Pediatric Nursing
Respiratory "part 2"
Lecture " 8"
Lower respiratory infections

- Epiglottitis.
- Bronchitis.
- Bronchiolitis.
- Pneumonia.
- Croup syndrome.
Acute Epiglottitis

• Is an infection of the epiglottis, the long narrow structure that closes off the glottis during swallowing.

• Because the edema in this area can rapidly obstruct the airway by occluding the trachea. **epiglottitis is considered life-threatening condition**
• **Epiglottitis** is caused by bacterial invasion of the soft tissue of the larynx by:
  • Streptococcus.
  • Staphylococcus.
  • Haemophilus influenzae type B.

• The healthy child become suddenly ill, he initially develops a high grade fever > 39°C, sore throat, **dysphonia** (muffled, hoarse, or absent voice sounds), **dysphagia**.
• As the larynx become obstructed, *inspiratory strider* & respiratory distress develop.

• The intense throat pain prevent the child from swallowing, so *drooling* is seen.

• To fully open the airway, the child sit up and lean forward (*tripod position*) and refuse to lie down.

• the child’s *anxiety* increase as it become more difficult to breathe.
Management

- Immediate clinical therapy usually involves insertion of ETT, to maintain airway.
- Throat culture and visual inspection of the mouth is contraindicated, because these procedures would cause laryngospasm.

- Antibiotic therapy started after culture, broad spectrum or antibiotic sensitive to the gram negative bacteria.
- Antipyretic to decrease fever & pain.
Nursing interventions

- Observe child’s airway status.
- Position the child in a comfort position to let him breathe easily.
- Observe any changes in level of consciousness.
- Supplement humidified oxygen to correct hypoxemia.
- Give medication as ordered.
- Give IVF to keep the child hydrated.
- Reassure the family that the loss of voice is temporarily.
Bronchitis

Normal bronchi

Bronchitis
Bronchitis

• Is inflammation of the trachea & bronchi, mostly occur due to viral infection but it could be due to bacterial invasion.

• The classic symptoms are coarse, hacking cough, which increase in severity at night.

• Child appear tired, and may show wheezing sound.

• Treatment is supportive (symptomatic); unless the cause is bacteria.
Nursing managements

• Support the respiratory system through rest, humidification, hydration, and symptomatic treatment.

• Inform parent not to smoke inform of the child to avoid irritation of trachea & bronchi → cough.
Bronchiolitis
Bronchiolitis

• Is a lower respiratory tract infection affecting the small airways, the bronchiole.

• It caused by bacteria, mycoplasmal organisms & viruses such as parainfluenza virus but most commonly is the **respiratory syncytial virus (RSV)**.
• The inflammation leads to edema of the bronchiole’s mucus cells → increase secretion of mucus → presence of cough + crackle sound.

• Edema cause narrow of the airway → so wheezing sound occur.

• If sever edema present, obstruction of the airway occur → leading air below the obstruction to be trapped → affecting normal gas exchange process.
• Due to inflammatory process the child will show fever < 39°C, tachycardia, retractions, more labored breathing.

• If severe respiratory distress occurs, marked retraction occur, crackles, cyanosis, and diminished breath sound.

**Clinical therapy:**

• Isolation, if the child has a positive test of (RSV).

• Supportive care is needed.

• Monitor the patient’s V/S, O₂ saturation.

• Provide humidified oxygen.
Continue...

- Hydration via IVF & oral intake.
- Intubations in sever cases.
- Systematic medication such as bronchodilators, steroids, beta-agonist.
- Suctioning.
- Postural drainage & chest physiotherapy.
CROUP syndrome

- Croup syndrome is term used to describe an infection of the larynx, trachea and bronchi. **Laryngotracheobronchitis (LTB)**

- Although, croup syndrome is used to describe several viral & bacterial infections in the larynx or trachea & bronchi. It mostly used to describe the LTB.

- It caused by viral invasion usually parainfluenza virus type I, II, or III. Also adenovirus, RSV, measles.
Laryngotracheobronchitis (LTB)
Continue…

- Airway respond to the invading virus with inflammation & edema.
- Mucus secretion increases leads to further respiratory distress.
- All of this will leads airway (large or small) to be affected.
- Child complain of cough, hoarseness, fever, tachypnea, inspiratory stridor, braking cough.
- Throat culture and visual inspection of the mouth is contraindicated, because these procedures would cause laryngospasm.
Clinical Therapy

- Maintain respiratory function and improve its effort with medications, humidification, supplemental oxygen.
- Nebulizers can be used to enhance breathing by dilating the bronchi.
- Corticosteroid (dexamethasone) can be used to decrease edema.
- Beta-agonist & beta-adrenergic, (epinephrine), rapid acting bronchodilator & decrease tracheal secretion & mucosal edema.
Pneumonia

- Is an inflammation of the bronchioles and alveolar space of the lung.
- Pneumonia may be viral, bacterial, mycoplasmal.

- **Children under 5 years** of age: **virus** is the most common cause; such as *RSV*, *influenza*, *parainfluenza*, *adenovirus*, *rhinovirus*, *enteroviruses*.

- **Children over 5 years**; the cause is mostly **bacterial**, such as *streptococcus pneumonia*. 
Pneumonia
Bacterial & Viral invaders act differently within the lung

1- unilateral lobar pneumonia:

- Bacteria circulate through blood stream to lungs, destruction of cells occur over one or more lobes of a single lung.
Bacterial & Viral invaders act differently within the lung

2- bronchopneumonia:

- Viruses inter respiratory tract through air, rapidly duplicated and spread in a scattered patchy pattern, as they start killing the cells around.
Bacterial & Viral invaders act differently within the lung

3- interstitial pneumonia:

- The inflammatory process is more or less confined within the alveolar wall & the prebronchial & interstitial tissue.
Clinical manifestations

- Fever, poor oral intake, vomiting, abdominal pain.
- Tachypnea, crackles, wheezes, cough, dyspnea, nasal flaring, chest pain, malaise, restlessness.
- Decrease breath sounds if consolidation present.
Treatment

- Treatment includes administer antibiotic if the cause bacterial.
- Antipyretic to decrease fever, pain.
- Mucosolvent to dissolve mucus if it is thick.
- IVF.
- Put the child in sitting position.
- Postural drainage & chest physiotherapy every 4 hours.