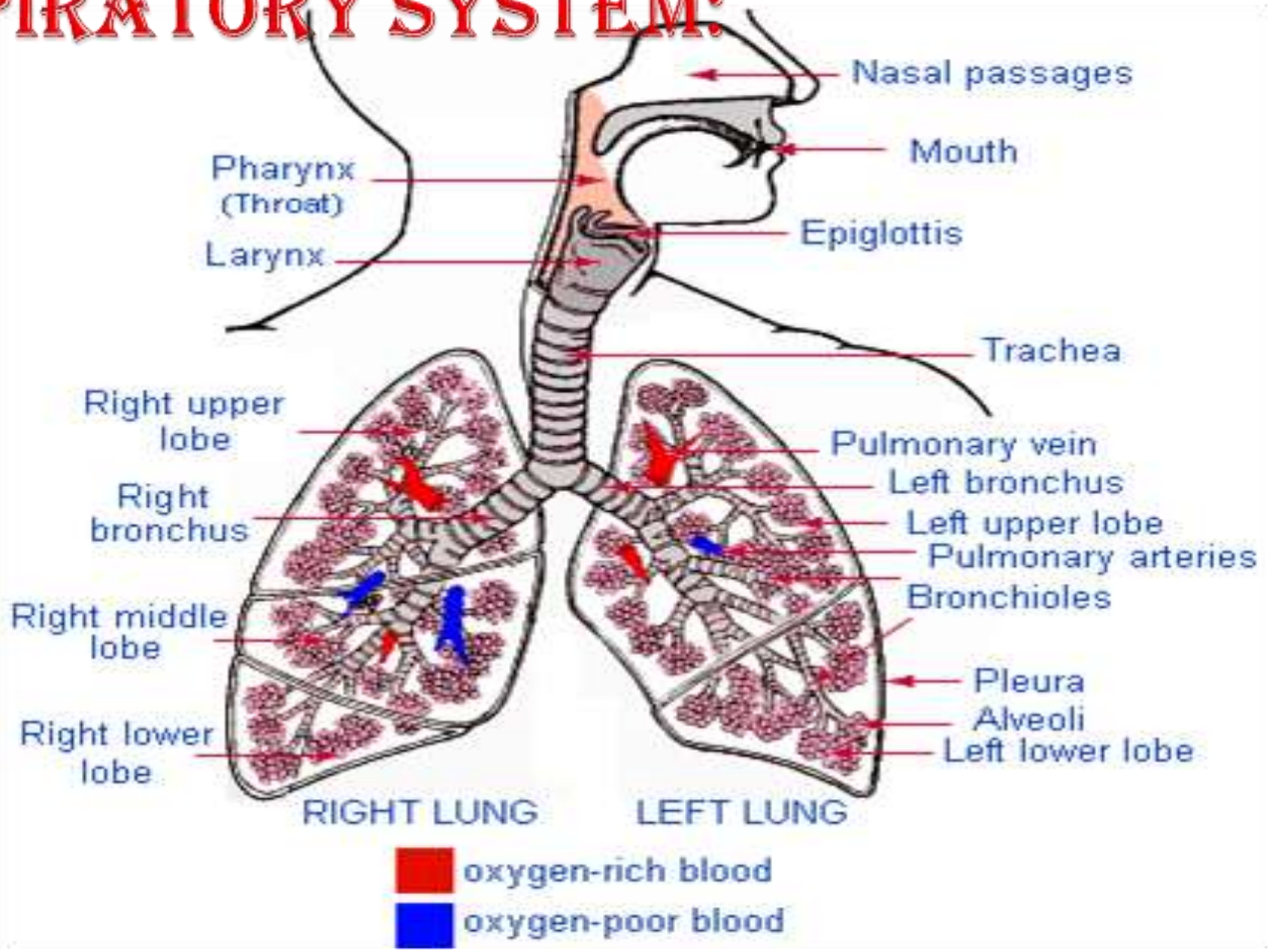
RESPIRATORY DISORDERS IN CHILDRENS

ANATOMY & PHYSIOLOGY OF RESPIRATORY SYSTEM:



EXAMINATION OFRESPIRATORY SYSTEM

1. GENERAL EXAMINATION
2. ENT EXAMINATION
3. CHEST EXAMINATION

- Inspection
- Palpation
- Percussion
- Auscultation

COMMON RESPIRATORY SYMPTOMS:

- COUGH
- DYSPNEA
- RESPIRATORY NOISES

INVESTIGATIONS IN RESPIRATORY DISEASES:

INVESTIGATIONS:

- Hemotological
- Serological
- Microbiological
- Radiographic
- Molecular testing
- Others.

PROCEDURES:

- ✓ Transillumination
- ✓ Thoracocentesis
- ✓ Nasal biopsy
- ✓ Laryngoscopy
- ✓ Bronchoscopy

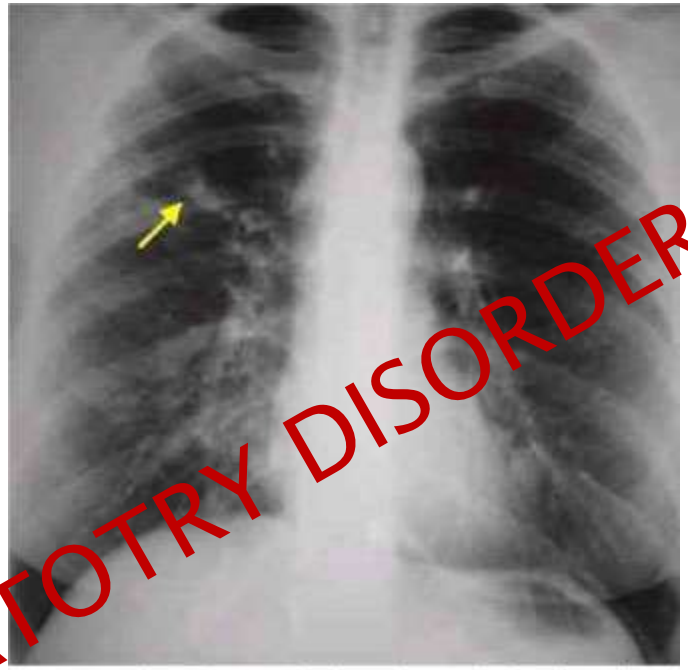


Figure 1 – Chest X-ray with glove-finger shadow (arrow) and nodular opacities in the right middle third

Common cold(nasopharyngitis)

- Inflammation of the nasopharynx, para nasal sinuses and the middle ear generally involved.
- Clinical manifestations:
- Irritation , dryness of mucus membrane
- Chills, sneeze, cough, nasal discharge.
- Slight fever, headache, general malaise, musle ache
- Anorexia.

Pathophysiology:

- Rhino viruses are the most infectious agents

Pathological changes that occur in the nasopharynx include edema, vasodilatation in the submucosa, mono nuclear cell infiltration.

Separation of the superficial epithelial cells

Production of mucus first thin , later- thick.

NURSING MANAGEMENT:

- Generally home care
- Parent education
- Promote rest & sleep
- To provide adequate fluids and nutrition
- To reduce fever

ACUTE PHARYNGITIS:

- Etiology:

Commonly caused by viruses: Rhino, corona, influenza, adeno virus

10-20% of sorethroat caused by bacteria-Group A beta hemolytic streptococcus.

CLINICAL FEATURES:

Fever, sorethroat

Nasal discharge, discomfort in throat

Enlargement of tonsils.

Cervical lymphnode-enlargement

DIAGNOSTIC FINDINGS- Throat swab culture.

TREATMENT:

- The major consideration in treatment- to prevent rheumatic fever.
- Pencillin -oral/IM for 10 days.
- Alternative antibitic therapy: ampicillin. Amoxicillin, cephalosporins.
- If the person sensitive to pencillin,treated with erythromycin.
- The newer macrolide such as roxithromycin,clarithromycin and azythromycin .

ACUTE SINUSITIS

- DEFINITON-Inflammation of sinuses is common and associated with naso pharyngitis and pharyngitis.

Etiology: Bacterial pathogens-streptococcus pneumonia,H.influenzae

Gram- ve Bacteria.

DIAGNOSIS : History taking , physical examination, X-ray sinuses.

TRATMENT:

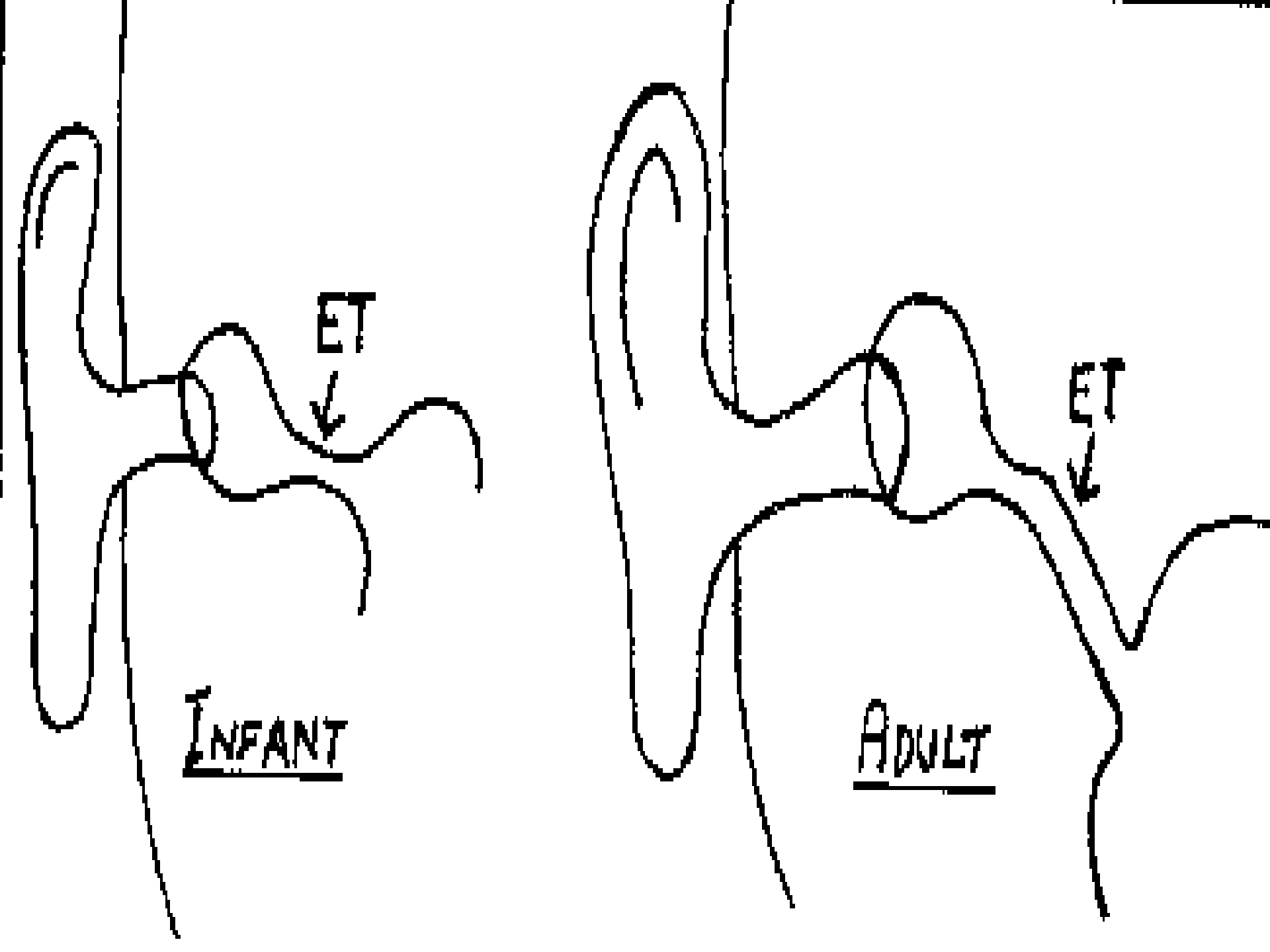
1. Antibiotic therapy
2. Supportive therapy-anti pyretics
   -analgesics

OTITIS MEDIA:

- Inflammation of the middle ear –otitismedia.

CLINICAL FEATURES:

- Fever
- Ear pain
- Fullness of ear
- Irritation
- Discharge from ear
- Cervical lymphadenopathy


ET
INFANT
ET
ADULT

PATHOPHYSIOLOGY:

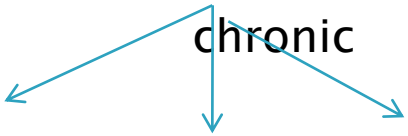
- The Eustachian tube cannot function-mechanically-infection, allergy, tumors. Functionally-dysfunction

Drainage from the middle ear is blocked, resulting in the retention of normal secretions.

Microorganisms pass through it from nasopharynx into middle ear result of a difference in air pressure.

The organisms reaching middle ear multiply and rapidly invade the tissues.

Acute chronic serous otitis media



ASSESSMENT:

- Acute otitismedia: History collection

Physical examination

Otoscopy

Tympanocentesis

- Chronic otitismedia:History taking

Physical examination

- Serous otitismedia:

History taking

Physical examination

Tympanometry

MANAGEMENT:

- MEDICATIONS:
- SURGICAL MANAGEMENT-Tympanocentesis
- Myringotomy
- Facilitation of drainage
- Prevention of excoriation of the skin
- Promotion of comfort
- Continued assessment
- Patient education

EPISTAXIS:

- Epistaxis is common in childrens. Bleeding occurs usually from anterior- inferior portion of the cartilagious nasal septum due to rich capillary vasculature.
- INCIDENCE:

Common after 1st yr and upto puberty.

ETIOLOGY:

Major trauma Nasal diphtheria

Nasopharyngeal tumor

Nose picking

Foreign body in nose

Nasal injury

Nasal polyp

Rhinitis

SYSTEMIC CAUSES:

- Leukemias
- Hemophilia
- Thrombocytopenia
- Rheumatic fever
- Typhoid fever
- Acute infection
- Scury

Ingestion of aspirin
Hypotension
Tuberculosis
Leprosy
Cirrhosis
Nehritis
Vitamin-K deficiency

MANAGEMENT:

- FIRST AID:
- RECURRENT EPISTAXIS:
  - Application of antibiotic ointment for lubrication and for prevention of infection may be needed.
  - Control of allergic reactions, detection and management of systemic causes and bleeding disorders to be done appropriately.
  - Details family history
  - Bloodtransfusion

NURSING MANAGEMENT:

INFECTIONS OF LARYNX, TRACHEA, BRONCHI

- Croup
- Acute epiglottitis
- Acute infectious laryngitis
- Spasmodic croup.

ACUTE RESPIRATORY INFECTIONS

DEFINITION: Acute respiratory infection is an acute infection of any part of the respiratory tract and related structures including paranasal sinuses, middle ear and pleural cavity.

CLINICAL MANIFESTATIONS:

a. Nasal discharge
b. Fever
c. Anorexia
d. Irritability
e. Chills
f. Resp.distress

cough
Malaise
Sore throat
Chest pain
Tachycardia
Earproblem

DIAGNOSTIC MEASURES:

- History collection
- Physical examination
- Hemotological tests-CBP
- Chest X-ray

MANAGEMENT:

- Child with no pneumonia
- Child with pneumonia
- Child with sever pneumonia
- Child with very severe disease

Lower respiratory tract disorders

ACUTE BRONCHIOLITIS:

- DEFINITION: It is a common viral disease of the lower respiratory tract of infants resulting from inflammatory obstruction at the bronchiolar level.
- INCIDENCE: Usually occurs between the ages of 2 -12 months . peak incidence at about 6 months.
- Rare- after the age of 2 years.
- Most occur frequently in winter and early spring.

CAUSATIVE AGENTS:

- Respiratory syncytial virus-50% of infants.
- Adeno viruses-Para influenza virus, Mycoplasma pneumonia &certain other viruses.

PATHOPHYSIOLOGY:

- Inflammation
- Edema and accumulation of mucus and cellular debris in the smaller bronchioles
- Bronchial obstruction
- Airway resistance increased during both inspiration & expiration

Air is trapped in the lungs

- Over inflation of lungs
- Alveoli can no longer aerate the blood
- Gaseous exchange impaired
- Hypoxemia

Atelectasis.

CLINICAL MANIFESTATIONS:

- The clinical manifestations of bronchiolitis occur several days after a nasopharyngeal infection.
- Respiratory distress:
  - Paraoxysymal wheezy cough
  - Dyspnea
  - Irritability
- Respiratory rate increases : It may difficult for the infant to suck and breath at the same time.
- May have a low-grade fever, hypothermic
- Cough is either absent or simply mild.
- Chest signs: Intercostal, subcostal and suprasternal retraction
- Hyperssent percussion, diminished breathing sounds,wheezing

- DIAGNOSTIC FINDINGS:

X-Ray Examination: The lung shows hyperinflation and on lateral view-an increased anterio-posterior diameter of the chest.

MANAGEMENT:

1. Central measures include oxygen administration
2. Mild sedation
3. Atmosphere well saturated with water vapors.
4. Adequate hydration
5. Rest
6. Positioning
7. Pulmonary hygiene

MEDICAL MANAGEMENT:

BRONCHOPNEUMONIA:

- DEFINITION: Pneumonia is an inflammation of the lung parenchyma caused by various microorganisms, including bacteria, myco bacteria, fungi and viruses.
- INCIDENCE: Mostly commonly in infants and young childrens.
- CAUSATIVE ORGANISMS: Bacteria, Viruses, M.pneumonia
- PREDISPOSING FACTORS:
  - Immunodeficiency
  - Congenital respiratory malformations
  - Congenital heart disease
  - Chronic pulmonary disease

CLASSIFICATION OF PNEUMONIA:

- ETIOLOGICAL CLASIFICATION
- ANATOMICAL CALSIFICATION
- CLASSIFICATION BASED ON ACQUISITION
- CLASSIFICATION BASED ON CHRONICITY

CLINICAL FEATURES:

- The onset is usually with
- ✓ High grade fever
- ✓ Cough
- ✓ Chills
- ✓ Respiratory distress
- ✓ Diarrhoea
- ✓ Tachypnea
- ✓ Normal or harsh breath sound
- ✓ Irritation
- ✓ Vomitings
- ✓ Chest pain
- ✓ convulsions

MANAGEMENT:

- ANTIBODIES IN COMMUNITY –ACQUIRED PNEUMONIA

PENCILLIN

For staphylococcal pneumonia : pencillin, ampicillin .

For H. influenza: ampicillin or Pencillin+chloramphenicol.

For klebsilla: pencillin+kanamycin or gentamycin

For Pseudomonas: ticarcilin alone and + combination with gintamycin, kanamycin

For Tuberculous pneumonia: ATT therapy.

For viral pneumonia: Ribavirin aerosolizatio

MANAGEMENT:

- GENERAL MEASURES..
- NURSING MANAGEMENT
  - Care in the Hospital
  - Continuous assessment
  - Reduction of fever
  - Facilitation of respiratory efforts

PREVENTION:

Pneumococcal polysaccharide vaccine-0.5ml/IM/sub cutaneously.

HBPV- 24months to 6years of age.


Pediatric
ASTHMA

DEFINITION:

- It is the chronic inflammatory disorder of the lower airway due to temporary narrowing of the bronchi by bronchospasm

INCIDENCE:

Peak incidence is in 5 to 10 years of age.

Boys are more sufferer than the girls.

Allergic asthma is the most common in childrens.

FACTORS:

- Predisposing factors:

-Hereditary

-Labile and overconscientious nature

- Excitatory factors:
- Allergies –foreign substances,

  –Ingestion of food

  Drugs
- Respiratory factors
- Worm infestations
- Change in climate
- Emotional disturbances
- Excessive fatigue, exhaustion and exercises.

CLASSIFICATION:

- ALLERGIC OR EXTRINSIC ASTHMA
- NON-ALLERGIC OR INTRINSIC ASTHMA

CLINICAL FEATURES:

CLINICAL FEATURES:

DYSPNEA

- ✓WHEEZING
- ✓COUGHING
- ✓AIRWAY OBSTRUCTION
- ✓CHRONIC COUGH
- ✓NASAL CONGESTION
- ✓RHINITIS.IRRITABLE
- ✓SUBCOSTAL,INTER-COSTAL RETRACTIONS.
- ✓CYANOSIS
- ✓VOMITING
- ✓DIMINISHED BREATH SOUNDS
- ✓HEADACHE
- ✓CONFUSION
- ✓COMA.

DIAGNOSIS:

- History collection
- Physical Examination
- Pulmonary function test
- Absolute function test
- Chest X-ray
- Allergy test

MANAGEMENT:

- Avoidance of allergens
- Drug therapy:
- Physiotherapy and psychotherapy
- Hyposensitization

Drug therapy:

I. Beta 2 –adrenergics- Salbutamol, Terbutaline
II. Corticosteroids-
III. Xanthine group of drugs: Theophylline-7-8mg/kg
IV. Anti cholinergic drugs : Ipratropium bromide 0.6 mg.
V. New drug: Ketotifen
VI. Other drugs: IV infusion of Mgso4 ketamine.

- A- Anticolinergic
- S-Steroids
- T-Terbutaline
- H-Helium o2 mixture
- M-Methylzanthine
- A-Anti histamines

NURSING MANAGEMENT OF SEVERE ATTACK OF ASTHMA:

- Immediate treatment
- Subsequent management
- Monitoring the treatment
- Transfer to the intensive care unit
- When discharged from the hospital.

ACUTE BRONCHEOLITIS:

- DEFINITION:
- It is a common viral disease of the lower respiratory tract of infants resulting from inflammation obstruction at the bronchiolar level

- INCIDENCE: Between the ages of 2 and 12 months with the peak incidence at about 6 months of age.

Clinical manifestations:

- Respiratory distress: it is characterized by a
- Paroxysymal wheezy cough
- Dyspnea
- Irritability
- Respiratory rate increases
- Low grade fever
- Dehydration and acidosis.
- Cough
- Chest signs: Intercostal, subcostal and supra-sternal restraction, diminished breathing sounds, wide spread crepitation, wheezing.

DIAGNOSTIC FINDINGS:

- X-ray: The lung shows hyper inflation and on lateral view, an increased anteroposterior diameter of the chest.
- Peribronchial interstitial pneumonitis is generally present.

MEDICAL MANAGEMENT:

- Aminophylline IV
- Bronchodilators
- Severe bronchiolitis –Antiviral agent
- (Respiratory syncytial virus)

MANAGEMENT:

- Central measures include oxygen administration.
- Mild sedation
- Atmosphere well saturated with water vapor.
- Adequate hydration.
- Rest
- Positioning.
- Pulmonary hygiene.

end

BRONCHOPNEUMONIA:

- DEFINITION: It is an inflammation of the lung prenchyma caused by various micro-organisms, including bacteria, mycobacteria, fungi and viruses.

- INCIDENCE: Most commonly in infants and young children.

CYSTIC FIBROSIS:

- DEFINITION: It is characterised by chronic obstruction and infection of pulmonary airways and by lack of normal digestion in G.I tract.
- ETIOLOGY: I t is inherited as an autosomal recessive trait.

- CLINICAL FEATURES: Cough

Shortness of breath

Increased exercise tolerance

Showing of weight gain

Neonates may present with meconium ileus or obstructive jaundice

-DIAGNOSIS: Chest X-ray

MANAGEMENT:

- Intermittent aerosal therapy
- Mist tent therapy
- Chest physical therapy
- Antibiotic therapy
- Bronchodilator therapy.
- Nutritional therapy.
- Expectorant therapy
- Home care management
- Nursing management.