**PULMONARY CONDITIONS**

**COURSE OUTLINE: 14 HOURS**

**MODULE COMPETENCE**

To enable the learner diagnose, manage, and rehabilitate patients with respiratory conditions

**MODULE OUTCOMES**

The learner should be able to manage patients with:

1. Restrictive conditions using the nursing process
2. Obstructive conditions using the nursing process

**MODULE CONTENT**

**Restrictive disorders**

* Pneumonia(bronco/lobar pneumonia
* Chest injury- pneumothorax
* Lung cancer
* Pleurisy

**Obstructive conditions**

* Bronchitis
* Chronic obstructive pulmonary diseases (chronic bronchitis)
* Bronchial Asthma and status Asthmaticus
* Bronchiectasis
* Bronchiolitis

***Assignment***

1. Review the anatomy and Physiology of the respiratory system;

The nose-nasal cavities- pharynx- larynx- trachea- bronchial tree- lungs- and respiratory muscles

1. **Outline the Nursing Assessment for a patient with a respiratory disorder**

= Take a health history; which include headache, shortness of breath, coughing, exposure to air pollutants, smoking, relatives with chronic conditions

= Physical assessment

**INSPECTION**

- breathing pattern, use of accessory muscles, chest retraction, skin colour, count respirations

**PALPATION**

* Crepitus (feels like Krispies under the skin on fingers)

**PERCUSSION**

* Tap on the anterior and posterior chest in each interspace

**AUSCULTATION**

* Abnormal lung sounds ( coarse crackles)
* Fine crackles, wheezes stridor, pleural friction rub, diminished or absent sounds

**MAKE NOTES ON THE FOLLOWING ABNORMAL SOUNDS**

**MAKE NOTES ON THE FOLLOWING DIAGNOSTIC TESTS**

* RBC count/full hemogram
* Sputum culture and sensitivity
* Arterial blood gas analysis
* Oxygen saturation
* Chest X-ray examination
* Pulmonary angiography
* Bronchoscopy

**MAKE NOTES ON THE FOLLOWING THERAPEUTIC MEASURES FOR A PATIENT WITH A RESPIRATORY DISORDER**

* Smoking cessation
* Deep breathing and coughing
* Breathing exercises
* Diaphragmatic breathing positioning
* Oxygen therapy chest physiotherapy
* Thoracentesis
* Chest drainage
* Suctioning
* Intubation

**GUIDELINES FOR MAKING NOTES ON CONDITIONS**

* DEFINITION
* PATHOPHYSIOLOGYCAUSES
* SIGNS/SYMPTOMS
* COMLICATIONS
* PREVENTION
* DIAGNOSTIC TESTS
* MEDICAL TREATMENT
* NURSING PROCESS

**RESTRICTIVE DISORDERS**

**PNEUMONIA**

* An acute infection of the lung parenchyma following entry of microbes into the lungs
* Microbes entering the lungs may come from cough droplets of an infected person, contaminated respiratory equipment, aspiration of microbes from the mouth, or the pharynx due to poor oral hygiene, or infection

**Pathophysiology**

* when microbes enter the lungs, they multiply and release toxins , which induce inflammation in the lung tissue
* inflammation damage the mucous and alveolar membranes, hence diffuse edema and exudate
* the exudate fills the alveoli reducing the surface area for gaseous exchange

**Types of pneumonia**

**a)- lobar pneumonia**

* infection is confined to one lobe

**b)- bronchopneumonia**

* generalized pneumonia which is a severe form
* characterized by suppurative inflammation localized in patches around the bronchi
* may result in formation of a lung abscess and empyema
* oftenly occur as nosocomial infection

**Aetiology**

**Community- acquired pneumonia:**

Bacterial causes-

* Pneumococcus
* Hemophilus influenza
* Moraxella catarrhalis
* Group A streptococcus
* Streptococcus pneumonia
* Staphylococcus Aureus

**Viral causes**

* Influenza virus
* Adenovirus
* Parainfluenza virus

**Fungal causes**

* Pneumocystis Carinii (Cryptococcal pneumonia in patients with AIDS)

**Hospital- Acquired pneumonia**

* E. Coli
* Pseudomonas Aeruginosa
* Staphylococcus Aureus
* Haemophillus Influenza

**Aspiration Pneumonia**

* In patients with decreased levels of consciousness or an impaired cough or gag reflex, i.e in alcohol ingestion, stroke, general anesthesia, seizures
* Increases the risk for subsequent bacterial pneumonia

**Hypostatic pneumonia**

-patients who hypoventilate due to prolonged bed rest, immobility or shallow respirations experience pooling of secretions in the lungs leading to inflammation and infection.

**Chemical pneumonia**

-Occur due to inhalation of toxic chemicals which cause inflammation and tissue damage e.g. in burns or OPP.

**Signs and Symptoms**

-Chest pains-Inflammation

-Cough (Productive/ Unproductive)- increased secretions (Irritation)

-Fatigue- Fever

-Fever, sweating chills-Toxins

-Subnormal temperatures in older patients and immunosuppressed

-Nausea, vomiting and diarrhea- toxin

-Shortness of breath-Inflammation

**Complications**

-Bacteremia and organ failure

-Atelectasis (alveoli collapse) due to trapped secretions.

-Pleural effusion

-Lung abscess

**Prevention**

-Vaccinations

-Child Immunization

-Good Hygiene

-Cease smoking

**Diagnostic Tests**

-Chest x-ray –identify presence of Pulmonary infiltrate

-Sputum and Blood Culture- to identify causative organism and determine appropriate treatment.

-Bronchoscopy-to obtain specimen

**Medical treatment**

-Broad spectrum antibiotics after obtaining specimen for culture; include penicillins, cephalosporins, macrolides, Fluoroquinolones

-Cough expectorants

-Bronchodilators

-Analgesics

-Supplemental Oxygen

**Nursing Process/ Nursing management**

***Ineffective Airway Clearance related to bronchial edema/ increased sputum production/pleuritic pain/aspiration as evidenced by: Change in the respirations/Use of muscles/Cyanosis/Ineffective cough***

Desired outcome

-Patient will maintain patent airway

Nursing Intervention

-Assess Respirations and use of muscles-presence indicate patient’s effort to facilitate effective breathing.

-Elevate head of bed to promote chest expansion, mobilization and expectoration of secretions

-Teach on proper deep-breathing exercises to facilitate maximum expansion of lungs and improve productivity of cough

-Maintain adequate hydration of 3l/day-warm fluids and in mobilization and expectoration of secretions (Contraindicated in heart failure)

-Nebulization to humidify the airway and thin secretions for easier expectoration

-Encourage ambulation to help mobilize secretions and reduce atelectasis

-Mucolytics to liquefy secretions

***Impaired gas exchange related to decreased ventilation or perfusion or inflammatory effects or collection of mucus in airways as evidenced by dyspnea, cyanosis hypoxemia, and tachycardia.***

Patient Outcome

-Patient will experience improved gas exchange as evidenced by improving arterial blood gases.

**Interventions**

-Maintain bed rest by planning activity and rest periods to preserve energy and reduce dyspneoa

-Administer oxygen therapy by mask or prongs to increase oxygen saturation

-Position with good lung down to increase perfusion of healthier lung and gas exchange.

-Teach Diaphragmatic and pursed-lip breathing to promote relaxation and increase CO2 excretions

***Ineffective breathing pattern related to anxiety or pain as evidenced by ineffective cough***

**Patient Outcome**

-Patient maintain an effective breathing pattern as evidenced by respiratory rate between 12-20 per minute.

**Interventions**

-Determine and treat the cause

-Place patient in fowlers position to allow for maximum chest expansion

-Each patient on diaphragmatic breathing to promote relaxation and increase CO2

Excretions

-Encourage small frequent meals to prevent crowding of the diaphragm which increases

Dyspnea

-Help patient with activities of daily living to conserve energy and avoid over exertion and

Fatigue.

***Acute pain related to inflammation of lung parenchyma/persistent coughing as evidenced by patient’s expression of irritability, guarding of affected area or reports of discomfort***

**Patient’s desired outcome:**

* the patient will verbalize control of pain, or will sleep and engage in activity appropriately

**Nursing interventions:**

* Provide comfort measures like use of relaxation and breathing exercises to promote independence and enhance sense of well-being
* Frequent oral breathing and oxygen therapy can irritate and dry out mucous membranes, increasing discomfort
* Instruct on chest splinting techniques during coughing episodes to control chest discomfort and enhance effective coughing
* Analgesics to relieve pleuritic pain

***Activity intolerance related to imbalance between oxygen supply and demand or general weakness as evidenced by verbal reports of fatigue or exertional dyspnea***

Patient’s desired outcome:

* Patient will demonstrate an increased tolerance to activity with absence of dyspnea

Nursing interventions:

* Nurse in a quiet environment and limit visitors in acute phase to help reduce stress and excess stress and stimulation
* Plan activities to enhance balance between activities and rest
* Assist with self-care activities like bathing to minimize exhaustion and help balance oxygen supply and demand

***Altered body temperature: hyperthermia related to dehydration/infection/increased metabolic rate as evidenced by body temp. above normal range , increased pulse rate***

Patient’s desired outcome:

* Patient maintains body temp. within normal range

Nursing interventions

* Monitor vital sings; increase shows progression
* Reduce excess clothing and bed linen to expose skin to room air, to reduce warmth and increase evaporative cooling
* Antipyretics to lower temp, by breaking the synthesis of prostaglandins that act in the hypothalamus

***Risk for deficient fluid volume related to excessive fluid loss through /fever/diaphoresis/hyperventilation***

Desired outcome:

* Patient demonstrates fluid balance evidenced by moist mucous membranes

Nursing interventions:

* Assess and ascertain changes in vital signs since elevated temp. and prolonged fever increases metabolic rate and fluid loss through evaporation
* Monitor intake and output noting color and character of urine to obtain information about adequacy of fluid volume and replacement needs
* Force fluids to at least 3L/day to meet basic fluid needs and reduce risk of dehydration

**CHEST INJURY**

* Injury to the injury to the ribs, heart or lungs; can be penetrating or blunt

***Aetiology***

* Accidental or deliberate penetration of foreign object into the chest
* Blunt trauma cause chest wall injury, bruises, fracture, or heart contusion

**Pneumothorax**

* Condition in which air has entered the pleural space of the lungs

***Pathophysiology***

* Occur when air leaks into the pleural space
* Normally, the pressure in the pleural space is negative inorder to maintain lung inflation
* When either pleura is breached, air enters the pleural space, causing the lung to collapse

***Types***

***Simple pneumothorax***

* Also called spontaneous, occurs when air enters the pleural space when an air-filled bleb, or blister on the surface of the lung ruptures, allowing air from the airways to enter the pleural cavity
* Associated with diffuse interstitial lung disease or emphysema

***Traumatic pneumothorax***

* Occur when air escapes from laceration in the tissue
* Maybe caused by a blunt trauma, penetrating chest trauma , tears, on the diaphragm, invasive thoracic procedures or trauma from mechanical ventilation
* Can be open: when the wound is large enough to allow air to pass in and out of the thoracic cavity during respiration
* Associated with circulatory problems hence is an emergency

***Tension pneumothorax***

* Occurs when air is drawn into the cavity with each inspiration but cannot be expelled during expiration
* This causes increase in tension (positive pressure) in the cavity
* The lung collapses and the heart and other structures shift towards the unaffected side, compromising circulation and respiration

***Signs and symptoms***

* Sudden sharp pleuritic pain
* Sharp pain on inhalation
* Cyanosis
* Tachycardia
* Rapid breathing
* Confusion and dizziness
* Increasing dyspnea
* Diminished breath sounds
* Hypotension
* Profuse diaphoresis

**Hemothorax –**is the term used to refer to presence 0f blood in the pleural space

* It can occur with or without pneumothorax
* Causes are trauma lung cancer, pulmonary embolism and use of anticoagulants

***Diagnostic tests***

* History/physical exam
* Chest xray
* Arterial blood gases
* Oxygen saturation

***Medical management***

* According to cause and severity
* Chest tube insertion in the 4th or 5th intercostal space at the mid axillary line to drain fluid and air (the underwater seal drainage)
* Surgical repair in severe injuries
* Sterile talc or antibiotics like Tetracycline injected into the pleural space via thoracentesis to make pleural membranes stick together (pleurodesis) to prevent reoccurrence

***Nursing Management***

**Nursing Diagnosis**

* Ineffective breathing pattern
* Altered comfort related to acute pain
* Anxiety related to unknown outcome
* Impaired gaseous exchange related to decreased ventilation or perfusion

**Make notes on the above**

**LUNG CANCER**

**Aetiology**

* Tobacco smoking – the nicotine in cigarette cause DNA to mutate
* Exposure to industrial chemicals; asbestos, radon,
* Air pollution
* Exposure to radiation
* Genetic predisposition
* Dietary deficiency of vit. A, C, E

**Pathophysiology**

* The cancer originate from the respiratory tract epithelium, in the lining of the bronchi
* Presence of a predisposing factor in the lung tissue causes the lung cells to mutate creating changes in the cells and development of tumours

**Types**

1. Small cell lung cancer (oat cell carcinoma)- caused by smoking, grow and metastasize rapidly,found centrally near the bronchi
2. Large cell carcinoma- occur anywhere in the lung s, grow rapidly, with early metastasis
3. Adenocarcinoma- common in womwe, affects peripheral lung fields
4. Squamous cell carcinoma- originate near the bronchi and metastasize at later stage

**Signs and symptoms**

* Cough with spurum production
* Repeated respiratory infections, with thick prulent sputum
* Hemoptysis
* Dyspnea
* Abnormal sounds with obstruction
* Late signs- chest pains, weight loss, anemia

**Complications**

* Pleural effusion
* Superior venacava syndrome
* Ectopic hormone production hence fluid retention or cushing’s syndrome
* Atelectasis/pneumonia
* Metastasis to thebrain, bones, lymph nodes

**Diagnostic tests**

* History/physical exam
* Chest xray- location of mass
* CT scan/lung scan- size and location
* Brain and bone scans- R/O metastasis
* Biopsy

**Staging =======make notes on staging of lung cancer**

**Medical/surgical treatment**

* Staging done to determine type of mx
* Lobectomy
* Chemotherapy
* Radiation therapy

**Nursing Management**

***Ass. Make notes on the following ---nursing interventions***

***Nursing Diagnosis***

* Impaired gaseous exchange
* Ineffective airway clearance
* Imbalanced nutrition less than body requirement
* Altered comfort related to pain
* Impaired bowel elimination (constipation) related opioid use
* Activity intolerance related to low oxygen saturation
* Knowledge deficit regarding disease
* Anticipatory grieving, related to unknown disease outcome

**PLEURISY**

* Inflammation of tissue layers (pleura) lining the lung and inner chest wall

**Aetiology**

Conditions that cause inflammation of pleura e.g

* Pneumonia
* TB
* Cancer
* Pulmonary embolism
* Trauma

**Pathophysiology**

* The visceral and parietal pleura are membranes surrounding

the lungs

* The serous fluid between the membranes prevent friction during respiration
* If the membranes are inflamed, sliding is reduced. The membranes stick together between respirations causing a characteristic sharp pain on inspiration
* The irritation causes an increase in formation of pleural fluid which causes pleural effusion

**Signs and symptoms**

* Sharp chest pain on inspiration
* Tachycardia
* Fever and chills
* Elevated WBC
* Pleural friction rub on auscultation
* Shortness of breath

**Complications**

* Pleural effusion
* Atelectasis
* Emphysema in infections

**Diagnostic tests**

* clinical presentation
* Chest xray- pleural effusion
* Complete blood count
* Fluid analysis

**Medical management**

* Pain control
* Treat underlying cause
* Thoracentesis
* Antibiotics

**Nursing management**

**Nursing diagnosis**

***Assignment: explain the nursing actions***

* **Anxiety related to unknown outcome**
* **Impaired gaseous exchange**
* **Ineffective breathing pattern**
* **Altered comfort related to acute pain**

***Assignment***

***Read and make notes on bronchiolitis using the guideline. Be thorough in your search to be able to make comprehensive notes.***

***Obstructive disorders***

**ACUTE BRONCHITIS**

* An inflammation of the bronchial tree and the bronchioles

**Aetiology**

Viral/bacterial infection

Exposure to irritants e.g tobacco, dust, industrial fumes

90% percent of cases are caused by viral infection

**Pathophysiology**

Entry of irritants into the bronchial tree irritates the mucus membranes causing inflammation and excess mucus production

His leads to persistent cough, wheezing and excess secretions, which block the airway hence shortness of breath

Infection may last from days to weeks

**Signs and symptoms**

Cough with sputum production

Wheezing

Shortness of breath

Fever

Chest tightness

Runny, stuffy nose

**Prevention ……Assignment**

**Diagnosis**

* Physical exam- decreased density of breath sounds, wheeze, rhonchi
* Clinical presentation
* Chest xray- r/o pneumonia
* WBC count- elevated
* C-reactive protein- elevated

**Nursing Process/Nursing management**

***Impaired gaseous exchange r/t airway obstruction as evidenced by production of abnormal sounds on auscultation***

***Interventions***

* Chest physiotherapy
* Hydration
* Analgesics
* Antipyretics
* Ambulation

***Ineffective airway clearance r/t increased production of secretions as evidenced by nasal flaring, wheezes, crackles, respirations above normal***

***Interventions***

* Elevate head of bed
* Increase fluid intake
* Two hourly patient turning
* Steam inhalation

***Sleep pattern disturbance r/t difficulty in breathing a.e.b fatigue, sleepiness, verbalization***

***Interventions***

* Quiet environment
* Encourage expectoration
* Analgesics
* Nurse in semi-fowler’s position
* Activity intolerance r/t inadequate oxygenation
* Anxiety r/t acute breathing difficulties
* Imbalanced nutrition less than body requirement r/tdyspnoea, anorexia, nausea and vomiting

**Assignment -------explain nursing interventions for the above**

**Complications**

Septicemia

What are the other complications?

CHRONIC OBSTRUCTIVE PULMONARY DISEASES/CHROIC AIRFLOW LIMITATIONS

This is a group of pulmonary disorders characterized by difficulty exhaling because of narrowed or blocked airways. Associated with conditions that limit airflow including Emphysema, Chronic Bronchitis and Asthma. A patient WITH COPD often has some degree of both Emphysema and Chronic Bronchitis. Asthma may also be present but the airway constriction is reversible. COPD may also be referred to as Chronic Airway Limitation ( CAL ) or Chronic Obstructive Lung Disease ( COLD ). COPD develops over at least 30 years before symptoms are evident and may be advanced by the time the patient seek treatment.

AETIOLOGY OF COPD

Smoking or passive smoking.

Exposure to air pollution

Exposure to industrial chemicals

Some familial predisposition related to inherited deficiency of the enzyme alpha-antitrypsin (a, AT )

PATHOPHYSIOLOGY OF CHRONIC BRONCHITIS

This is a chronic obstructive pulmonary disease with symptoms occurring three months out of the year for two consecutive years.

. Inflamed bronchial tree due to irritants

. Hypertrophied mucus-producing glands in the airway

. Excessively thick tenacious mucous

. Chronic low grade infection

PATHOPHYSIOLOGY OF EMPHYSEMA

. Emphysema affects the alveolar membranes, causing destruction of the alveolar walls and loss of elastic recoil. Also causes damage to adjacent pulmonary capillaries

The passive expiration is impaired due to loss of alveolar recoil leading to air being trapped in the alveoli.

Reduction in pulmonary capillaries reduces gaseous exchange.

Emphysema can occur primarily in the respiratory bronchioles resulting to Centri-lobular Emphysema , with delayed alveolar damage . Pan-lobular Emphysema occurs. in respiratory bronchioles and alveoli

SIGNS AND SYMPTOMS OF COPD

Exhibits dyspnea due to obstructed airway passages

CHRONIC productive cough, shortness of breath and activity intolerance in Chronic Bronchitis

Progressive shortness of breath accompanied by activity intolerance in Emphysema

Barrel-shaped chest due to hyper-inflated lungs caused by respiratory air trapping.

Crackles and wheezing that improves on coughing often noted on auscultation.

Elevated Pascal pressure of carbon dioxide and decreased Pascal pressure of oxygen in blood

Use of accessory muscles of respiration e.g. abdominal muscles

Polycythaemia in response to reduced oxygenation ( ruddy skin colour). Cynosis may also be present.

Right-sided heart failure may develop because the heart has to work harder to pump to the diseased lungs.

Loss of weight and malnourished in later stages of COPD

DIAGNOSTIC TESTS

. Imaging to include chest x-ray and CT scan.

.complete blood cell count.

.arterial blood gas analysis later in disease process

.pulmonary function studies

.sputum laboratory analysis

.alpha-antitrypsin level analysis if deficiency is suspected.

MEDICAL TREATMENT OF COPD

Caession of smoking.

Minimize exposure to respiratory contamination.

Administration of oxygen at a flow of 1 to 2litres per to

prevent suppression of the hypoxic drive.

A pulmonary rehabilitative programme initiated and continued at home help the patient to increase exercise tolerance and maintain a sense of well being.

Medication include the following: adrenergic, anticholinergic or theophylline bronchiodilators, expectorant, and intermittently antibiotics.

Nebulizer mist treatments and metered dose inhalers used to administer bronchodilators

.metered dose inhaler ( MDI).

.nebulizer mist treatment ( NMT)

.by mouth ( BO ).

Steroids used late in the disease to reduce airway inflammation.

Good hydration and A cool mist humidifier to help keep secretions loose.

Chest physiotherapy to include percussion and chest vibration to revoke excessive secretions

Advised to report onset of purulent sputum so that treatment is immediately started.

Avoidance of crowds and exposure to people with respiratory infection is advised.

Reduce risk of respiratory infection by a pneumococcal vaccination and yearly influenza vaccination.

Surgical removal of some of the diseased lung

tissue ( Lung Volume Reduction Surgery ).

Replacement of alpha-antitrypsin to correct its deficiency in the body.

BRONCHIAL ASTMA

A chronic obstructive respiratory condition characterized by inflammation of the mucosal lining of the bronchial tree and spasm of the bronchial smooth muscles.

CAUSE OF BRONCHIAL ASTHMA

Inherited

Allergic or idiosyncratic ( unexpected ).

Environmental pollutants/irritants

Emotional stress

Complicated Chronic Bronchitis.

Gastro-esophageal Reflux Disease

PATHOPHYSIOLOGY OF ASTHMA

Characterized by inflammation of the mucosal lining of the bronchial tree and bronchospasms . This causes narrowed airways and air trapping.

Symptoms are intermittent and reversible, with periods of normal airway function.

About 50% develop in childhood and symptoms persist in diminished state,often returning in later life.

Allergic ASTHMA is triggered by allergens and is seasonal. Individuals who developed ASTHMA as children tend to have allergic ASTHMA

SIGN AND SYMPTOMS OF ASTHMA

Intermittent attacks which may last from minutes to days

Chest tightness

Dyspnea

Difficult moving air in and out of the lungs

Hypersensitive airways that are prone to ASTHMA symptoms for many weeks once initial symptoms are controlled

Increased respiratory rate to compensate for narrowed airway

Wheezing because of turbulent airflow through swollen airways with thick secretions.

A cough is common and may produce thick clear sputum

Use of accessory muscles to breath in severe attack

STATUS ASTHMATICUS

A severe form of ASTHMA in which the airway obstruction is unresponsive to usual drug therapy.

CONTRIBUTING FACTORS

Infections

Inhalation of air pollutants and allergens to which sensitized

Noncompliance in taking medications, including overuse of bronchiodilators.

Ingestion of aspirin or related drugs in aspirin sensitive patient

Aspiration of gastric acid.

CLINICAL MANIFESTATIONS

Machines, laboured respiration, with increased effort on exhalation

Suprasternal retractions, use of accessory muscles of respiration.

Diminished breath sounds, decreased ability to speak in phrases or sentences.

Anxiety, irritability, fatigue, headache, impaired mental functioning.

Muscle twitching,condolence, diaphoresis due to continued carbon dioxide retention.

Tachycardia, elevated blood pressure.

Heart failure and death from suffocation.

MANAGEMENT AND NURSING INTERVENTION

Monitor respiratory rate and oxygen saturation continuously. Also accompanied with frequent monitor of arterial blood gas levels, Bp, ECG.

Administer repeated aerosol treatments with beta2-agonist bronchodilators , such as albuterol or levalbuterol,

Add anticholinergic ipratropium as prescribed. Administer with caution until the metabolic and respiratory acidosis and hypoxaemia have been corrected.

Monitor intravenous therapy. Corticosteroids are given to treat inflammation of the airways; because they act slowly, their beneficial effects May not be a parent for several hours.

Fluids are given to treat dehydration and loosen secretions

Provide continuous humidified oxygen via cannula as prescribed.

Patients with associated COPD or Emphysema are at risk for depressed hypoxaemic ventilatory drive, thus compounding respiratory insufficiency, so use oxygen cautiously.

Initiate mechanical ventilation, if necessary.

Assist with mobilization of obstructing bronchial mucus. Perform chest physiotherapy (chest percussion and vibration). Administer cough expectorant and mucolytic drugs as prescribed. Remove secretions by suctioning, or prepare for bronchoscopy if needed.

Provide adequate hydration.

Obtain portable chest x-ray and administer antibiotic, as prescribed, to treat any underlying respiratory infection

Alleviate the patient's anxiety and fear by acting calmly and reassuring the patient during attack

Stay with the patient until the attack subsidies

BRONCHIECTASIS

This is damaged airway passages that allow bacteria and mucus to build up and pool in young lungs resulting in frequent infections and blockages of the airways.

A condition in which the lungs airways become damaged, making it hard PATHOPHYSIOLOGY

Bronchial tubes of young lungs are permanently damaged, widened and thickened allowing bacteria and mucus to build up and pool in young lungs. This results in frequent infections and blockages of the airways

TYPES OF BRONCHIECTASIS

Cystic fibrosis BRONCHIECTASIS. Cystic fibrosis is a serious genetic condition that causes severe damaged to the respiratory system. Cystic fibrosis damage often results from a build up of thick, sticky mucus in the airways. Affects the cells that produces mucus

Non-cystic fibrosis BRONCHIECTASIS is associated with the following conditions:

.an abnormally functioning immune system

.autoimmune diseases.

.COPD

.alpha-1-antitrypsin deficiency

.HIV

.allergic aspergillosis.

.lung infections—whooping cough and tuberculosis.

.inflammatory bowel disease

CLINICAL MANIFESTATIONS

Takers months or even years to develop. Typical symptoms include:

.chronic daily cough often with blood , coughing up large amounts of thick stick mucus every day.

.abnormal chestsounds or wheezing in chest with breathing.

.shortness of breath.

.chest pain

.weight loss.

.fatigue

.clubbing of fingernails and toenails.

.frequent respiratory infections.

DIAGNOSISOF BRONCHIECTASIS

History and physical examination findings, after CT scan findings try to establish the cause of BRONCHIECTASIS

Chest CT scan since a chest x-ray doesn't provide enough details. Laboratory, microscopic and pulmonary function testing to evaluate the underlying cause……..cbc count, immunoglobulin levels and sputum cultures

.sweat chloride test (genetic test if cystic fibrosis is suspected

TREATMENT OF BRONCHIECTASIS

To slow down the progression of bronchiectasis

To keep infections and bronchial secretions under control.

To prevent further obstructions of the airways and minimize lung damage.

Common methods of treating include

.clearing the airways with breathing and chest exercises

.pulmonary rehabilitation

.antibiotics.

.bronchiodilators—albuterol and tiotropium

Warm Humidification tot thin the mucus.

.expectorant to aid coughing up mucus.

.oxygen therapy

.vaccinations.

.surgery in bleeding in the lungs to arrest bleeding or BRONCHIECTASIS in one PART of the lung to remove affected tissue

PREVENTION

Avoid smoking polluted air, cooking fumes , and chemicals

Vaccination against the flu , whooping cough, and measles.

BRONCHIOLITIS

An inflammatory bronchial reaction in young children and infants commonly caused by a virus during winter months, characterized by common cold that progresses to coughing, wheezing and sometimes difficult breathing that lasts a week to a month.

This is a common lung infection caused by respiratory syncytal virus in young children and infants characterized by runny nose, stuffy nose, cough and slight fever (not always present).

RISK FACTORS

.Children under two years old, greatly affects infants under three months old.

In infants RISK factors include

.premature birth

.heart and lung condition

.depressed immune system

.exposure to tobacco smoke

.un breastfed infant

.contact with multiple children

.crowded environment

.having school going or getting child care services siblings

CAUSES

Mostly caused by respiratory syncytal virus.

PATHOPHYSIOLOGY

The virus infects the bronchioles, making them to swell and inflamed. The mucus secreted as a result of swelling and inflammation. The mucus collects in these bronchioles and other airway passages, making it difficult for air to flow freely in and out of the lungs.

CINICAL FEATURES

Runny and stuffy nose

Cough accompanied occasionally with slight fever

A week or more of difficulty breathing or wheezing. Audible wheezing sounds.

Laboured breathing where the ribs seem to suck inward when the infant inhaled.

Sluggish or lethargic appearance

Refusal to drink enough or breaching to fast to eat or drink.

Cynosis whereby the skin turn blue, especially the lip and fingernails

COMPLICATIONS

Synopsis

Apnea which is a pause in breath associated with premature infants and infants within first two months of life

Dehydration

Low oxygen blood levels

Respiratory failure

PREVENTION

Breastfeeding infants exclusively improves body immunity

Frequent hand washing, especially before touching the infant when you a cold or other respiratory infection

Recommended wearing a face mask while attending to vulnerable infants

Infected infants and children should be kept away until they recover from infection to avoid spreading to others.

Limit contact with people who have a fever or common cold.

Clean and disinfect surfaces regularly

Separate utensils for the infected person from those of the vulnerable group utensils.

Cover coughs and sneezes from spreading through droplets.