Introduction about VMR

Rhinitis is an inflammation of the nasal lining mucosa characterized by nasal congestion, rhinorrhea, sneezing, and/or nasal itching. Rhinitis is classified into allergic, nonallergic, occupational, hormonal (pregnancy and hypothyroidism), drug-induced, and food ingestion-induced subtypes **(Dykewicz et al., 1998).**

Vasomotor rhinitis (VMR) is the most common form of chronic nonallergic rhinitis (NAR). Recent articles have noted that VMR may sometimes be a "wastebasket diagnosis". This is because VMR is an idiopathic condition diagnosed in the absence of infection, allergy, eosinophilia, hormonal changes (such as pregnancy, hypothyroidism), and exposure to drugs (oral contraceptives, estrogens, angiotensin-converting enzyme (ACE) inhibitors, B-blockers, antihypertensive, aspirin, chlorpromazine, nonsteroidal anti-inflammatory drugs, and topical nasal decongestants)**, (Hadley, 2003).**

In the United States, NAR affects 19 million people; many physicians assume that rhinitis is allergic in origin without identifying the offending antigens, because there has been concern whether differentiating AR from NAR is cost-effective and changes management. However, there are no data to support this approach **(Lau and Long, 2003)**.

- **Types of perennial nonallergic rhinitis:**

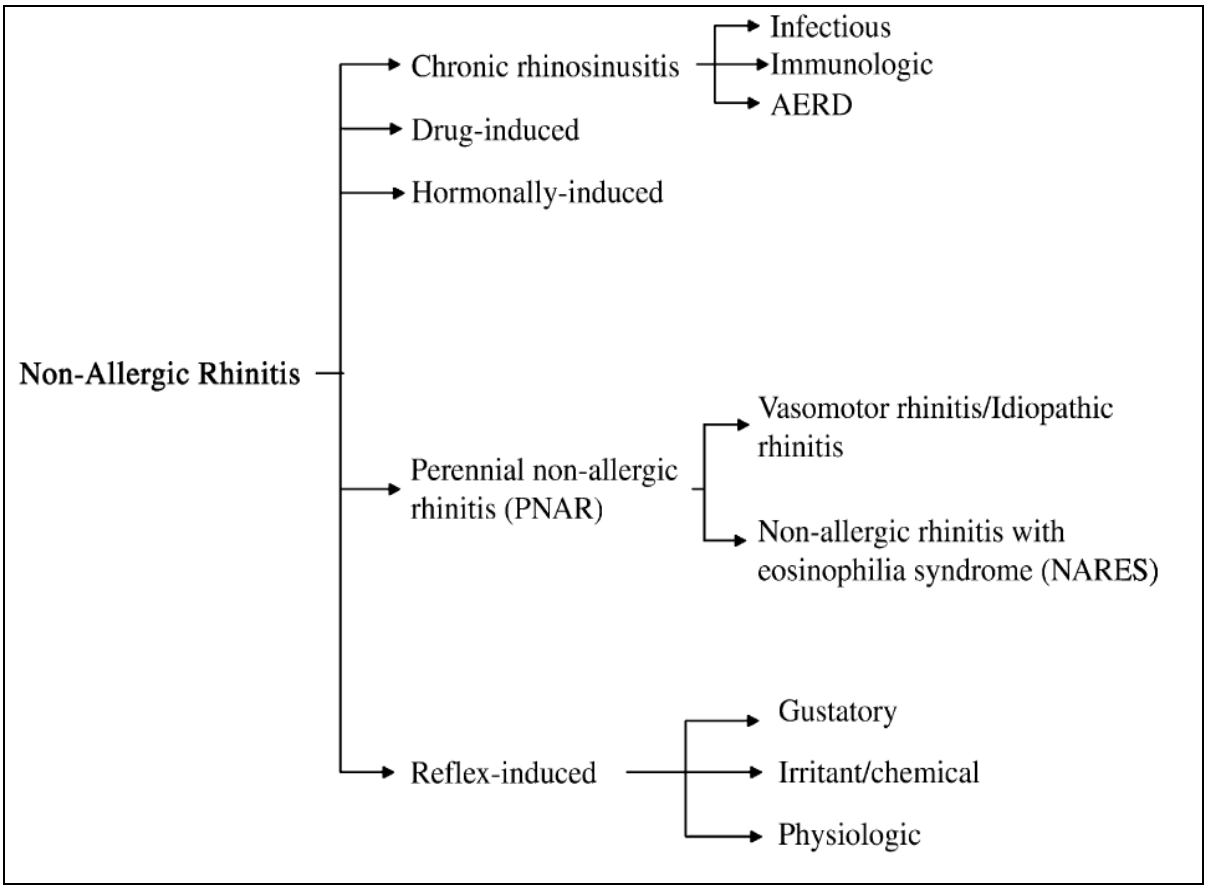

Fig.1. Rhinopathies: classification overview. AERD, Aspirin-exacerbated respiratory disease **(Greiner and Meltzer, 2006).**

(1) Nonallergic rhinitis without eosinophilia (vasomotor rhinitis).

Nonallergic rhinitis without eosinophilia.Sometimes termed idiopathic (vasomotor) rhinitis.Symptoms are nasal obstruction, increased secretions, or both, with sneezing and pruritus being less common. This clinical presentation is likely caused by a heterogeneous group of disorders with a pathogenesis that is incompletely understood **(Bousquet et al., 2008).**

Vasomotor rhinitis can more specifically connote nasal symptoms that occur in response to environmental conditions, such as changes in temperature or relative humidity, odors (eg, perfumes or cleaning materials), passive tobacco smoke, alcohol, sexual arousal, and emotional factors. Such hyperreactivity to nonallergic triggers is not mediated by increased neural efferent traffic to the blood vessels supplying the nasal mucosa and can also occur in allergic rhinitis, when the term mixed rhinitis is applied **(Bousquet et al., 2008).**

Patients with vasomotor rhinitis are further divided into two subgroups: "runners," who demonstrate "wet" rhinorrhea; and "dry" patients, who exhibit nasal obstruction and airflow resistance with minimal rhinorrhea **(Dykewicz et al., 1998).**

(2) Nonallergic rhinitis with eosinophilia syndrome (NARES).

Nonallergic rhinitis with eosinophilia syndrome (NARES) is anther type characterized by perennial nasal symptoms (particularly nasal congestion), sneezing paroxysms, profuse watery rhinorrhea, nasal pruritus, and occasional loss of smell. Nasal smears demonstrate eosinophils (inconsistently defined as >5% to >20%) as in allergic rhinitis, but patients lack evidence of allergic disease based on skin testing or serum levels of IgE to environmental allergens **(Ellis and Keith, 2006).**

However, similar to histologic findings in patients with allergic rhinitis, mast cells with bound IgE and increased tryptase levels have been found in nasal mucosal biopsy specimens of patients with NARES. Patients are typically middle-aged adults **(Ellis and Keith, 2006).**

The prevalence of NARES in the general population is uncertain, but NARES occurs extremely infrequently in childhood and probably accounts for less than 2% of children with nasal eosinophilia. It has been proposed that the syndrome might be an early stage of nasal polyposis, aspirin sensitivity and non-IgE-mediated asthma. Patients with NARES are at risk for obstructive sleep apnea **(Moneret-Vautrin et al., 1990).**

- ## Diagnosis of VMR:

VMR is characterized by the presence of chronic symptoms for 9 or more months each year. It can be differentiated from allergic rhinitis (AR) by the relative later age of onset, frequent lack of atopic comorbidities as AR may be co-exist with allergic asthma and allergic conjunctivitis, nature of triggering factors, and type of symptoms. Precipitants include climate changes and nonspecific olfactory irritants, such as perfumes and tobacco smoke. Nasal obstruction and rhinorrhea are hallmark features of VMR and are more commonly seen than sneezing or itching. Patients with VMR were more likely than patients with AR to report headaches, nasal pressure, and posterior rhinorrhea and less likely to be affected by sneezing, nasal pruritus, and conjunctival symptoms (**Togias, 1990).**

Typically, patients with allergic rhinitis have clear discharge, swollen turbinates, and bluish or pale mucosa. Pale or erythematous mucosa can be seen in various types of nonallergic rhinitis. Determination of specific IgE antibodies to known allergens by means of skin testing or in vitro tests is indicated to provide evidence of an allergic basis for the patient's symptoms. Skin testing is preferred for its simplicity, ease, and rapidity of performance; low cost; and high sensitivity **(Dykewicz et al., 2010).**

Neither total serum IgE levels nor total circulating eosinophil counts are routinely indicated in the diagnosis of rhinitis because they are neither sensitive nor specific for allergic rhinitis. Nasal cytology might aid in differentiating allergic rhinitis and NARES from other forms of rhinitis(**Togias, 1990).**

In selected cases special techniques, such as fiberoptic nasal endoscopy, inspiratory peak flow measurements, acoustic rhinometry, or rhinomanometry, to assess airway function might be useful in evaluating patients presenting with rhinitis symptoms so in general no specific test is available to diagnose vasomotor rhinitis. In studies and in practice,VMR diagnosis is reached by exclusion. **(Dykewicz et al., 2010).**