Bronchial asthma

BY MAISHAN OSMAN GANI

LA2-CO-172(1)

Introduction

- **What is bronchial asthma?**
- **Asthma** is a long-term inflammatory disease of the airways of the lungs.[3] It is characterized by variable and recurring symptoms, reversible airflow obstruction, and easily triggered bronchospasms

Causes:

- Asthma is caused by a combination of complex and incompletely understood environmental and genetic interactions.
- **Environmental : allergens, pollens , air pollution & other chemicals.**
- **Smoking**
- **Chemical exposure(formaldehyde, pesticides)**
- **Use of antibiotics in early life**
- **Genetic**

Signs and symptoms

1. Wheezing, shortness of breathing
2. Chest tightness
3. Cough
4. Sputum may produce by lungs but its often hard to bring up.
5. Associate condition (GERD,Rhino sinusitis)

Pathophysiology

- Asthma is the result of chronic inflammation of the conducting zone of the airways (most especially the bronchi and bronchioles), which subsequently results in increased contractability of the surrounding smooth muscles.
- This among other factors leads to bouts of narrowing of the airway and the classic symptoms of wheezing.
- Typical changes in the airways include an increase in eosinophils and thickening of the lamina reticularis.

- airways' smooth muscle may increase in size along with an increase in the numbers of mucous glands.
- cell types involved include: T lymphocytes, macrophages, and neutrophils.
- may also be involvement of other components of the immune system including: cytokines, chemokines, histamine, and leukotrienesamong others.

Diagnosis

- Spirometry
- **Asthma exacerbatio**

-Near-fatal high $PaCO_2$, or requiring mechanical ventilation, or both

-Life-threatening: Oxygen saturation < 92%

-Acute severe: Peak flow 33–50%, Respiratory rate ≥ 25 breaths per minute, Heart rate ≥ 110 beats per minute & Unable to complete sentences in one breath

- **Moderate :**worsening symptomsPeak flow 50–80% best or predictedNo features of acute severe asthma.
- And also many induce asthma

  -exercise induced

  -occupational

  -aspirin induced asthma

  -alcohol induced asthma

  -Non atopic asthma

Prevention

- Stop tobacco smoking
- Decrease air pollution
- Chemical irritants- perfume should be stop using.
- Identify and avoid **asthma** triggers.
- Get vaccinated for influenza and pneumonia.

Management

- Prevention of antigen-antibody reaction:Antigen avoidance, hyposensitization
- Neutralization of IgE (reaginic antibody):Omalizumab
- Prevention of the release of mediators: Mast cell stabilizers
- Suppression of inflammation and bronchial hyper-reactivity: Corticosteroids
- Antagonism of released mediators: Leukotriene antagonist, Antihistamines
- Blockade of constrictor neurotransmitter:Anticholinergics

- Directly acting bronchodilators: Methylxanthines
- **Bronchodilators**:

    1. β2-sympathomimetics (Salbutamol, Terbutaline etc)
    2. Methylxanthines (Theophylline, Aminophylline,)
    3. Anticholinergics Tiotropium bromide)

- **Corticosteroids**:

    1. Systemic Corticosteroids (Hydrocortisone, Prednisolone)
    2. Inhalational Corticosteroids (Beclomethasone, Budesonide, Fluticasone propionate, Flunisolide, Ciclesonide)

Thank you …