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Role of intranasal corticosteroids in nasal disease treatment

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Abstract
Corticosteroids are the most commonly used anti-inflammatory. Intranasal corticosteroids are considered the most effective treatment of allergic rhinitis because they suppress many stages of the allergic inflammatory reaction. Intranasal corticosteroids have been shown to be more effective for the relief of allergic rhinitis. Intranasal corticosteroids are the choice of medical therapy in the management of adenoid hypertrophy in children. It is important to understand the level of safety and the indications and contraindications for using corticosteroids.

Keywords: Corticosteroids, allergic rhinitis, adenoid hypertrophy, intranasal

Introduction

Background

Corticosteroids are anti-inflammatory drugs that are often used. High doses and long-term usage influence changes in metabolism, protein and fat, fluid and electrolyte balance, and support the normal function of cardiovascular systems, immunity, kidneys, skeletal muscles, endocrine and nervous systems. The corticosteroid dose is divided into four, namely low dose (less than 10 mg/day), intermediate (10-20 mg/day), high (20-60 mg/day) and very high (100 mg-1000 mg/day). It is crucial to understand the level of security, indications, and contraindications of its use [1].

Corticosteroids are still the gold standard in long-term anti-inflammatory management of persistent asthma and rhinitis in children. The clinical benefits are far beyond side effects in patients treated with low to moderate doses. Clinical follow-up is still significant for the early detection of side effects, especially in patients who use this drug through nasal and lung routes [2].

Intranasal corticosteroids are considered the most effective treatment of allergic rhinitis because they suppress many stages of allergic inflammatory reactions. It also has proven to be more effective in eliminating allergic rhinitis. Oral and intranasal antihistamines are particularly beneficial in improving the symptoms of eye and nasal congestion. Systemic corticosteroids are effective in reducing the symptoms of allergic rhinitis but raise a significant risk of toxicity in the long term. Beclomethasone is the first steroid that is reported effective in aerosol spray. Since then, eight compounds for intranasal applications have been approved for allergic rhinitis in the United States [3].

Effects of Intranasal Corticosteroids on Allergic Rhinitis

Allergic rhinitis is a disorder of the nasal caused by chronic IgE-mediated inflammation following exposure to allergens in the lining of the nasal membrane. Symptoms of allergic rhinitis include rhinorrhea, nasal congestion, nasal itching and sneezing which may resolve spontaneously or with treatment [4].

Multimorbidity of allergic rhinitis occurs extranasally in the form of conjunctivitis, asthma, atopic dermatitis, rhinosinusitis accompanied by polyps, otitis media with effusion, adenoid hyperplasia, gastroesophageal reflux, sleep disorders and chronic upper airway cough syndrome. The presence of one or more comorbidities will increase the duration and severity of the disease, diminish quality of life, and refractoriness to treatment. Allergic rhinitis must be treated with a multidisciplinary approach [5].

Intranasal corticosteroid administration is indicated for patients with moderate-severe intermittent allergic rhinitis and persistent allergic rhinitis. The anti-inflammatory effect of this drug is mediated by the regulation of specific target gene expression. It is highly effective in relieving symptoms of allergic rhinitis. Intranasal corticosteroids rarely cause systemic side effects, but if given together with other topical corticosteroids, titration should be carried out to the lowest dose that can control the disease [6]. Non-sedating antihistamines and topical corticosteroids remain the first-line treatment for allergic rhinitis. The benefit-risk ratio must be considered in each case [7]. Local intranasal glucocorticoids have a low incidence of systemic side effects and are recommended for the treatment of olfactory dysfunction in allergic rhinitis. Budesonide is not easily absorbed into the blood of the nasal mucosa so systemic side effects are low. Intranasal application of glucocorticoids is expected to be an ideal treatment method for olfactory dysfunction in allergic rhinitis [8].

Effects of intranasal Corticosteroids on Adenoid Hypertrophy

Adenoid hypertrophy is a process of changing the size of adenoids and is the main cause of nasal congestion. It can occur due to physiological processes, inflammation, or malignancy. Intranasal corticosteroids are the choice of drug therapy in the management of adenoid hypertrophy in children, but their use in adult adenoid hypertrophy has not been widely studied. Intranasal corticosteroids are effective in reducing the degree of adenoid inflammation in adult patients using NBI (Narrow Band Imaging) examination. The use of nasoendoscopy equipped with NBI lighting correlates with histopathological examination to determine the degree of inflammation in the adenoids [9].

Other studies have shown no effect of intranasal mometasone furoate on adenoid size, mucus, and otitis media with effusion three to six months after 12 weeks of treatment. Topical steroids appear to have a temporary

effect on adenoid size and mucus that decreases when it is discontinued [10].

Intranasal steroids provide an efficient non-surgical alternative for the correction of nasal obstruction in patients with adenoid enlargement. Factors influencing the outcome of intranasal steroid therapy have not been identified but this treatment can achieve satisfactory results in children to avoid re-adenoidectomy [11].

Many studies support that IL-6 is the pathophysiological basis for adenoid hypertrophy, so it needs therapy that can reduce its role. Intranasal corticosteroids are the choice of management for adenoid hypertrophy because they have anti-inflammatory effects. Mometasone furoate nasal spray can significantly reduce IL-6 levels serum in patients with adenoid hypertrophy, accompanied by a decrease in adenoid size, decreased symptoms and complaints of patients with adenoid hypertrophy. The IL-6 levels in serum showed a decrease after receiving mometasone furoate nasal spray for two weeks and decreased further after six weeks. Patients with adenoid hypertrophy who received intranasal corticosteroid therapy had lower IL-6 levels than those who were not given it. The effect of administering intranasal corticosteroids can reduce IL-6 after two weeks of therapy [12].

Intranasal corticosteroids (mometasone furoate) for four weeks can be an effective treatment choice in pediatric SDB patients without significant complications. It also works effectively regardless of allergy, sinusitis, and obesity status [13].

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