. Bronchoconstriction occurs through constriction of smooth muscles around the airways and is mediated through parasympathetic muscarinic M3 receptors. Inflammation refers to airway wall edema and inflammatory cell infiltration in the submucosa including eosinophils, activated helper T-cells, mast cells and neutrophils. Finally increased airway secretions can narrow the airway lumen. These secretions are made up of mucous, desquamated lining cells and intraluminal eosinophils (Douwes, J., et. al, 2002). Asthma generally presents at a young age with approximately 80% of children with asthma developing symptoms before age five. Some common triggers of asthma exacerbations in children include; viral upper respiratory infections, smoke, seasonal change, cold weather, cockroaches, mold and other environmental factors. The most common symptoms of asthma are coughing, wheezing, breathlessness accompanied by chest tightness, chest pressure and chest pain. There are a number of different features of cough that should raise concern for asthma. These include nocturnal cough, a cough that varies with the seasons, a cough that lasts more than three weeks or a cough in response to specific exposures such as cold air or exercise. The cough of asthma is usually dry and hacking but may produce clear or white sputum. The wheeze of asthma is produced due to the narrowed airways and tends to be heard on expiration. This wheeze can sometimes be appreciated without a stethoscope (Bush, 2019).

The management of asthma focuses on two main areas pharmacologic therapy and asthma education. Each of the medications used to treat asthma targets bronchoconstriction, inflammation and secretions. Bronchoconstriction is treated most commonly with albuterol, a beta-2 agonist which leads to smooth muscle relaxation around the airways. Inflammation is addressed with various forms of steroids. Anticholinergic drugs will block the muscarinic receptors reducing secretions. Many of these medications can be delivered via an inhaler or a nebulizer. Families should be counseled on the importance of avoiding the person’s triggers such as allergens, animal dander, smoke or fragrances. The proper administration of medication should be reviewed. Including how to use an inhaler

Currently, it has been estimated approximately 15 million people in America have asthma. Each year approximately 5,000 people die from asthma in North America, the prevalence of asthma is high among inner city children (Turk, 2002). One major cause of the disparities in the prevalence of asthma is the varying exposure to environmental factors. The rising prevalence of asthma is not just subject to urban environment but racial distinctions as well. Example African American and Latino children are at a higher risk for asthma because their families often inhabit

the poorer areas in major cities where pollutants and allergens are the worst (Reznik and Ozuah, 2012).

In addition, asthma results from allergic responses of the body. Allergens and asthma co-exist and the allergic responses play a key role in childhood asthma. These allergic reactions are usually triggered by factors such as pets, rodents and pollen. Also, asthma in children can be triggered by other environmental factors that are known as irritants. Research shows that a large amount of indoor allergens that children are exposed to subjects them to the risk of severe asthma. These irritants include second-hand smoke, air pollution, mold, and household chemicals.

Successful management approach to the urban epidemic of asthma will need to involve an emphasis on making preventive asthma medications more accessible and affordable also, parents whose children have asthma to use daily control medications on a regular basis (Joubert et al, 2011).

It is worth emphasizing that asthma management treatment in major cities needs to be more intensive. One method that relates to efforts of treating asthma is education and teaching patients and parents' asthma management skills. Studies have described the benefits of implementing classes for patient families involving multiple sessions over time. For the typical parent or child with asthma living in the city, day-to-day life is a full-time struggle unfortunately little time left can be devoted to classes. For families, asthma education has to be incorporated into scheduled medical visits (Sales, 2007).

Despite these impediments the potential outcome can be significant reductions in emergency department visits and hospitalizations.