Asthma

Max Schliesman
Question

What are some of the common symptoms of asthma and how could these change someone's daily life?
Common Symptoms Include:

- Wheezing
- Cough
- Shortness of breath
- Tightness of breath
- Increased mucus production
What is Asthma

A disease of the lungs in which the airways become blocked or narrowed leading to breathing difficulty.
Key Terms

- Asthma - a respiratory condition marked by spasms in the bronchi of the lungs
- Mucus - a slimy substance, typically not miscible with water, secreted by mucous membranes and glands for lubrication, protection,
- Airway - the passage by which air reaches a person's lungs.
What is Asthma

Asthma is usually divided into two types: **allergic** (extrinsic) asthma and **non-allergic** (intrinsic) asthma.
What's the Difference

See how Allergic Asthma and Non-Allergic Asthma are Similar, yet very Different.

**Allergic Asthma**
- Symptoms *are associated* with an allergic reaction.
- May be triggered by allergens like dust, pet dander, or cockroaches.

**Non-Allergic Asthma**
- Symptoms *are not associated* with an allergic reaction.
- May be triggered by exercise, stress, certain medicines, cold or dry air, airway infections, smoke and other irritants.

Symptoms may include:
- Coughing
- Shortness of breath or difficulty breathing
- Wheezing
- Tightening or pain in the chest
What Healthy Airways Looks Like

In people without asthma, the muscles around the airways are relaxed allowing the airways to stay open.
Airway With Asthma

The inside of the airways can get red, swollen, and filled with mucus.

The muscles around the airway also tighten leaving even less room for air to pass through.
How is Asthma Diagnosed?

Step 1: Physical Exam

If your doctor thinks you have asthma, they will do a physical exam. They will look at your ears, eyes, nose, throat, skin, chest and lungs.

A physical exam then allows your doctor to review your health.
How is Asthma Diagnosed?

Step 2: Lung Function Tests

Test breathing ability

Lung function tests are often done before and after inhaling the medicine bronchodilator, which opens your airways. If your lung function improves a lot after the medicine, asthma is present.
Epidemiology of Asthma

As of 2015 the prevalence of Asthma was 24,633,000 cases, which was 7.8% of the population.
Epidemiology of Asthma

The total number of deaths from asthma as of 2015 were 3,615.

The mortality rate of asthma calculated in 2015 was 10.3 per million.
Some 235 million people currently suffer from asthma. It is a common disease among children. Most asthma-related deaths occur in low- and lower-middle income countries. According to the latest WHO estimates, released in December 2016, there were 383 000 deaths due to asthma in 2015.
Causes of Asthma

- Having a blood relative with asthma
- Having another allergic condition
- Being overweight
- Being a smoker or being exposed to secondhand smoke
- Exposure to pollution
Asthma Triggers

- Pollen, dust mites, mold spores, pet dander, or any other airborne substance
- Respiratory infections, such as the common cold
- Physical activity
- Air pollutants
- Strong emotions and stress
Prevention

- Identify and avoid asthma triggers.
- Monitor your breathing.
- Identify and treat attacks early.
- Take your medication as prescribed.
- Pay attention to increasing quick-relief inhaler use.
Treatment Once Diagnosed

- Main treatment for short term are inhalers which contain short bursts of relief.
- Main treatment for long term is long term asthma control medicines which are taken daily rather than when an attack occurs.
Treatment Once Diagnosed

- **Cromolyn**- This medicine is taken using a device called a nebulizer. As you breathe in, the nebulizer sends a fine mist of medicine to your lungs. Cromolyn helps prevent airway inflammation.

- **Omalizumab (anti-IgE)**- This medicine is given as a shot (injection) one or two times a month. It helps prevent your body from reacting to asthma triggers, such as pollen and dust mites. Anti-IgE might be used if other asthma medicines have not worked well.

- **Inhaled long-acting beta2-agonists**- These medicines open the airways. They might be added to inhaled corticosteroids to improve asthma control. Inhaled long-acting beta2-agonists should never be used on their own for long-term asthma control. They must used with inhaled corticosteroids.
What Asthma Research Goes On Now?

- Currently being surveilled in the World Trade Center directory.
- There was also a national surveillance study conducted from 2001-2010 to highlight trends in prevalence that were reported above.
Future Research

Cross-Sectional study

Bronx Asthma Rates

Target areas with high rates and try to diagnose people who have not been yet.

Would help diagnose children earlier

Try to find correlations in the environment between the high prevalence rate areas
Citations

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