

Editorial

Persistent isolated cough in childhood

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'Normal' children, even in the absence of a respiratory tract infection (RTI), have a mean number of 11 cough episodes per 24 hours¹. Presence of an upper RTI is associated with increased cough but in most cases this is of less than 2 weeks duration. However, in some of them the cough persists for more than 3 weeks possibly due to increased cough receptor sensitivity². Although the cough can persist for months, it is usually self-limiting³.

Persistent isolated cough (PIC) is defined as a non-productive cough of at least 3 weeks duration in the absence of identifiable respiratory disease or disease of the upper airway⁴. It is common for the cough to be present mainly at night. Other terms used interchangeably with PIC include non-specific cough, persistent cough, isolated cough, recurrent cough and chronic cough^{2,3,6}. A productive cough is always abnormal and requires further investigation. There are several causes of a productive cough such as bronchiectasis, recurrent milk and food aspiration, cardiac disease, inhaled foreign body and cystic fibrosis⁴.

The term 'cough variant asthma' was first used to describe those patients who presented with cough as a single manifestation of their asthma and who seemed to respond to bronchodilators or short-term corticosteroid medication⁷. It has been suggested that asthma in children was being under-diagnosed because of failure to recognize the entity 'cough-variant asthma'⁸. On the other hand, if children with persistent cough are not a subset of asthma, then treating them as such may be inappropriate. In fact, recent British asthma guidelines state "criteria for defining asthma in the presence of chronic or recurrent cough have not been adequately defined"⁹. Let us consider the evidence available in this regard.

No correlation has been shown between cough severity and airway calibre¹⁰. Furthermore, sites for eliciting cough are confined to structures innervated by the vagus in contrast to sites inducing bronchoconstriction¹¹. Therefore, pathways for cough and bronchoconstriction are distinctly different². The inflammatory cell profile of bronchoalveolar lavage fluid of children with chronic cough is similar to that of non-asthmatic children. Asthma is associated with a high median ratio of eosinophils to neutrophils¹².

An Australian study showed that children with persistent cough in the community do not have features in common with asthma³. This agrees with recent cross-sectional studies in school children that show that persistent cough in absence of wheeze differs from classical asthma and resembles the asymptomatic population more closely having less morbidity and atopy compared to those with wheeze¹⁴.

Lung function tests in preschool children with isolated cough have shown that coughers do not differ significantly from controls in their lung function¹².

A prospective, longitudinal study¹⁴ has shown that children with recurrent cough and no wheeze did not differ from those who were asymptomatic in terms of their immunoglobulin E levels, skin prick tests and percentage decline in lung function following cold air challenge. In contrast, children with both cough and wheeze had more atopy and a greater decline in lung function with cold air challenge.

If PIC is a variant of asthma, a response to therapy with anti-asthma medication would be expected. However, it has been shown that children with recurrent or persistent cough do not benefit from bronchodilators³. Of two studies looking at the effect of inhaled corticosteroids in children with PIC^{5,15}, only one, which used very high doses, demonstrated modest benefit¹⁵. However, it was shown that those receiving placebo improved after 2 weeks as well¹⁵. This suggests that the natural history of PIC is that it gets better and prescribing medication is of no benefit, at least in the first instance.

In summary, available evidence to date indicates that PIC is a separate entity from asthma. In the absence of other symptoms or risk factors, cough alone is a poor marker of asthma.

In children who have been immunised with triple vaccine pertussis may occur in a milder atypical form as a persistent cough due to lingering tracheo-bronchitis¹⁶. The cough may be paroxysmal and may be followed by vomiting. There is no whoop. A clue to the diagnosis is the presence of an absolute lymphocytosis which is not a feature of adenoviral infections which may give rise to an otherwise similar picture¹⁶.

The link between gastro-oesophageal reflux (GOR) and persistent cough remains debatable. It has been shown that treatment of GOR fails to relieve the cough although the GOR may improve¹⁷. This is therefore an unlikely cause of persistent cough.

The relationship between persistent cough and post-nasal drip is controversial as there are no cough receptors in the pharynx or post-nasal space¹⁸.

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