



# ALLERGIC RHINITIS

Opal Caldwell

King University

# ALLERGIC RHINITIS

- Airway allergy
- Also known as hay fever

Caused by inhaled allergens such as:

- Pollen
- Grass
- Trees
- Weeds
- Dust mites
- Mold spores
- Enzymes (detergents)



# TYPES

## ○ Seasonal

- Symptoms peak in seasonal peaks with trees, grass and weed pollen growth
- Spring, Summer, and late Autumn
- Most common causes of seasonal allergic rhinitis being ragweed pollen.



# PERENNIAL

- Patients experience symptoms year round
- Require chronic treatment
- Causes: Mostly indoor allergens
  - Animal dander
  - Dust mites
  - Indoor mold
  - Foods such as; nuts, dairy, eggs, shellfish



# GENETICS

- Over production of IgE
- Family history of asthma, eczema
- Family history of allergies
- Maternal smoking during pregnancy
- Being born in peak season
- Viral infections of the upper respiratory track



# PATHOPHYSIOLOGY

- Initial exposure causes B lymphocytes to produce IgE antibody which binds to mast cell membranes and causes patient to be sensitized to antigen.
- When patient are exposed the second time, mast cells breakdown and release mediators, histamine and basophils, causing symptoms of allergic rhinitis.



# PHYSICAL EXAMINATION

- Facial appearance:
  - ❖ teary- swollen eyes, red swollen nose with scaling and crusting, dark circles under the eyes, stuffy nose with mouth breathing,
  - ❖ Mucosa of the nose may be pale, swollen, and have clear watery discharge.
  - ❖ Swelling and red streaks on the posterior pharynx.



# DIAGNOSIS

- Obtain a complete history
- Where the patient was when symptoms first occurred
- Family history





# PHYSICAL EXAMINATION CONT

- Head congestion
- Runny nose
- Sneezing
- Itching, watery eyes
- Dry non- productive cough



# CASE STUDY

- Mary Hart is a 22 year old female who presents to her PCP today with complaints of teary eyes, and a red swollen nose. She has scaling and crusting of her nose. She presents with dark circles under her eyes, she is having difficulty breathing through her nose so she is mouth breathing. She has swelling around her eyes with watery discharge. She states "I feel awful. I think I have the flu". She is unable to concentrate at work due to the sneezing, running nose and eyes. She reports bouts of sneezing at least 6-7 times in a row. She has been working as a journalist for the past 6 months and reports to being in the community taking pictures of local kids in the down town park 4 days ago. Her symptoms began yesterday. She just started this new job and states "I cannot miss work". She reports having seasonal allergies as a child, but no symptoms since she was 8.



# CASE STUDY

- Past Medical History: Hypertension, hypothyroidism.
- Surgical History: Appendectomy 2007, Lap chole 2010.
- Family History: Father (living): hypertension, asthma.  
Mother (living): Hypertension, hypothyroidism.
- Social History: Patient is single, works everyday as journalist for local newspaper, denies any tobacco abuse, denies any drug abuse, and drinks beer on occasion in social setting (no more than 5 times per year). No children and never been pregnant.
- Allergies: PCN
- Current Medications: Amlodipine 5mg p.o daily,  
Levothyroxine 150mcg daily, Women's one a day MVI p.o daily



# CASE STUDY

- Physical Examination: Patient is alert and orientated, she has swollen, red eyes with dark circles, and her nose with clear watery discharge noted. Erythema and blood noted in nares. Swelling with streaks of Erythema and mucus are noted on the posterior pharynx. T-99.2, P-88, BP 136/76, R- 22, and O2 sat 100% on RA. Heart RRR no murmurs no gallops noted. Skin clear except as mentioned on face, lungs are clear with dry non-productive cough present; bowel sounds are present in all four quadrants. No swelling or edema of lower extremities present.



# CASE STUDY

- Labs: CBC–WBC: 13.8, RBC: 5.02, HEMOGLOBIN: 13.8, HCT: 38, PLT: 202, EOSINOPHILS: 6.9, Neutrophils: 55, Lymphocytes: 32, Monocytes: 3.0, Basophils: 0.7, Band: 0.9
- CMP– Na: 132, K: 4.6, BS: 92 Cl: 100, Bun:10, Creatine 0.9, Ca: 12, GFR: > 60, Sed rate: 20, AST 38, ALT 28, Amylase 50, Lipase 106, Alk Phos 70, Albumin 4.0 Thyroid: TSH 1.6, Free T4 1.2, Free T3 3.3.



# QUESTIONS

- What is M.H. likely diagnosis?
- What is the first line treatment for this diagnosis? Second line treatment? Third line treatment?
- Are there any drug-drug interactions?
- What side effects would you want to educate M.H. about her medication?
- What education would you want to teach your patient about this diagnosis?
- What, if any, additional testing should be conducted on this patient?



# ANSWERS

- 1. M.H suffers from Allergic Rhinitis

She has classic signs of seasonal allergic rhinitis from her trip to the park

- 2. First line treatment for allergic rhinitis are an intranasal corticosteroid such as Nasonex, Nasacort, or Astra given in combination with an antihistamine for systemic symptoms such as Zyrtec, Allegra, and Claritin.



## ANSWERS

- Second line therapy would be a nasal decongestant in combination with an antihistamine for nasal congestion.
- Third line therapy would include Cromolyn metered dose nasal spray.





## ANSWERS

- 3. Considering the patients medications and possible therapy to treat her diagnosis no drug-drug interactions are found with the therapeutic medications and the patients home medications.



# ANSWERS

- 4. Side effects of medications to treat allergic rhinitis include dry mouth, drowsiness, dizziness, increase in BP, headache, bitter taste (sprays), burning and irritation or stinging from nasal sprays, nervousness, fatigue, unpleasant taste.



# ANSWERS

- 5. Education about allergic rhinitis would include telling the patient to avoid things that cause her flare ups, such as, pollen, rag weed, and grass. She could ride in her car with the air conditioner on rather than rolling the windows down to avoid exposure. She can also use a dehumidifier to keep down allergens in her home. I would also want to educate M.H. about certain medications for this diagnosis that can cause an increase in her blood pressure and she would need to keep a close watch on the pressure and take her medication as directed.



# ANSWERS

- 6. Other testing M.H. may need would be allergy skin testing to identify the exact causes of her flare ups. I would want to order a routine pregnancy test on M.H before beginning drug therapy as most medications used to treat allergic rhinitis are pregnancy category B and some are category C, such as, desloratadine, fexofenadine, and intranasal steroids.

