

Episode 9 Show Notes

Allergic Rhinitis I, Oy Vey!

Allergic cluck...

1:20

Origin of the word allergy. It comes in the Greek word “alol”, meaning “change the original state”. With this ends up meaning is then allergic reaction is the result of the body’s change, when it responds to the otherwise harmless substance. The term was first coined by Austrian pediatrician, **Clemens von Piquet**.

However, the history of allergic reactions goes back farther than **1906**, when Von Piquet first used the term. What is probably the early report of an allergic reaction occurred with **King Menes of Egypt**, who was reportedly killed by a wasp’s sting somewhere **between 3640 and 3300 BC**.

Allergy was also reported in ancient Rome. **Britannicus**, the son of the Roman emperor Claudius, would develop a rash to the extent that his eyes swelled to the extent he could not see where he was going, when he was exposed to horses.

Dastardly **King Richard III** capitalized on his allergy to strawberries in cruel political fashion. He secretly ate some strawberries just prior to giving audience to Lord William Hastings, an adversary, then promptly developed hives, which he knew would occur. He then accused Hastings of putting a curse on him and demanded, and got, his head.

3:50

Jumping ahead to the 20th century, between **1911 and 1914 Leonard Noon and John Freeman** laid the groundwork for immunotherapy, or allergy shots.

1937, Daniel Bobbitt created the first antihistamine drug.

In **1948 Philip Hench** and **Edward Kendall** discovered corticosteroids, paving the way for their importance in medicine. These compounds are now used broadly to treat asthma and allergic reactions.

Kimishige and Teruko Ishizaka made great strides in our understanding of allergy when in **1967** they discovered the role of the **IgE class antibodies** as the principal mediator in the allergic reaction. When there is a recurring exposure to an allergen, like pollen, a person who is allergic will make IgE antibodies.

These antibodies then attach to mast cells, and with repeated exposure, the allergens cross-link IgE antibodies on the surface of the mast cells. It is this binding that causes histamine and other mediators to be released, and this is what causes allergic symptoms.

5:39

Medical science continues to advance our understanding of allergy....and of ways to treat it.

How common is allergy? Well, in the US it is estimated to affect approximately 60 million people. Is present in 10 to 30% of adults and almost 40% of children, according to some estimates. The prevalence of allergy has doubled over the last 20 years.

Allergic rhinitis is the most common of the atopic, or allergic, diseases. It is present in roughly 15% of population. Allergic rhinitis is not very common prior to the age of 2-3 since it typically requires a few years of allergen exposure to develop. However, if a very young child has persistent nasal symptoms and diagnosis should at least be entertained.

Allergic rhinitis increases in frequency throughout childhood, and peaks in its prevalence by the teenage years. Predisposition to allergy, just like to asthma and eczema, is often inherited genetically.

8:00

Economic burden is humongous. In the US alone, the costs of treating allergy and its toll on our economy ranges from \$5 to \$9 billion a year. Allergies don't just make us completely miserable; they also affect sleep, cognition, performance, and overall quality of life. For most patients with allergic rhinitis, it is a persistent recurring situation and requires many years of treatment. We'll cover that a little bit.

8:54

So, what is going on that makes us have these reactions? Through a complex process (which is a bit too complicated to get into on this podcast) certain cells process proteins we encounter in our environment which eventually leads to some other cells, B cells, to make specific IGE antibodies, and also increases the proportion of other cells called eosinophils, neutrophils and mast cells.

The IGE antibody specific for a certain allergen then binds to receptors on mast cells and creates sheer misery for us.

There are two main reactions going on here. The first is the "early reaction". This results in sneezing and runny nose and develops within the first 30 minutes and then disappears. The other is considered to be the "late reaction", which causes nasal obstruction about six hours after exposure to allergens. This involves infiltration of the nasal mucosa with inflammatory cells, like eosinophils, basophils, and T- lymphocytes, and is slow to dissipate. For most people, nasal obstruction is the main symptom of allergic rhinitis.

10:40

Traditionally, allergic rhinitis is subdivided by the kind of allergens, or allergic producing proteins, and into seasonal or perennial types.

Seasonal allergies are caused by outdoor allergens, or pollens. In the US, windborne pollens (trees and grasses) are prevalent in the Spring, and weed produced pollens, particularly ragweed, are common in the Fall. Interestingly enough, flower pollens hardly ever cause issues with allergy.

Perennial allergies are typically caused by indoor allergens, such as dust mites, animal dander, fungus, and cockroaches. Dust mites are a major allergen, and a major cause of chronic allergic rhinitis. They love warm, moist indoor environments. They can colonize pillows, mattresses, and carpets.

Animal dander consists of the skin flakes of animals. One can also be sensitive to the saliva of common household pets, particularly cats and dogs. Some people are also sensitive to proteins found in the animal urine, including that of hamsters and guinea pigs.

Cockroach allergy can be a huge problem for people in urban environments.

Children with perennial allergies often have less dramatic symptoms than those with seasonal allergies. However, their symptoms may include recurrent ear infections, frequent colds, snoring, mouth breathing, fatigue, and nasal speech.

12:30

Diagnosing allergic rhinitis is usually based on history, occasionally with the use of diagnostic testing.

Classic symptoms of allergic rhinitis are watery rhinorrhea (runny nose and parentheses, sneezing, nasal obstruction, and nasal itching. These children often have symptoms of post nasal drip, cough, tiredness, and irritability. They often don't blow their noses, but instead prefer to sniff and snort and clear their throats.

Many children, and adults, will demonstrate and "allergic cluck", wherein they create a negative pressure in their mouth and use their tongues to "scratch" their itchy palate.

There are also multiple physical signs of allergy children. Probably the most common is referred to as "allergic shiners". This appears as a dark discoloration below the eyes, and is consequence of venous congestion.

"Dennies lines" are the extra folds that many allergic kids have in their lower eyelids.

An "allergic crease" is the horizontal line across the bridge of the nose which comes from repetitively performing the "allergic salute". This is a well-recognized maneuver in which a child will sniff and sweep the palm of their hand upward across the bottom of their nose. This simple exercise is an attempt to open nasal passages, or wipe away secretions, or relieve the nasal itch that comes with allergies.

In addition to all of these signs, things seen on the physical exam includes a pale and boggy nasal mucosa, often with a clear watery discharge. And nasal turbinates are usually enlarged, often times to the extent that they basically obstruct the nose.

17:55

Wiz Gear recommendation

26:20

Many children with ongoing problems will have elongated faces, referred to as allergic facies in the biz. Not only are there faces long, but they offer have a high arched palate and can have dental malocclusion. Think of Cameron from Ferris Bueller's Day Off. Long face, miserable looking. Classic allergy look. Mouth breathing can also cause dental malocclusions.

Tonsils are often enlarged, from the constant irritation of allergy. There is often evidence of middle ear effusion. Many children demonstrate a phenomenon called "cobble stoning" in the backs of their throats. This is a consequence of the constant drip, drip, drip water torture, and the body's reaction to it by forming small bumps, or cobblestones, from lymphoid tissue in the back of the throat.

28:45

Another really important point is that allergic rhinitis often occurs in association with several other diseases, including asthma, allergic conjunctivitis, and eczema\atopic dermatitis. Most of us were taught that there is a "triad" of allergic diseases, consisting of allergic rhinitis, asthma, and eczema. We were trained to recognize that if one of these three miseries is present, then we should be on the alert to look for the others. Studies show that up to 50% of people with chronic rhinitis also have asthma.

31:15

So, back to the diagnosis of allergic rhinitis. Seasonal allergies are often diagnosed simply by history. Spring or Fall rolls around, and the child starts to experience the typical symptoms of sneezing, runny nose, sniffing, and coughing. As mentioned previously, Spring pollens tend to be from trees and grasses, and Fall pollens tend to be from weeds, particularly ragweed. However allergens can vary widely depending on one's region.

Clinical history is also important when there is an obvious and consistent association between an exposure and symptoms. For instance hives, stuffy nose, and/or immediate sneezing every time Uncle Lester's cat sits on your lap at Thanksgiving.

There are some other helpful tools help to diagnose allergy. In the past, nasal smears eosinophils were frequently done. This is where patient blow his nose on plastic wrap or wax paper and a cotton swab could be used to obtain secretions directly as well. The mucus was then put on glass slide and stained more than 10% of the cells are eosinophils, then allergy was likely.

Serum quantitative IgE levels are also used sometimes. High IgE levels suggest allergy, but many people with severe allergic rhinitis have normal serum IG's, so this has limited utility.

33:35

Ikea bags (rock)

34:20

Skin testing however is commonly done. This can detect antigen specific IgE. It identifies specific allergies in patients with an unclear or questionable diagnosis, or who need management beyond the routine.

Radioallergosorbent tests or RAST are also commonly used. These tests can detect antigen specific IgE when a diagnosis is in question or the severity needs to be determined. These are more costly than skin testing, and have a lower degree of sensitivity. They can be helpful if used efficiently. We find that if extensive testing is needed, referring the patient to an allergist makes the most sense, as the most cost-effective.

37:00

ENTs as allergists? No!!!

When do we refer to an allergist?

Bibliography

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