TREATMENT OF CHRONIC ASTHMA

By :
Dr. Rashida Amir
(Paeds Depart. BBH)
Components of Optimal Asthma Management

1) Regular Assessment & Monitoring
2) Control Of Factors Contributing To Asthma Severity
3) Asthma Pharmacotherapy
4) Patient Education
1. **Regular Assessment & Monitoring**

- To determine:
  - frequency of asthma symptoms
  - frequency of “rescue” SABA medication use
  - no & severity of asthma exacerbations
  - participation in activities
**Asthma checkups:**
- every 2-4 wks until good control is achieved
- 2-4 checkups/yr to maintain good control

**Lung Function Monitoring:**
- spirometry (at least annually)
2. Control of Factors Contributing to Asthma Severity

- **Eliminate & Reduce Problematic Environmental Exposures:**
  - tobacco smoke
  - allergens (pets, pests, dust mites, cockroaches, molds)
  - airway irritants (wood / coal smoke, dust perfumes, chemical)
Treat co-morbid conditions:
- Rhinitis
- Sinusitis
- Gastroesophageal reflux

Annual Influenza Vaccination:
( unless egg-allergic )
3. **Asthma Pharmacotherapy**

A. Quick-Reliever “Rescue” Medications

B. Long-Term Controller “Daily” Medications
A. Quick-Reliever “Rescue” Medications

i. **Short-acting inhaled B-agonists (SABA):**
   - albuterol
   - levabuterol
   - terbutaline
   - pirbuterol

ii. **Anticholinergic agents:**
   - ipratropium bromide

iii. **Short-acting systemic corticosteroids**
Modes of Delivery / Use:

- MDI (metered-dose inhaler)
- DPI (dry powder inhaler)
- Nebulizers
- Suspension / Syp
B. Long-term Controller “Daily” Medications

used when:

- “Three Strikes” Rule

- children with frequent exacerbations
  (2 exacerbations < 6 wks apart)
Medications

i. ICSs (Inhaled Corticosteroids)
ii. Systemic Corticosteroids
iii. LABA
iv. Leukotriene-Modifying Agents
v. NSAIDs
vi. Methylxanthines
vii. Anti-IGE
i. ICSs (Inhaled Corticosteroids)

- 05 approved ICSs by FDA
- **adverse effects:**
  - oral candidiasis (thrust)
    - due to mucosal irritation &
    - local immunosuppression
  - dysphonia (hoarse voice)
    - due to vocal cord myopathy
ii. Systemic Corticosteroids

- prednisone
- prednisolone
- methylprednisolone
iii. LABA (Long-Acting Inhaled B-Agonists)

- Salmeterol &
- Formoterol

Duration of effect = 12 hr
iv. Leukotriene-Modifying Agents

02 classes:

a) leukotriene synthesis inhibitors
   - eg. Zileuton (not approved in < 12yrs)

a) leukotriene receptor antagonists (LTRA)
   - eg. Montelukast (> 01yr of age; OD)
   - Zafirlukast (> 05yrs of age; BD)
v. NSAIDs

- cromolyn &
- nedocromil

- Dose = 2 - 4 times / day
vi. Methylxanthines

- Theophylline
  ( phosphodiesterase inhibitor )
- alternative monotherapy controller agent
  ( for older children )
- adverse effects:
  headache ; poor concentration ; insomnia ; vomiting ; seizures
vii. Anti - IGE

- Omalizumab
- humanized monoclonal antibody
- > 12yrs of age
- every 2 -4 wks s/c
Step-wise Approach of Management

- i.e. STEP – UP ; STEP – DOWN
- Based on asthma severity
## Classification of Asthma Severity

<table>
<thead>
<tr>
<th>Classification</th>
<th>Step</th>
<th>Days with Symptoms</th>
<th>Nights with Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe persistent</td>
<td>4</td>
<td>continual</td>
<td>frequent</td>
</tr>
<tr>
<td>Moderate persistent</td>
<td>3</td>
<td>daily</td>
<td>&gt; 1 / wk</td>
</tr>
<tr>
<td>Mild persistent</td>
<td>2</td>
<td>&gt;= 2 / wk but &lt; 1 time/day</td>
<td>&gt; 2 / month</td>
</tr>
<tr>
<td>Mild intermittent</td>
<td>1</td>
<td>&lt; 2 / wk</td>
<td>&lt; 2 / month</td>
</tr>
</tbody>
</table>
Asthma Treatment

Adjusting therapy based on asthma CONTROL

Stepping down

Step 1
Step 2
Step 3
Step 4
Step 5
Step 6

Stepping up

Intermittent Asthma
Persistent Asthma
Stepwise Approach for Managing Asthma in Children 5-11 Years of Age

**Intermittent Asthma**
Consult with asthma specialist if step 4 care or higher is required. Consider consultation at step 3.

**Step 1**
**Preferred:** Low-dose ICS (A)
**Alternative:** Cromolyn (B), LTRA (B), Nedocromil (B), or Theophylline (B)

**Step 2**
**Preferred:** Either Low-dose ICS + either LABA (B), LTRA (B), or Theophylline (B)
**Alternative:** Medium-dose ICS (B)

**Step 3**
**Preferred:** Medium-dose ICS + LABA (B)
**Alternative:** High-dose ICS + either LTRA (B) or Theophylline (B)

**Step 4**
**Preferred:** Medium-dose ICS + LABA (B)
**Alternative:** High-dose ICS + either LTRA (B) or Theophylline (B)

**Step 5**
**Preferred:** High-dose ICS + LABA (B)
**Alternative:** High-dose ICS + either LTRA (B) or Theophylline (B)

**Step 6**
**Preferred:** High-dose ICS + LABA + Oral Systemic Corticosteroid (D)
**Alternative:** High-dose ICS + either LTRA or Theophylline and Oral Systemic Corticosteroid (D)

Each Step: Patient education, environmental control, and management of comorbidities
Steps 2-4: Consider subcutaneous allergen immunotherapy for patients who have allergic asthma

**Quick-Relief Medication for All Patients**
- SABA as needed for symptoms. Intensity of treatment depends on severity of symptoms: up to 3 treatments at 20-minute intervals as needed. Short course of oral systemic corticosteroids may be needed.
- Caution: Increasing of use of SABA or use >2 days a week for symptom relief (not prevention of EIB) indicates inadequate control and the need to step up treatment

4. Patient Education

- Specify goals of management
- Explain basic facts
- Address concerns
- Teach / demonstrate proper technique
- Investigate & manage factors contributing to asthma severity
- written 2-part asthma management plan:
  1. Daily “routine” management plan
  2. Action plan for asthma exacerbations

- Regular follow-up visits
  - 2 – 4 / yr
  - monitor lung function annually
THANK YOU