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Anti-IgE Treatment in Allergic Rhinitis

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Editorial

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Keywords

Allergic Rhinitis; Anti-IgE; Omalizumab

Abbreviations

AR: Allergic Rhinitis; AIT: Allergen Immunotherapy.

Editorial

IgE plays a central role in the physiopathology of allergic rhinitis (AR). The binding of IgE-antigen immune complexes to mast cells triggers their degranulation and the release of inflammatory mediators, with the recruitment of other effector cells (eosinophils, basophils). This is the basis for the use of anti-IgE antibodies in the treatment of allergic diseases where we classically found high serum IgE levels.

Omalizumab is the first and best-known anti-IgE [1]. It is a recombinant humanized IgG1 monoclonal antibody [2]. It binds to the Cε3 domain of IgE without inducing degranulation of mast cells and basophils (IgE binds to the FcεRI receptor of mast cells and basophils via their Cε3 domain, leading to degranulation) [3]. This prevents IgE binding to effector cells, thereby inhibiting their stimulation. Through this mechanism of action, omalizumab reduces serum IgE levels and the number of FcεRI receptors [1]. It also reduces IgE production by inhibiting allergen presentation [1]. IgE-dependent activation and degranulation of mast cells and basophils is thus inhibited.

Subcutaneous administration is most commonly used [3]. Absorption of omalizumab is slow, with peak concentration obtained in 7 to 8 days [3]. The dose to be administered per month is calculated according to the following formula [4]:

$$Omalizumabdosepermonth\ (mg) = 0.016 \times bodymass\,(kg) \times IgElevel\,(IU/mL)$$

The frequency of administration is every 2 to 4 weeks [4]. Treatment duration varies from study to study, ranging from 8 to 24 weeks [5]. It is generally well tolerated [1].

The FDA (Food and Drug Administration) authorizes the use of omalizumab for children over 12 years of age [1] and approves its indication for the treatment of allergic asthma and chronic urticaria [6]. Its place in AR has not yet been accepted by international guidelines. However, several studies have demonstrated the efficacy of omalizumab in the treatment of AR (seasonal and perennial), with improvements in allergic symptoms and quality of life, as well as a reduction in the need for symptomatic treatment [5,7-11].

Several authors have proposed the use of omalizumab before or at the same time as subcutaneous allergen immunotherapy (AIT). In fact, it [1,2,12]:

- Help to initiate AIT in patients with asthma that was uncontrolled before treatment with omalizumab
- Reduce the systemic effects of subcutaneous AIT
- Help to reach an effective AIT dose
- Allow greater therapeutic efficacy by combining the two biotherapies
- Maintain good symptom control after discontinuation of omalizumab
- Treatment with omalizumab is expensive [13].

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