**Asthma**

Asthma is a chronic inflammatory disease of the airways characterized by hyper-responsiveness (the tendency for airways to narrow excessively in response to triggers that have little or no effect in normal individuals), mucosal edema, and mucus production. Patients with asthma may experience symptom-free periods alternating with acute exacerbations that last from minutes to hours or days.

**Risk factors**

Risk factors for development of asthma:

1. Family history
2. Allergy (strongest factor)
3. Chronic exposure to airway irritants or allergens (e.g., grass, weed pollens, dust, or animals).

Common triggers for asthma symptoms and exacerbations include:

* airway irritants (e.g. pollutants, cold, heat, strong odors, smoke, perfumes)
* exercise
* stress
* emotional upset
* Medications (e.g. Aspirin)
* Viral respiratory tract infections.

**Clinical Manifestations**

Most common symptoms of asthma are cough (with or without mucus production), dyspnea, and wheezing.

1. Asthma attacks frequently occur at night or in the early morning.
2. Chest tightness and dyspnea.
3. Expiration requires effort and becomes prolonged.
4. As exacerbation progresses, central cyanosis secondary to severe hypoxia may occur.
5. Exercise-induced asthma: maximal symptoms during exercise and absence of nocturnal symptoms.

**Diagnosis**

Compatible clinical history plus either/or:

1. FEV1\* ≥ 15% (and 200 mL) increase following administration of a bronchodilator/trial of corticosteroids
2. 20% diurnal variation on ≥ 3 days in a week for 2 weeks on PEF\* diary
3. FEV1 ≥ 15% decrease after 6 minutes of exercise

\**FEV1: the forced expired volume in 1 second. PEF: peak expiratory flow*

**Management**

*Medical Management:*

* Inhaled short-acting (and long-acting) β2-agonist
* Inhaled steroid 200–800 µg/day
* Oral medications: Leukotriene receptor antagonist and theophylline

***Management Life-threatening/acute severe asthma:***

* Nebulized salbutamol 5 mg 6–12 times daily or as required
* Oxygen—high-flow 60%
* Prednisolone 40 mg orally (or hydrocortisone 200 mg IV)
* IV magnesium sulphate 1.2–2.0 g over 20 minutes, or aminophylline 5 mg/kg loading dose over 20 minutes followed by a continuous infusion at 1 mg/kg/hr

***Nursing Management:***

* Assess the patient’s respiratory status by monitoring the severity of symptoms, breath sounds, peak flow, pulse oximetry, and vital signs.
* Obtain a history of allergic reactions to medications before administering medications.
* Identify medications the patient is currently taking.
* Administer medications as prescribed and monitor the patient’s responses to those medications.
* Assist with intubation procedure, if required.