2020 National Heart, Lung, Blood Institute Asthma Guidelines

Background:

- It has been 13 years since last revision of asthma guidelines (2007)
- Updates mostly around 6 big topics:
    1. Fractional exhaled nitric oxide in diagnosis & management
    2. Effect of indoor allergen mitigation on asthma control
    3. **Review of inhaled corticosteroids in management of asthma**
    4. Use of muscarinic agents in asthma management
    5. Immunotherapy
    6. Bronchial thermoplasty to treat severe asthma
- Data pulled from systematic reviews of literature

Section IV – Use of intermittent inhaled corticosteroids- This was studied because the recommendation for inhaled corticosteroid use (in 2007) was based on expert consensus rather than on more substantial research. This topic addresses 3 main clinical questions, which we will go over.

Definitions:

- "recurrent wheezing" = 3+ episodes of wheezing triggered by URI in child's lifetime, or 2+ in past year
- "intermittent inhaled corticosteroid" = 7-10 day course
- "PRN inhaled corticosteroid" = using when sick/having exacerbation
- "ICS controller therapy" = take daily when well and when sick

1) What is the comparative effectiveness of intermittent ICS compared to no treatment, pharmacologic, and nonpharmacologic therapy in children ages 0-4 with recurrent wheezing?

- In kids 0-4 who have recurrent wheezing triggered by URIs (3+ in lifetime or 2+ in last year), who are asymptomatic in between illnesses, the new recommendation is to prescribe a short course of ICS (7-10 days) + as-needed albuterol at the first sign of cold or URI symptoms.
- What ICS should we use?
    - The one studied was budesonide, or Pulmicort, 1mg BID for 1 week
- Outcome:
    - Reduction in # courses of systemic steroids

2) What is the comparative effectiveness of intermittent ICS compared to ICS controller therapy in kids 4-11 years old with asthma?

- Mild intermittent asthma: PRN albuterol
- Mild persistent asthma: In 5-11 year olds with persistent asthma, we still start with daily low dose ICS controller therapy + PRN albuterol
- Moderate or severe persistent asthma:
- If compliant and requires a step-up in therapy, would move on to **SMART: Single Maintenance and Reliever Therapy**, which consists of long-acting beta agonist (specifically, formoterol) + inhaled corticosteroid combination
- In practice, this means prescribing **Symbicort (budesonide-formoterol)** for patient to use **daily and as needed**. Other LABA + ICS combinations such as Dulera (mometasone-formoterol) have *not* been shown to act quickly enough to be used as rescue medications.
    - As a reminder, the old way of doing it was: low dose Flovent (44mcg 2 puff BID, then medium dose Flovent 110mcg 2 puff BID, then ICS-LABA)
- For example, in a 7-yo patient with moderate persistent asthma, their asthma action plan might look like this:
    - [Green] When well: 1 puff BID (can increase to 2 puff BID)
    - [Yellow] When sick: 1-2 puffs as needed. **Max 8 puffs/day.**
    - [Red] When sick, coughing, dyspneic: If still dyspneic after 8 puffs, seek medical attention.
- So, do you still prescribe albuterol to patients on SMART? → Technically, no, but while these guidelines are fairly new, many providers will still provide albuterol.
- Outcome:
    - Reduced asthma exacerbations requiring medical visits
    - Reduced # courses of systemic steroids

3) What about the kids age 12 and up with asthma?

- Mild intermittent: Albuterol PRN
- Mild persistent asthma:
    - Daily low dose ICS + albuterol PRN, OR
    - PRN ICS + PRN albuterol
    - Both would be reasonable options
    - Keep in mind that kids who underrecognize or over recognize their symptoms may not be good candidates for option #2. Would do better with daily ICS + PRN albuterol.
- Moderate or severe persistent asthma:
    - SMART: Symbicort daily and PRN
    - [Green]: 1-2 puff Symbicort daily
    - [Yellow]: 1-2 puff Symbicort PRN. **Max 12 puff/day.**
    - [Red]: If still symptomatic after 12 puff, seek medical attention
    - When stepping up from moderate to severe persistent asthma, general idea is the same, but dose of Symbicort would be different.
- If uncontrolled on high dose SMART, can add a long-acting muscarinic antagonist ("LAMA") such as tiotropium. This would be for very severe cases and would happen in a specialized (asthma/pulm) clinic.

4) So we talked about the use of SMART in kids 4 years and older, but what about the kids who are younger than 4, but probably have asthma – maybe have a strong family history, classic symptoms, et cetera. Are there formal recommendations for those kids?

- These guidelines have not changed. Start with PRN albuterol, then step-up to low-dose ICS, then medium-dose ICS, then high-dose ICS-LABA.

Side Note on Fractional Exhaled Nitric Oxide testing:
This is another topic addressed within the new guidelines. Basically, higher levels of FeNO suggests that there is more airway inflammation and could help diagnose asthma in kids 5 and older. But, other common conditions can cause elevations in FeNO, such as allergic rhinitis and atopy. So, the recommendation is to use for monitoring/diagnosis only when **uncertain** after obtaining HPI + spirometry.

Source: https://www.nhlbi.nih.gov/health-topics/asthma-management-guidelines-2020-updates/digital-toolkit

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