

Pharmacological treatment in children

Quick relief medication

- ❖ Short acting beta-2 agonists
- ❖ Systemic corticosteroids
- ❖ Anti colinergics

Long term medication

- ❖ inhaled corticosteroids
- ❖ long acting beta-2 agonists
- ❖ long acting muscarinic agonists
- ❖ methylxanthines
- ❖ leukotrienes modifiers
- ❖ mast cell stabilizer

ASTHMA TREATMENT STEPS FOR CHILDREN AGED 5 YEARS AND YOUNGER

STEP 1: As-needed inhaled short-acting beta2-agonist (SABA)

All children who experience wheezing episodes should be provided with inhaled SABA for relief of symptoms (Evidence D) although it is not effective in all children. symptoms on average more than twice a week over a one month period indicates the need for a trial of controller medication.

Other options

Oral bronchodilator therapy is not recommended due to its slower onset of action and higher rate of side-effects compared with inhaled SABA (Evidence D).

For children with intermittent viral-induced wheeze and no interval symptoms, particularly those with underlying atopy (positive mAPI) in whom inhaled SABA medication is not sufficient, intermittent high dose ICS may be considered

STEP 2: Initial controller treatment plus as-needed SABA

Preferred option: regular daily low dose ICS plus as-needed SABA

Regular daily, low dose ICS is recommended as the preferred initial treatment to control asthma in children 5 years and younger (Evidence A) This initial treatment should be given for at least 3 months to establish its effectiveness in achieving good asthma control.

Other options

In young children with persistent asthma, regular treatment with a leukotriene receptor antagonist (LTRA) modestly reduces symptoms and need for oral corticosteroids compared with placebo.

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STEP 3: Additional controller treatment, plus as-needed SABA and consider specialist referral

Preferred option: medium dose ICS (double the 'low' daily dose)

Doubling the initial low dose of ICS may be the best option (Evidence C). Assess response after 3 months. The child should be referred for expert assessment if symptom control remains poor and/or flare-ups persist, or if side-effects of treatment are observed or suspected.

Other options

Addition of a LTRA to low dose ICS may be considered, based on data from older children (Evidence D).

STEP 4: Continue controller treatment and refer for expert assessment

Preferred option: refer the child for expert advice and further investigation (Evidence D).

If doubling the initial dose of ICS fails to achieve and maintain good asthma control, carefully reassess inhaler technique and medication adherence as these are common problems in this age group. In addition, reassess and address control of environmental factors where relevant, and reconsider the asthma diagnosis.

Other options

The best treatment for this population has not been established. If the diagnosis of asthma has been confirmed, options to consider, with specialist advice, are:

- Further increase the dose of ICS for a few weeks until the control of the child's asthma improves (Evidence D). Monitor for side-effects.
- Add LTRA (data based on studies in older children, Evidence D). Benefits, and risks of side effects, should be considered
- Add long acting beta agonist (LABA) in combination with ICS; data based on studies in children ≥ 4 years of age
- Add a low dose of oral corticosteroid (for a few weeks only) until asthma control improves (Evidence D); monitor for side-effects.
- Add intermittent high dose ICS at onset of respiratory illnesses to the regular daily ICS if exacerbations are the main problem (Evidence D).

The need for additional controller treatment should be re-evaluated at each visit and maintained for as short a period as possible, taking into account potential risks and benefits. Treatment goals and their feasibility should be re-considered and discussed with the child's family/carers

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MANAGEMENT OF WORSENING ASTHMA AND EXACERBATIONS IN CHILDREN 5 YEARS AND YOUNGER

Initial treatment at home

Inhaled SABA via a mask or spacer, and review response

The parent/carer should initiate treatment with two puffs of inhaled SABA (200 mcg salbutamol or equivalent), given one puff at a time via a spacer device with or without a facemask (Evidence D). This may be repeated a further two times at 20-minute intervals, if needed. The child should be observed by the family/carer and, if improving, maintained in a restful and reassuring atmosphere for an hour or more. Medical attention should be sought urgently if any of the features listed above apply; or on the same day if more than 6 puffs of inhaled SABA are required for symptom relief within the first 2 hours, or if the child has not recovered after 24 hours.

Family/carers-initiated corticosteroids

Although practiced in some parts of the world, the evidence to support the initiation of oral corticosteroid (OCS) treatment by family/carers in the home management of asthma exacerbations in children is weak. Preemptive episodic high dose nebulized ICS may reduce exacerbations in children with intermittent viral triggered wheezing. However, because of the high potential for side-effects, especially if the treatment is continued inappropriately or is given frequently, family-administered high dose ICS should be considered only where the health care provider is confident that the medications will be used appropriately, and the child is closely monitored for side-effects.

Leukotriene receptor antagonists

In children aged 2–5 years with intermittent viral wheezing, one study found that a short course of an oral LTRA (for 7–20 days, commenced at the start of an URTI or the first sign of asthma symptoms) reduced symptoms, health care utilization and time off work for the carer. In contrast another study found no significant effect with LTRA vs placebo on episode-free days (primary outcome), OCS use, health care utilization, quality of life or hospitalization in children with or without a positive Asthma Predictive Index (API). However, activity limitation and a symptom trouble score were significantly improved, particularly in children with a positive API. Parents should be counseled about the FDA warning about risk of adverse effects on sleep and behavior with montelukast.

Management of acute asthma or wheezing in children 5 years and younger

Mild or moderate

Start treatment

Salbutamol 100mcg two puffs by MDI or spacers or 2.5 mg by nebulizers repeated every 20 minutes for the first hours

Controlled oxygen target saturation 94%- 98%

Add ipratropium 1-2 puffs

Then close monitoring for 2 hours

If improvement continue treatment if needed

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If worsening or lack of improvement or severe or life threatening

Transfer to high level care(icu)

While waiting give

Salbutamol

Prednisolone

Controlled oxygen

Nubilized ipratropium