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Allergic rhinitis and asthma : two ends of one airway

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Asthma is a worldwide health problem causing significant morbidity and mortality. Hong Kong has witnessed a significant increase in the prevalence of asthma over the past two decades. It is timely that the Society released the childhood asthma treatment guideline for Hong Kong in May this year and a more detailed account of the guideline is published in the current issue of the Journal. Complicating the picture is the often co-exisiting allergic rhinitis in the same patient. Up to 80% of asthma patients have concomitant allergic rhinitis. On 17th April 2005, a forum on management of paediatric asthma and allergic rhinitis was held in Prince of Wales Hospital, Hong Kong with support from this Society, the close relationship of these two diseases were emphasized. The "One Airway" concept, meaning allergic inflammation often affects both the upper and lower airway, as proposed by the WHO's allergic rhinitis and its impact on asthma (ARIA) guidelines was discussed.

The characteristics of asthma include the following findings: recurrent cough, wheeze or shortness of breath. Clinical signs are often absent between attacks. Although in chronic asthmatics, there may be Harrison's sulci and an increase in chest AP diameter from air-trapping. Allergic rhinitis is a condition characterized by sneezing, which is frequently paroxysmal, profuse clear watery rhinorrhoea and nasal obstruction leading to mouth breathing. Recurrent cough, especially on lying down or rising, is a common feature in allergic rhinitis children. Clinical signs include pale and swollen nasal mucosa, post-nasal drip and allergic shiners. Approximately 20% of allergic rhinitis cases are accompanied by symptoms of asthma. In severe cases, it has been shown that sufferers of allergic rhinitis are more likely to exhibit shyness; depression, anxiety, fearfulness and fatigue than those without the condition. Allergic rhinitis is classified as either intermittent or persistent. Persistent means symptoms are present more than 4 days a week and lasting more than 4 weeks a year.

For children with concomitant allergic rhinitis and asthma, monitoring with asthma and allergic rhinitis diary would be helpful to quantify the control. Identification of allergens and avoidance of the offending allergens would be helpful. This identification could be done by either skin prick test or radioallergosorbent test (RAST). Management of asthma in children is covered in the asthma guideline published in the current issue. For those with mild persistent asthma and intermittent allergic rhinitis with mild symptoms, preliminary evidence suggested that montelukast was effective for controlling both diseases. Further studies are required.

For those with persistent allergic rhinitis, treatment with topical nasal corticosteroids and/or systemic anti-histamines would be advised. Intranasal corticosteroids are effective in controlling all symptoms of allergic rhinitis. Satisfactory control can be achieved in over 90% of patients. The overall symptom control is superior to any other monotherapy. The effect of intranasal corticosteroids on the early and the late phase depend on the duration of treatment before exposure. Therefore, for maximal effect, it should be given regularly and commenced before expected exposure to allergen. Studies have shown a consistent reduction in the early phase reaction after 1 to 2 weeks of treatment. This may be related to the lowering of histamine release. A once daily dose is usually sufficient in most cases. A twice daily regime may be necessary in severe cases and during exacerbations. The aim of therapy is to use the minimal dose necessary to control symptoms. Several synthetic nasal corticosteroids are

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available for use in young children like mometasone for over 2 years old and budesonide for over 6 years old. Studies have shown that intranasal corticosteroids have no effect on the hypothalamic pituitary adrenal axis if used in recommended dosages because of the limited systemic bioavailability. However, growth suppression in children has been reported in some studies with the use of intranasal corticosteroids. The clinical importance of these findings in terms of final adult height is not presently known.

Second generation antihistamines are lipophobic with a large molecular size and possess an electrostatic charge. They generally do not cross the blood-brain barrier and exhibit little CNS effects. One of the major advantages of second generation antihistamine is its non-sedating or low sedating effects. The longer duration of action also means infrequent dosing which makes adherence to treatment easier. Other advantages include preferential binding to peripheral H_1 receptors and minimal antimuscarinic, adrenergic and anticholinergic effects. Examples of second-generation antihistamines include loratadine, cetirizine and fexofenadine. Loratadine and cetirizine are currently available for treating children less than 12 years of age. Antihistamines are more effective if occupation of H_1 receptors occurs before histamine is released; consequently the maximum benefit from antihistamine is achieved with prophylactic treatment before exposure to allergen. Antihistamines are less efficacious than topical corticosteroids. By combining with a decongestant or a topical corticosteroid, efficacy may be enhanced. Alternative treatments for allergic rhinitis included sublingual immunotherapy for those with monoallergen and acupuncture.

Conclusion

Childhood asthma and allergic rhinitis often occur together in the same child. Compared with asthma, allergic rhinitis severity is often under-diagnosed and untreated leading to unnecessary suffering. As allergic rhinitis often aggravates asthma control and symptoms of allergic rhinitis overlap with that of asthma, it is important to treat both diseases.

References are available on request.

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