

TREATMENT OF RECURRENT VIRUS-INDUCED WHEEZING IN YOUNG CHILDREN

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INTRODUCTION

**Wheezing is not
asthma**



INTRODUCTION

- Wheezing episodes in early childhood are common. Viruses are widely recognized as common triggers of early childhood wheezing, both in children with recurrent wheezing with multiple triggers as well as those with episodic exacerbations whose predominant trigger of wheezing is viral infections.
- Defined as a minimum of 3 to 4 wheezing exacerbations a year.

INTRODUCTION

- Bronchiolitis is the most common lower respiratory tract infection seen in infant less than 12ms (peak 3-6ms).
- Caused by **RSV**, rhinovirus, parainfluenza viruses, adenovirus (cause a severe bronchiolitic with pneumonia), influenza A and B viruses.

POST BRONCHIOLITIC WHEEZING



- Acute bronchiolitis, especially when severe, is associated with ***a later risk of recurrent wheezing episodes.***
- Approximately ***10% of children will have wheezing episodes after age five.***
- But evidence shows that in the majority the increased risk of wheeze ***dissipates by the age of 13 years.***

POST BRONCHIOLITIC WHEEZING



- A recent Cochrane Review *didn't* find any evidence that *inhaled corticosteroids*, given during acute bronchiolitic, are effective in the prevention of post bronchiolitic wheezing.

TREATMENT

- **EPISSODIC THERAPY:** Virus-induced wheezing is a heterogeneous disorder and *response to treatment may differ among individuals.*
- **DAILY THERAPY:** An alternative approach to *prevention* of virus-induced wheezing is *continuous, rather than episodic therapy.*

EPISODIC THERAPY

- **Inhaled short-acting beta agonists:**
 - Inhaled bronchodilators ***are often first-line therapy for treatment*** (Grade 2B).
 - Are an effective rescue treatment in symptomatic patients, especially in children with established asthma.

EPISODIC THERAPY

- **Inhaled hypertonic saline (HS):**

- **Limited data** suggest that HS in combination with SABA may be effective in treating with acute episodes.

- 41 children aged 1-6ys (31.9ms) were randomly assigned to treatment with nebulized albuterol in HS or in 0.9% NS. **Length of stay and the rate of hospitalization** were significantly **lower in the HS than the NS group.**

EPISODIC THERAPY

- **Intermittent inhaled glucocorticoids (IG):**
 - High-dose IG (750 μ g twice daily), ***started at the onset of a URI and continued for up to 10 days***, may ***decrease asthma-type symptoms*** and rescue oral glucocorticoid (OG) use in preschool children (Grade 2B).
 - 129 children (1-6ys), treatment with high-dose fluticasone decreased the use of rescue OG compared with placebo (8 versus 18%).

EPISODIC THERAPY

- **Systemic glucocorticoids:**

An alternative strategy of initiating OG at the earliest signs of a viral URI, rather than waiting until the onset of wheezing, in preschool children with recurrent wheezing may be **effective in some patients** (Grade 2B).

EPISODIC THERAPY

- Exceptions include patients:

- With a prior history of a severe virus-induced wheezing exacerbation requiring hospitalization.
- With asthma risk factors who are currently on daily IG for frequent exacerbations.
- Or who haven't responded to high-dose intermittent IG in the past.

=> Overall this approach ***does not appear to be effective in most patients.***

EPISODIC THERAPY

- Intermittent leukotriene receptor antagonists:

A few studies have examined the intermittent use of leukotriene receptor antagonists (LTRAs) in preschool children with recurrent *wheezing*. ***The results are mixed and further study is needed.***

DAILY THERAPY

- **Daily inhaled glucocorticoids:**

Standard doses of IG given daily are **effective in preventing episodic** virus-induced wheezing in young children, particularly in patients with a clinical diagnosis of asthma or asthma risk factors (Grade 1A).

DAILY THERAPY

- A meta-analysis examined the efficacy of IG in infants and preschoolers with recurrent wheezing and asthma symptoms:
- Patients who received daily IG therapy had significantly fewer wheezing/asthma exacerbations compared with placebo (18 versus 32%, RR 0.59, 95% CI 0.52-0.67), based upon data from 16 randomized trials.

DAILY THERAPY

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- **Daily leukotriene receptor antagonists:**

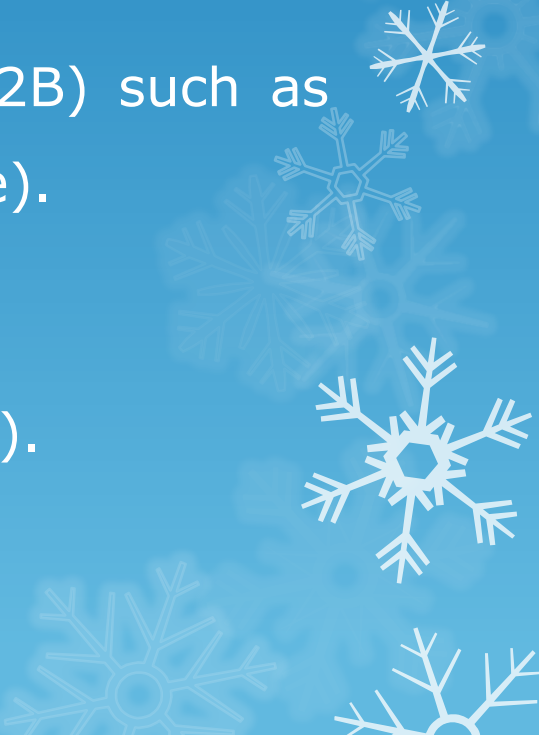
- Leukotriene receptor antagonists (montelukast) may be helpful in preventing virus-induced asthma exacerbations.
- Montelukast was studied in a randomized trial of 549 children aged 2-5 yrs with intermittent asthma symptoms. Over 12 months of treatment, montelukast decreased the average rate of exacerbations by 32%.

SUMMARY - RECOMMENDATIONS



○ ***For treatment of acute virus-induced wheezing symptoms in young children with recurrent episodes:***



- We suggest an inhaled SABA (Grade 2B) such as albuterol via nebulizer (in normal saline).
 - We suggest not using IG (Grade 2B).
 - We suggest not using an OG (Grade 2B).
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SUMMARY - RECOMMENDATIONS

- ***For the prevention of virus-induced wheezing in preschool children who suffer from recurrent virus-induced wheezing episodes:***

- We suggest intermittent high-dose IG began at the onset of a URI, before wheezing has occurred, and continued for up to 10 days (Grade 2B).
- We suggest not using an OG at the onset of a URI before wheezing has occurred (Grade 2B).

SUMMARY - RECOMMENDATIONS



- We recommend daily IG at standard doses in children who continue to experience severe or recurrent episodes of wheezing despite intermittent high-dose IG (Grade 1A).
 - intermittent or daily montelukast is an alternative, especially for patients who do not tolerate daily IG
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THANKS FOR
ATTENTION

