

Pharmacological treatment of pollinosis: has the late-phase allergic response been forgotten?

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Dear Editor,

The pathophysiology of allergic rhinitis is complex, comprising an early and late phase of allergic response. In the case of pollinosis, symptoms can become evident after exposure to pollens in nature.¹ In both allergic rhinitis and allergic asthma, the allergic response can show biphasic kinetics in susceptible individuals.²

The early-phase reaction is characterized by mast cell degranulation caused by allergen recognition by surface immunoglobulin E, leading to the rapid onset of nasal symptoms (i.e., sneezing and rhinorrhea) and the emergence of ocular symptoms (i.e., itching, hyperemia, and tearing). This is due to the release of histamine, together with the effects of other pro-inflammatory cytokines (e.g. leukotrienes and prostaglandins).^{1,2}

The second phase, termed late allergic response (LAR), occurs 2 to 8 hours after allergen exposure in certain patients. Approximately 50% of patients with allergic rhinitis experience a symptomatic LAR.¹

The LAR is characterized by nasal obstruction after initial recovery, associated with an increase in interleukin 13 (IL-13).² Nasal obstruction often leads to breathing and sleep disturbances, resulting in decreased quality of life and productivity, daytime sleepiness, fatigue, and stress.³

Aerobiology studies initiated in past decades have confirmed the presence of a grass pollen season in southern Brazil. It begins in September and starts to decline in December, confirming a pattern of seasonal symptoms, which is characteristic of pollinosis.^{4,5} This pattern repeats year after year in sensitized patients during the spring season in Brazil.

It is known that there is a higher concentration of pollen in the air during the early morning and late afternoon. However, data regarding specific times are conflicting, as they depend on meteorological conditions, vegetation location, and species.

Because of ground and urban heating, pollen present in the air during the morning reach higher atmospheric levels. Conversely, during the late afternoon cooling, a descending current brings pollen to lower atmospheric levels, increasing its concentration and, consequently, the symptoms in patients.

In Brazil, we lack data on grass pollen concentrations at different times of the day. This may make it difficult for physicians to establish an association between possible LAR and the nocturnal nasal obstruction experienced by some patients. However, this association should be investigated particularly in patients with atopy, considering that the late afternoon on sunny, warm, dry, and windy days is when there is greater pollen dispersion in the air.

Patients with increased IL-13 concentrations in nasal secretion may be at higher risk for experiencing LAR. This could mean, in the future, a move toward personalized treatment for patients with pollinosis.²

Commonly used antihistamines are highly effective in mast cell degranulation, i.e., the early-phase response, but have not shown efficacy on LAR symptoms. Glucocorticoids provide greater symptom relief in this phase.¹

Prophylactic treatment with nasal corticosteroids is more effective than oral antihistamines for pollinosis, particularly during the LAR phase.^{2,6}

The use of fluticasone furoate or mometasone furoate nasal sprays is recommended, which can also control ocular symptoms.⁶⁻⁹

When asymptomatic patients are exposed to low pollen concentrations, the presence of a minimal persistent inflammation can already be detected, exacerbated by repeated exposure to pollen, known as the “priming effect”.⁷

When administered at recommended doses, topical nasal corticosteroids are generally not associated with systemic side effects, such as increased intraocular pressure or the development of subcapsular cataracts. Children should use the lowest effective dose and have their growth monitored.⁸

Antihistamines are probably the most common medication used for allergic rhinitis among the general population. They are easily accessible and distributed in Brazil through the public health system.

Pollinosis is distinguished from chronic rhinitis by the presence of acute symptoms of rhinoconjunctivitis at the beginning of the pollen season, which are often difficult to tolerate. Possible associated bronchial asthma should be investigated.

Patients who perform outdoor activities or exercise are more likely to develop symptoms. For the allergic population, avoiding pollen is challenging.

A detailed clinical history and physical examination, together with complementary diagnostic and therapeutic procedures, can make a significant difference in morbidity, quality of life, and distinguish allergists in the eyes of their patients.

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