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Hay fever their cause and epidemiology

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Abstract:

Allergic rhinitis it's not a disease nor a disorder it actually a symptom differentiated and classified according to the **allergen** otherwise there may be an idiopathic allergy. In general its divided into **intermittent** and **persistent**. With severity of rhinitis it may accommodate your activity and achievements. Here in this report illustrate the mechanism and predisposing according to the epidemiology confirmed by "**WHO**"& "**WAO**" (world allergic organization).

Introduction:

Definition of allergic rhinitis

A symptomatic disorder of the nose resulting from an IgE-mediated immunological reaction following exposure to allergen. The major symptoms are rhinorrhea, nasal itching, obstruction and sneezing which are reversible either spontaneously or with treatment.

Classification of rhinitis

Infectious, *Allergic** Intermittent (seasonal, e.g., hay fever) **or** Persistent (perennial continuous symptoms) , Drug-Induced,* Occupational, *Hormonal** Related to puberty, pregnancy, menstrual cycle and some endocrine disorders.

Other Causes/Types of Rhinitis

- Foods
- Irritants
- Emotion
- Gastroesophageal reflux
- Atrophic rhinitis (shrunken nasal tissue)
- NARES: Non-Allergic Rhinitis with Eosinophilia

Idiopathic

The traditional classification: is **seasonal** and **perennial**, but in reality the situation is not as clearly defined. Allergens that are seasonal in one part of the world can be perennial in other areas. Typically patients are allergic to, and suffer symptoms from, more than one allergen.

A better classification is:

Intermittent

In which symptoms occur on less than 4 days a week or for less than 28 days at a time.

Persistent

In which symptoms occur on the majority of days of the week and for more than 28 days.

The Severity of Allergic Rhinitis:

In **mild rhinitis** there is no disturbance in sleep, leisure, school or work activities.

In **moderate/severe rhinitis** there is disturbance to sleep, leisure, school or work activities.⁽³⁾

Discussion:

Study1: Epidemiology of Allergic Rhinitis:

Children:

The prevalence of rhinitis symptoms in the **International Study on Asthma and Allergies in Childhood (ISAAC)** varied between 0.8% and 14.9% in 6-7 year olds and between 1.4% and 39.7% in 13-14 year olds. Countries with a very low prevalence include Indonesia, Albania, Romania, Georgia and Greece. Countries with a very high prevalence include Australia, New Zealand and the United Kingdom.

Adults

There is no equivalent to **ISAAC** for adults. National surveys show prevalence rates of rhinitis of between 5.9% (France) and 29% (United Kingdom) with a mean of 16%. **Perennial** (persistent) rhinitis is probably more common in adults than in children.

Immunopathology of Allergic Rhinitis

Allergic rhinitis is characterized by an inflammatory infiltrate in the nasal mucosa, which includes:

- Chemotaxis, selective recruitment and transendothelial migration of eosinophils, mast cell precursors, macrophages, Langerhans cells and lymphocytes, particularly T helper cells.
- Migration of cells, particularly mast cells, eosinophils, Langerhans cells and lymphocytes towards and into the epithelium. Activation, prolongation of survival of these cells with release of mediators.
- Regulation of local and systemic IgE synthesis.
- Allergen cross-links adjacent IgE molecules on the mast cell surface which triggers the release of mediators of hypersensitivity, including **histamine, tryptase, prostaglandin D2 and leukotrienes**.

Histamine, released from activated mast cells, is the major mediator of the **early phase** reaction following allergen exposure. It stimulates sensory nerves to cause sneezing and nasal itch, leads to vasodilatation, plasma exudation and stimulates mucous cells - together causing rhinorrhea - and plays some part in nasal obstruction. Histamine also has a pro-inflammatory role through up-regulation of adhesion molecules and release of cytokines.

Leukotrienes are generated and released into nasal tissue by mast cells, eosinophils, macrophages, neutrophils and epithelial cells. They play an important role in the **late phase** reaction causing nasal obstruction, mucus secretion and leading to inflammatory cell recruitment.⁽¹⁾

Study 2:

First of all agreed with the first study

Further study on Allergic Rhinitis by (WAO) "world allergic organization"

Morbidity: Adults aged 18 and over

- Number with diagnosed hay fever in the past 12 months: 20.0 million
- Percent with diagnosed hay fever in the past 12 months: 8.2%

Morbidity: Children under age 18 years

- Number with reported hay fever in the past 12 months: 6.1 million
- Percent with reported hay fever in the past 12 months: 8.4%
- Number with reported respiratory allergies in the past 12 months: 7.4 million
- Percent with reported respiratory allergies in the past 12 months: 10.1%
- Number with reported food allergies in the past 12 months: 4.2 million
- Percent with reported food allergies in the past 12 months: 5.7%
- Number with reported skin allergies in the past 12 months: 8.8 million
- Percent with reported skin allergies in the past 12 months: 12.0%⁽²⁾

Further study: in north africa "Libya" specially (suluq, jaghub) in desert climate places doctor in "suluq" confirm that zone with this kind of weather prevail of happening from **10** citizen **2** are affected annual.⁽⁴⁾

Conclusion:

the aim of this report to know the important of allergen according to there cause giving the opportunity to do further study and awareness of this symptom hay fever "hypersensitivity type3"

Reference:

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4. Wichmann J, Wolvaardt JE, Maritz C, Vuyi KV. Household conditions, eczema symptoms and rhinitis symptoms: relationship with wheeze and severe wheeze in children living in the Polokwane area, northAfrica. *Matern Child Health J.* 2012;13:107–118. [[PubMed](#)]