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Killing Many Birds with One Stone

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Abstract Many symptoms can be caused by allergies. A 5-year-old Chinese boy was referred to a private clinic with cervical lymphadenitis, severe epistaxis and atopic symptoms. On inquiry, he revealed a multitude of symptoms, including nasal stuffiness, sneezing, snoring, cough, and skin peeling of hands. Clinically all the symptoms could be explained by atopy. The mother was not keen for any investigations, and she was concerned with the usage of inhaled topical corticosteroids for rhinitis and hyperactive airway disease. The boy was empirically treated with 4 mg daily of Montelukast and all his symptoms resolved within 4 weeks. This report serves to alert the general public on the diversity of allergic symptoms and on the fact that undertreatment may lead to a spectrum of secondary symptoms. Montelukast may be considered as a monotherapy in such patient, which obviates the need to use multiple inhaled and oral treatments.

Key words Allergic rhinitis; Epistaxis; Hyperactive airway disease; Montelukast

Introduction

Children with atopy may present to their family physicians or paediatricians with many symptoms. Invasive or costly investigations may either be not warranted or feasible. We report a young boy with a multitude of symptoms directly or indirectly associated with atopy, who was effectively treated with Montelukast.

Case Report

A 5-year-old Chinese boy was referred to a private clinic with cervical lymphadenitis and severe epistaxis. The mother reported that there were always a few palpable cervical lymph nodes noted but one of the nodes had become enlarged and tender for three days. On further inquiry, he also had multiple symptoms, including running nose, nasal stuffiness, sneezing, snoring and cough. The history of epistaxis was especially alarming, with nasal bleeding most days of the week for 2 years. The symptoms of running nose, nasal stuffiness and the non-productive cough occurred in the morning and had persisted for 2 years. There was no associated wheezing or exercise-induced symptom. He had nocturnal snoring on-and-off for a few months. There were no apparent symptoms of obstructive sleep apnoea, and no systemic symptoms of fever, night sweating, or weight loss. The family had no pet at home and no tuberculosis contact was elicited.

The patient presented 12 months ago with persistent fever and was investigated by a paediatric cardiologist to rule out Kawasaki disease. His elder brother was diagnosed as having Kawasaki disease with coronary aneurysm at the age of four years, and was treated with intravenous immunoglobulin infusion. Past history of the patient also included allergic rhinitis and epistaxis associated with frequent rubbing of his nose, and the congested Little's areas were cauterized by an otorhinolaryngologist 2 years ago. The mother had a history of urticaria with seafood and facial swelling with

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cefuroxime. There was no history of allergic disease in the family; and this child did not have any history of otitis media or sinusitis.

On examination, the boy appeared well, with normal weight (75-90 percentile) and height (90-97 percentile). A 2-cm slightly-tender right-sided cervical node was palpable. There were a few non-tender shotty lymph nodes on both cervical and inguinal areas but no axillary lymphadenopathy. The mucosa of the nostrils were slightly pale but the Little's areas appeared normal. The tonsils were prominent but not inflammed. The tympanic membranes were normal and there was no tenderness over the sinuses. There was some peeling of skin of his fingers but no rash or skin dryness elsewhere. The chest was clear and there was no pallor or abdomen organomegaly.

Clinically the symptoms could be explained by atopy, but bleeding diasthesis such as Von Willibrand disease and obstructive sleep apnoea could not be ruled out without investigations. Nevertheless, the mother was not keen for any investigations, which could include coagulation studies and otorhinolaryngologist re-assessment for epistaxis, lung function and atopy tests for hyperactive airway disease, Mantoux test and chest radiography for chronic coughs, and sleep study for snoring. She was concerned with the usage of inhaled topical corticosteroids for rhinitis and hyperactive airway disease. The boy was empirically treated with a daily dose of 4 mg of Montelukast (Singulair, MSD) for 3 weeks. The right-sided cervical node became non-tender and all his symptoms resolved when the child was re-assessed 4 weeks later.

One month later, he had an episode of viral illness with fever, pharyngitis and tender left cervical nodes. Investigations performed by his private paediatrician revealed normal blood and platelet counts, normal antistreptolysin O titer, bleeding time, chest radiograph, negative monospot and Mantoux test. This previously unavailable information was used to reassure the parents that their child did not suffer from any sinister illness. As the child remained asymptomatic, the prominent cervical lymph nodes were considered to be probably due to recurrent viral illness rather than secondary to any serious underlying disease such as tuberculosis or malignancy.

Two months later, Montelukast 10 mg daily was resumed for recurrence of symptoms of mild nasal stuffiness. He remained free of epistaxis, and nasal and chest symptoms in the next three months. The parents then requested a reduction of Montelukast dosage to 5 mg and the child was only taking the medication 3-4 days per week. Moderate symptoms of allergic rhinitis associated with mild nocturnal snoring, coughing and wheezing reappeared. Montelukast was subsequently increased back to 10 mg daily, which quickly controlled his nasal and chest symptoms in the next three months.

Discussion

Atopy is exceedingly common among children, and includes hyperactive airway disease, allergic rhinitis, eczema, keratoconjunctivitis, food allergies, urticaria, and anaphylaxis. Hyperactive airway disease and anaphylaxis can be fatal, whereas symptoms of sneezing, nasal stuffiness, snoring, epistaxis, and chronic coughs are simply annoying. Often, these symptoms co-exist and cause a lot of misery to the patient. Epistaxis is a less common symptom of nasal allergy.[1] Cauterization without dealing with the underlying cause is bound to be unsuccessful.

The multitude of symptoms may deserve multiple investigations to rule out coexisting diseases as well as to assess the severity of these symptoms. Potential investigations could include complete blood counts, blood picture, coagulation studies and otorhinolaryngologist assessment for epistaxis, spirometry and atopy tests for hyperactive airway disease, Mantoux test and chest radiography for chronic coughs, and sleep study for nocturnal snoring. Spirometry may be difficult for young subjects who are unable to coordinate, whereas consecutive-night sleep study would require hospitalisation. Not uncommonly, however, parents in the setting of private practice are not keen to subject their child to these multiple investigations, which can be invasive or costly.

Topical treatment for allergic rhinitis and asthma includes inhaled corticosteroids, antihistamines, and beta agonists in combinations. If symptoms are severe, systemic treatment with these medications may be indicated. Many parents are concerned about the side effects of corticosteroids and would avoid their use even following prescription.[2] Physicians may have a false sense of security that the symptoms would resolve once corticosteroids have been prescribed to their patients. They must specifically ask about compliance of the prescribed medication and address any issues of medication phobia. Use of antihistamines is also problematic. Excessive sedation or ineffectiveness is some of the complaints of failure of efficacy of these medications. Moreover, young children do not tolerate inhaled (intranasal and/or intrapulmonary) therapy well, especially when they have to be given by multiple routes. Montelukast is an oral leukotriene receptor antagonist for the maintenance

treatment of asthma and to relieve symptoms of seasonal allergies.[3-6] It may also be useful for other forms of atopy.[3-9] Montelukast is not useful for the treatment of acute asthma attacks, and patients should also be supplied with rescue medication, such as a bronchodilator inhaler. It blocks the action of leukotriene D4 on the cysteinyl leukotriene receptor CysLT1, thus inhibiting bronchoconstriction. It is available as oral tablets, chewable tablets, and oral granules.

The duration of treatment depends on the clinical course of underlying allergic disease. In seasonal allergic rhinitis (SAR), the medication may be used during the affected season. In perennial allergic rhinitis (PAR) with persistent symptoms, the medication may have to be used for prolonged periods or until the child is old enough to tolerate and cooperate with the use of available intranasal medications. In a systematic review of studies that evaluated Montelukast in the treatments of SAR and PAR, with and without concomitant asthma, eight such studies were found in the literature.[10] The primary endpoint in these studies was the severity of daytime nasal symptoms represented by a composite score derived from individual self-ratings of nasal congestion, rhinorrhoea, nasal pruritus and sneezing. Secondary endpoints included these individuals nasal symptom scores, additional scores for eye, ear and throat symptoms, impact of rhinitis on quality of sleep, global evaluation of outcome by patients and physicians, and measures of the severity of concomitant asthma. In general, patients treated with Montelukast had significantly greater improvements in their symptoms of SAR and PAR than did patients who were given placebo. As monotherapy, Montelukast exhibited treatment efficacy that was similar to Loratadine, but lower than that of intranasal Fluticasone Propionate. The use of Montelukast in combination with antihistamines such as Loratadine or Cetirizine has generally resulted in greater efficacy than when these agents were used alone, and in some studies, this approach yielded results comparable with intranasally applied corticosteroids. In patients with AR comorbid with asthma, Montelukast treatment has resulted in significant improvements in both diseases when compared with placebo. Montelukast is well tolerated and has a favourable safety profile. This systematic review concludes that Montelukast provides an effective and well tolerated oral treatment for allergic airway inflammation in patients with SAR or PAR without asthma, and in patients in whom AR is comorbid with asthma. It may be used in infants as young as 6 months of age.[11] Side effects include gastrointestinal disturbances, hypersensitivity reactions, sleep disorders and increased bleeding tendency, aside from many other generic adverse reactions. Leukotriene inhibitors generally have minimal side effects and are well tolerated in most populations. In our patient, monotherapy with this medication relieves the nasal symptom of allergic rhinitis, nocturnal snoring, epistaxis, and the chronic cough. Although investigations are not initially performed in this child, parents should be informed that investigations targeted to specific symptoms must be performed if they recur.

When a general practitioner sees a young child with multiple allergies as in our case, there are a few therapeutic options to consider (Table 1). Various combinations of topical and systemic treatments with referral options may be considered. In the "topical alone" option, the physician probably has to consider separate inhaled corticosteroids for the allergic rhinitis and asthma, together with an inhaled β-sympathomimetic bronchodilator. For "systemic alone" options, one can either choose an antihistamine for the allergic rhinitis and a β-sympathomimetic for asthma or a montelukast as a monotherapy. In the "combined topical and systemic" option, treatment can become very complicated for the already anxious parents.

Alarming epistaxis can be due to nasal allergy which is not amenable to treatment with surgery but rather with appropriate medical treatment. The prompt remission of

Table 1 Therapeutics options for the young child with multiple airway allergies

Options	Inhaled nasal corticosteroids	Inhaled corticosteroids	Inhaled β-sympathomimetic	Oral antihistamine	Oral β-sympathomimetic	Oral Montelukast	Referrals*
Topical	√	√	√				±
Systemic				√	√	√	±
Topical + systemic	√	√	√	√	√	√	±

*Referrals: Otorhinolaryngology, Pulmonology, Allergy/Immunology, Sleep studies and referral

epistaxis in this boy is probably secondary to the control of underlying rhinitis-associated irritation and frequent rubbing of nose. This report serves to alert the general public on the diversity of allergic symptoms and on the fact that undertreatment may lead to a spectrum of secondary symptoms. Montelukast may be considered as a monotherapy in such patient, which obviates the need to use multiple inhaled and oral treatments.

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