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Montelukast combined with intranasal mometasone furoate versus intranasal mometasone furoate; a comparative study in treatment of adenoid hypertrophy

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ABSTRACT

Objective: To evaluate the role of combined therapy using montelukast and intranasal mometasone furoate compared to intranasal mometasone furoate alone in treatment of adenoid hypertrophy regarding efficacy and recurrence rate.

Methods: The study included 100 children with adenoid hypertrophy, they were randomly assigned to two groups. Group I (50 patients) received combined therapy using montelukast and mometasone furoate nasal spray. Group II (50 patients) received only mometasone furoate nasal spray. Patients were treated for 3 months and observed for 3 months after stoppage of treatment. Patients were evaluated using symptoms scores, Adenoid/Nasopharyngeal ratio and endoscopic grading of adenoid hypertrophy.

Results: After 3 months of treatment, group I showed significant better scores of main symptoms than group II; ($P = 0.001$), ($P = 0.019$) and ($P = 0.008$) for rhinorrhea, mouth breathing and snoring respectively. The mean A/N ratio was 52.8 ± 11.3 in group I better than 62.88 ± 12.10 in group II ($P < 0.001$). Regarding the adenoid hypertrophy grading, significant reduction in size was found in group I in 34 (68%) patients better than in group II in 18 (36%) patients ($P = 0.001$). After further 3 months of follow up, the mean A/N ratio was 58.46 ± 10.05 in group I better than 66.36 ± 10.46 in group II ($P < 0.001$). Recurrence occurred in 8 (23.5%) cases out of 34 improved cases in group I better than 10 (55.5%) cases out of 18 cases in group II ($P = 0.02$).

Conclusion: Combining oral montelukast with intranasal mometasone in treatment of adenoid hypertrophy provided better improvements and less recurrence in comparison with single therapy using intranasal mometasone alone.

1. Introduction

Adenoid hypertrophy is one of the most frequent pathologic conditions occurring in pediatrics. It causes many different clinical manifestations depending on the adenoid size [1]. The most common manifestations of pathologic and physiologic adenoid changes are chronic or recurrent infections [2]. Adenoid hypertrophy when obstruct the nasal airway in children may cause severe symptoms and complications, such as enuresis, cognitive and physical developmental retardation, and cardio-respiratory disorders [3].

The most used methods for the diagnosis of adenoid hypertrophy are lateral radiographs and nasal endoscopy [4]. Adenoidectomy is a common procedure in children that may cause complications such as early or late bleeding (4%–5%), adenoid tissue recurrence (10%– 20%), and postoperative respiratory problems (27%) [5]. In addition, anesthesia risks are also among the factors that should be considered [6]. Therefore, the conservative treatments to manage adenoid hypertrophy are under investigation and researches [7].

Intranasal corticosteroids significantly affect the production and/or activity of a variety of pro-inflammatory mediators locally in the nasal mucosa besides the decrease in vascular permeability and edema. This profound anti-inflammatory effect may reduce the immunological activation shown in hypertrophied adenoid tissue [8]. Mometasone is a potent 17-heterocyclic corticosteroid when administered intranasally, it has a higher binding to corticosteroid receptors, poor systematic concentration (0.1%), and extensive first pass metabolism. With the usual doses used intranasal, it does not suppress the hypothalamo-pituitary axis [9].

Leukotrienes are key inflammatory mediators in the respiratory system. These mediators usually involved in the pathogenesis of

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