

## Living with Asthma



- 1) **Definition:** disorder characterized by symptoms of cough, chest tightness, shortness of breath, and wheezing associated with limitation of airflow.
- 2) **Presentation:** symptoms may be acute and episodic, or may wax and wane over long periods of time. Between episodes, most asthmatics are symptom free, but they are susceptible to attacks of wheezing, cough, and chest tightness when exposed to various “triggers.”
- 3) **Pathophysiology:**
  - a. **Airway Reactivity:** recurrent bronchospasm induced by either specific allergic stimuli or nonspecific irritant or physicochemical stimuli
  - b. **Airway Inflammation:** mild asthma shows submucosal infiltration with neutrophils, eosinophils, monocytes, T lymphocytes, and mast cells; edema; vascular engorgement, subepithelial collagen and fibronectin deposition, and epithelial desquamation. Severe asthma shows hyperplasia of smooth muscle, mucus gland hypertrophy.  
\*\*\*\* Strong evidence that treatment of the underlying airway inflammation can reduce the severity of airways reactivity.
- 4) **Pathophysiology of the Acute Asthmatic Attack:** may occur suddenly as a consequence of an exposure to an allergic or irritant substance producing severe bronchospasm in an individual with previously well controlled asthma and normal lung function. Attacks occurs after many days of progressive reductions in lung function, increasing lability of lung function, progressive exertional dyspnea and cough, and increasing requirements of use of bronchodilators.
- 5) **Clinical Presentations:**
  - a. **Extrinsic Asthma:** worsening of asthma associated with exposure to specific allergen:
    - i. **Perennial allergens:** molds, house dust mites, cockroaches, cat dander, dog dander.
    - ii. **Seasonal allergens:** ragweed, tree pollen, grass pollens.
  - b. **Intrinsic Asthma:** no clear association with specific allergen exposure. More common in adults than children. Typically causes perennial symptoms. Acute episodes may be triggered by viral illnesses.
  - c. **Occupational Asthma:** specific occupational exposure leads to cough, wheezing, and chest tightness.
  - d. **Exercise-induced bronchospasm:** asthma only after exercise.
- 6) **Evaluation:**
  - a. **Symptoms:** shortness of breath, described as chest tightness and wheezing, nocturnal symptoms. History of allergic rhinitis, eczema,

urticaria can assist in determining specific asthma triggers. Chronic allergic or infectious sinusitis exacerbates asthma. Gastroesophageal reflux triggers nocturnal asthma.

- b. **Physical Examination:** fatigue, respirations deep and slow with prolonged expiratory phase, speech shortened.
- c. **Laboratory Testing:** spirometry to establish baseline measure and monitor therapy.

## 7) Treatment:

- a. **Home Monitoring of Lung Function:** Important in asthmatics that have to use bronchodilators more than once to twice week. Inexpensive, reliable peak flow meters are available. Recording peak flow 2-3 times/day will give indication of maximal benefit that can be expected from treatment, can forecast worsening of asthma before severe symptoms develop, and allows identification of harmful environmental or occupational exposure.
- b. **Control of environmental triggers:**
  - quitting smoking
  - avoid exposure to smoke
  - controlling gastroesophageal reflux symptoms
  - control house dust mites: maintaining a low relative humidity, removing carpet and stuffed animals from bedrooms and covering mattresses and pillows with impermeable covers
  - avoid vacuuming or entering recent vacuumed rooms
  - wash bedding clothes weekly in hot water
  - eliminate furbearing animals from the household because they shed allergic dander
  - control molds by using dehumidifiers and allowing adequate ventilation in the kitchen and bathroom
  - pest control for cockroach infestation
  - stay indoors during pollen allergy seasons and high air pollution days
  - using personal respiratory protection if exposed to occupational allergens
  - avoiding aspirin, nonsteroidal anti-inflammatory agents, beta blockers
- c. **Education of the Asthmatic:**
  - recognize signs and symptoms of asthma
  - use peak flow meter
  - use of metered dose inhalers MDIs
- d. **Drug Treatments:**
  - Inhaled bronchodilators for acute attacks: Albuterol
  - Inhaled corticosteroids: Flovent
  - Long acting bronchodilators: Serevent
  - Combination of inhaled corticosteroids and long acting bronchodilators: Advair
  - Leukotrine receptor blockers