

Asthma (Obstructive Disease)

Definition

- **Inflammatory** condition of the airways
- **hyperresponsiveness** leading to **airway edema + bronchoconstriction**
- Recurrent/intermittent episodes of wheezing, shortness of breath, and/or cough
- Usually **reversible** either spontaneously or with treatment.

Causes

Atopy (**IgE mediated**) + Environmental triggers (allergens, irritants, chemicals, respiratory infections, physical stress, and emotional stress).

Diagnosis

Reversible bronchoconstriction on own or with bronchodilator and a history. **Consider challenge test**

Severity

Intermittent, mild persistent, moderate persistent, and severe persistent

Relationships

- GERD, Allergic rhinitis
- Worsened by Allergic bronchopulmonary aspergillosis (ABPA), Obstructive sleep apnea-hypopnea (OSA), Stress

TESTS

PFT's

- Normal if no active disease.
- **FEV1/FVC < 70%**
- Decreased expiratory flow
- **Significant response to beta2-agonist.**
- Normal or increased TLC (due to hyperinflation).
- Normal or reduced VC.
- DLCO is normal.

TESTS (cont)

Exercise-induced bronchospasm

Decrease in FEV1 of >10% on a treadmill or a stationary bicycle.

CXR

Normal in mild cases. **Severe asthma shows hyperinflation.**

Arterial Blood Gas

- Indicated in respiratory distress.
- Hypocarbica from hyperventilation.
- Hypoxemia may be present.
- If CO2 level is normal or high sign that the patient is decompensating due to fatigue or severe airway obstruction and **intubation** may be required.

Challenge Test

- Methacholine challenge, histamine challenge, and thermal (cold air). Principle of nonspecific hyperirritability.
- **Must both tighten up with the challenge and loosen up with subsequent bronchodilators.**
- Response to short-acting bronchodilator (**increase in the FEV1 > 12% and increase of 200 mL**).

Treatment

Rescue

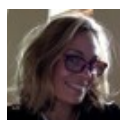
SABA (albuterol)

Quick relief (acute, mild, intermittent disease)

- Short-acting beta2-agonists (SABAs)
- Systemic corticosteroids
- Anticholinergics

Long-Term control

- **Inhaled corticosteroids** (ICS; most potent and most effective)
- Long-acting beta2-agonists (LABAs)
- Mast-cell stabilizers (cromolyn sodium + nedocromil)
- Leukotriene modifiers
- Methylxanthines (theophylline)
- Immunomodulators (omalizumab = anti-IgE)



By [xkissmekatex \(kissmekate\)](#)

Treatment (cont)

Acute Exacerbation

- Inhaled B agonist and ipratropium via nebulizer or MDI.
- Assess response clinically and with peak flow.
- IV or oral corticosteroids, then taper when improvement occurs.
- Third-line agents include IV magnesium, which helps with bronchospasm in severe refractory cases.
- Supplemental oxygen to keep $Osat > 90\%$. Antibiotics if necessary. Intubation for respiratory failure.

Mild Intermittent

- Symptoms <2 times per week, nighttime awakenings <2x per month.
- Normal baseline FEV1 and FEV1/FVC.
- Needs no long-term control medications, just short acting beta agonist (albuterol).

Mild Persistent

- Symptoms >2 times per week but not every day. 3-4 nighttime awakenings per month, minor limitations on activities.
- Normal PFTs.
- Low dose inhaled corticosteroid** indicated with PRN albuterol inhaler.

Treatment (cont)

Moderate Persistent

- Daily symptoms** with frequent exacerbations.
- FEV1 is 60-80% of expected.
- Daily inhaled low dose corticosteroid, PRN albuterol inhaler, and LABA inhaler. +/- cromolyn/methylxanthine/antileukotriene.

Severe Persistent

- Continual symptoms with frequent exacerbations and **limited physical activity**.
- FEV1 <60% of predicted.
- Daily high dose inhaled corticosteroid, PRN albuterol, and long-acting beta agonists. +/- methylxanthine and systemic corticosteroids.

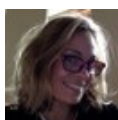
Treatment and Maintenance

Factors used in the determination of both SEVERITY (with initial eval) and CONTROL level (when on continuing treatment)					Initial evaluation: Treatment is based on SEVERITY		Continuing therapy: Treatment is based on CONTROL	
Days with Sx	SABA use (control only)	Nighttime awakenings	FEV1 or PEF ***	Impairment of activity	SEVERITY	Treat per Step level	CONTROL level	Changing Tx based on CONTROL level
≤ 2 days/week	≤ 2 days/week	< 2/month	≥ 80%	None	Intermittent	Step 1	Well controlled	Maintain current step
> 2 days/week but not daily	> 2 days/week but not daily and not sure that it's on any given day	3-4/month	≥ 80%	Minor limitation	Mild Persistent	Step 2	Well controlled	Maintain current step
Daily	Daily	> 1/week but not nightly	> 60% < 80%	Some limitation	Moderate Persistent	Step 3	Not well controlled	Step up 1 step. Reevaluate in 2-6 wks
Through out the day	Several times per day	Often 7/week	≤ 60%	Extremely limited	Severe Persistent	Step 4-5	Very poorly controlled	Consider short course of oral corticosteroids. Step up 1-2 steps. Reevaluate in 2 weeks

***Use only FEV1 for initial evaluation. Use either FEV1 or PEF for determining control and continuing therapy.

Differential Diagnosis of Wheezing

- CHF: due to edema of airways and congestion of bronchial mucosa.
- COPD: inflamed airways may be narrowed or bronchospasm may be present.
- Asthma: most common cause.**
- Cardiomyopathy/Pericarditis: can lead to edema around the bronchi.
- Lung Cancer: due to obstruction of airways (central tumor or mediastinal invasion).



By [xkissmekatex \(kissmekate\)](#)

cheatography.com/kissmekate/

Published 13th January, 2017.

Last updated 16th January, 2017.

Page 2 of 2.

Sponsored by [ApolloPad.com](#)

Everyone has a novel in them. Finish Yours!

<https://apollopadd.com>