

Respiratory Disorder

Chapter 25

Respiratory Tract

- 24 wks alveolar cells begin to produce surfactant.
- Prevents alveoli from collapsing during resp after birth.

Respiratory Tract

- Ventilation
 - Intercostal Muscles – chest expansion and contraction.
 - Brain – vagus nerve and resp centers in medulla that regulate rhythmic movements.
 - Chemoreceptors – tells body when oxygen levels are low and to increase resp.
 - Carbon Dioxide Narcosis – oxygen increases the sat levels and may decrease resp effort leading to resp failure

Nasopharyngitis

- Cold or coryza.
- Most common infection.
- Rhinoviruses – spreads from one child to another by sneezing, coughing, or direct contact.
- Spread by contaminated fingers, touching conjunctiva of eyes or mucous membranes of mouth.
- Handwashing is very important.
- With infant – use bulb syringe.

Allergic Rhinitis

- Sneezing
- Watery eyes
- Itching

Allergic Rhinitis

- S/S
 - Air passages smaller and easily obstructed.
 - Under 3 yrs. – fever 103.
 - Nasal discharge, irritability, sore throat, and general discomfort.
 - Complications – bronchitis, pneumonitis, and ear infections.

Allergic Rhinitis

- Treatment
 - Rest
 - Clear airway
 - Fluids
 - Fever
 - Skin care to nares and upper lip
 - Humidifier
 - Teach child to blow nose with mouth open to prevent secretions from going to eustachian tubes.

Acute Pharyngitis

- Inflammation of structures in throat.
- Seen in children 5 to 15.
- Group A Beta Hemolytic Strep – 20%

Acute Pharyngitis

- S/S
 - Dysphagia
 - Fever
 - Malaise
 - Anorexia
 - Throat culture

Acute Pharyngitis

- Treatment
 - Antimicrobial therapy – 10 days.
 - Tylenol
 - Gargle with salt
 - Strep – left untreated – rheumatic fever

Sinusitis

- Maxillary and ethmoid.
- Acute – last longer than 10 days with daytime cough – halitosis.
- Untreated – periorbital cellulitis due to infection spreading to ethmoid sinus to subperiosteal space around eye.
- Treatment
 - 10 to 14 days of antibiotics.

Croup Syndrome

- Barking cough
- Varying degree of inspiratory stridor.
- Acute laryngotracheobronchitis – most common.

Begin Crouplike Conditions

- Congenital laryngeal stridor.
- Found in infants born with weakness of airway walls and floppy epiglottis.
- Inspiratory retractions which lessen when placed in prone or side lying.
- Clears as child grows and muscles strengthen.
- Slow, small feedings and prone or side lying.

Spasmodic Laryngitis (Spasmodic Croup)

- Children 1 to 3 yrs.
- Caused by virus, allergy, or psychological trigger.
- Found at night, barking cough, and resp distress.
- Child frightened and anxious.
- Last few hrs, by morning appears normal.
- Humidity and fluids helpful.

Acute Croup

- Laryngotracheobronchitis
- Viral – edema, destruction of resp cilia, and exudate, resulting in obstruction.
- Starts with barking, brassy cough followed by stridor, and symptoms of resp distress.
- Infant would rather be held or in sitting position.
- Crying worsens condition.

Acute Croup

- Nursing Care
 - ↑ humidity levels.
 - Humidifiers must be washed daily and disinfected.
 - Hot showers – place child in bathroom with hot shower running.
 - Croupette – allows moist air to small airway and relieves resp obstruction and distress.
 - IV therapy
 - Long rest periods.
 - Cardiorespiratory monitor.
 - O2 sat at 90%.
 - Nub Tx – epinephrine to relieve symptoms of obstruction
corticosteroids – decrease inflammation.

Epiglottitis

- Swelling of tissue above vocal cord.
- Narrowing of airway inlet.
- Caused by H. Infuenza type B in ages 3 to 6 yrs.
- Occurs any season.
- Rapid and progressive.
- Life threatening medical emergency.

Epiglottitis

- S/S
 - Abrupt, child insists on sitting up, leans forward with mouth open, saliva drooling due to difficulty swallowing.
 - Anxious, wide-eyed, and restless.
 - Froglike croaking sound on inspiration.
 - No cough.
 - Enlarged reddened epiglottis.

Epiglottitis

- Treatment
 - Never use a tongue blade to inspect.
 - Trach at bedside.
 - Tracheotomy or endotracheal tube and oxygen to prevent hypoxia and brain damage.
 - Prevention – H. Influenzae type B conjugate vaccines be give 2 months.

Bronchitis

- Infection of bronchi.
- Secondary to cold or communicable disease.
- Under 4 yrs.

Bronchitis

- S/S
 - Unprod hacking cough from a cold or upper resp disease.
 - Productive – purulent sputum.
 - Usually swallow sputum.

Bronchitis

- Treatment
 - Cough suppressants before bedtime.
 - Cough expectorants.
 - Antibiotic

Bronchiolitis

- Viral – small airways in lower resp tract.
- 6 mons to 2 yrs – peak at 6 mons.
- Smaller diameter of bronchioles.
- Gas exchange impaired and hypoxia can occur.

Bronchiolitis

- S/S
 - Mild fever.
 - Serous drainage from nose.
 - Wheezing
 - Increase resp rate interferes with feedings.
 - May become dehydrated.
 - RSV – causative organism in 59%.
 - May develop into hyperactive airway or asthma in adults.

Bronchiolitis

- Nursing Care
 - Semi fowlers for feedings
 - I&O
 - Bronchiodilating aerosol
 - High humidity
 - O2 sats

Respiratory Syncytial Virus (RSV)

- Viral Pneumonia
- Most common in infants.
- Winter months
- Infected by 4th birthday.
- Reinfected in daycare.
- Children 2 to 7 mons – very ill die to airways so small and prone to infection by thick mucus.

RSV

- Transmission
 - Contaminate hands to mucous membranes.
 - Survives for more the 6 mons on countertops, tissues, and soap bars.
 - Not airborne.
 - Incubation 4 days.
 - Placed in standard contact isolation.

RSV

- Diagnosis
 - Nasopharyngeal washings for RSV antigen.

RSV

- Treatment
 - Isolation to prevent fomite spread.
 - Handwashing
 - Liquid soap
 - Support Infant
 - Instruct parents with mist tent.
 - Encourage care and feedings.

RSV

- Symptomatic Care
 - Tachypnea and tachycardia – report immed.
 - Hypoxia
 - Wheezing or quiet chest – risk for resp arrest.
 - O2 sat – 90 -95%.
 - Suctioning
 - IV's
 - I&O
 - Daily Wt
 - Inhaled bronchodilators or steroids are not helpful.

RSV

- Antiviral Meds
 - Virazole – seriously ill infants.
 - Ribavirin – drug of choice.
 - Virazole – droplet aerosol mist while in tent.
 - Linens are carefully taken off bed.
 - Pregnant woman – teratogenic effects.

RSV

- Complications
 - Reactive Airway Disease – seen later in life.
 - Inflammation caused by RSV injuring epithelial cells resulting in exposed sensory nerve fibers that respond easily to environmental irritants.

Pneumonia

- Inflammation of lungs.
- Alveoli become filled with exudate.
- Surfactant may be ↓.
- Cause by another disease.
- Newborns – Group B Strep.
- Infants – Chlamydia 3 weeks to 3 mons.
- Toddlers – aspiration.

Pneumonia

- S/S
 - Dry cough at first followed by production.
 - Temp 103 to 104.
 - Resp 40 to 80 infants and 30 to 50 older children.
 - Chest pain – pleural irritation.
 - Sternal retractions
 - Nostrils – flare
 - Listless, poor appetite, lie on affected side.
 - X ray confirm diagnosis.
 - WBC and bld specimens ↑.
 - Culture of nose and throat.

Pneumonia

- Treatment
 - Antipyretics
 - O₂
 - Clear liq
 - Pediazole – younger than 6 mons
 - Amoxicillin – 5 yrs.
 - Ice pops and sips of flds.
 - Rest
 - Cough suppressants
 - Hand washing
 - Covering mouth
 - H. Infuenzae immunization

Pneumonia

- Nursing Care
 - Isolette for oxygen for newborns.
 - Croupette for older child.
 - Quiet activities.
 - Flushed – remove clothing and blankets.

Tonsillitis and Adenoiditis (T&A)

- Located in pharynx.
- Made of lymph tissue.
- Part of defense mechanism against infection.

T&A

- S/S
 - Tonsillitis
 - Difficulty swallowing and breathing due to enlarged adenoids.
 - Mouth breathers.

T&A

- Nursing Care
 - Cool mist vaporizer.
 - Salt water gargle.
 - Cool liq diet.
 - Tylenol
 - Throat culture – antibiotics.

T&A

- Treatment
 - Surgery not done under 3 yrs.
 - Tonsillectomy – removal of palatine tonsils.
 - Done only with persistent airway obstruction or difficulty in breathing.
 - Same day surgery.
 - OR permit.

T&A

- Post – Op
 - Excessive bleeding
 - Frequent swallowing
 - Ice collar
 - Small amt clear liqs
 - Popsicle
 - Advance to soft diet.
 - Avoid coughing
 - Minimize crying
 - Hemorrhage – most common complication.

T&A

- Discharge
 - Parents are given written instructions.
 - Child – quiet for few days.
 - Increase flds.
 - Tylenol
 - Protect from infections.
 - Avoid seasoned foods.

Asthma

- Increased responsiveness of tracheobronchial tree to several stimuli that results in reversible, intermittent constriction of airway.
- 80% of asthma sufferers have first attack by 5 yrs.
- Triggered by house dust, animal dander, wool, physical activity, and rapid temp change.
- Emotional upset.
- $p\text{CO}_2$ rises and blood pH falls, increasing resp acidosis and producing a strain on heart.
- Recurrent and reversible obstruction of airways.

Asthma

- Diagnosis
 - Elevated eosinophils.
 - H&P
 - Response to bronchodilators.
 - Allergy skin test along with radioallergosorbent test (RAST).

Asthma

- S/S
 - Increased effort for breathing
 - acute
 - Cough
 - Expiratory wheeze
 - Dyspnea
 - Chin, neck, and cheek itches.
 - Flaring of nostrils.
 - Accessory muscles
 - Restlessness

Asthma

- Treatment
 - Normal pulmonary function.
 - Normal activity.
 - Prevent chronic S/S.
 - Prevent exacerbations that require hospitalizations.
 - Prevent adverse reaction to med.
 - Promote self care.

Asthma

- Medications
 - Broncodilators
 - Ventolin , Alupent, and Brethaire.
 - Used – long term.
 - Inhaled in metered dose inhaler (MDI).
 - Trouble with MDI, use spacer.
 - Theophylline – given oral at night.
 - Toxicity – restlessness, tachycardia, tremors.
 - Theo levels – done to prevent toxicity and prevent convulsions and death.

Asthma

- Antiinflammatory Drugs
 - Intal – inhaled, preventive use, given before exercise.
 - Daily dose – maintain level in body.
 - Corticosteroids – decrease inflammation.
 - Increased appetite and euphoria – S/S.
 - Neb Tx – given by resp therapist.

Asthma

- Nursing Care
 - Avoid pet dander, mold, and smoking.
 - Avoid dust collectors.
 - Avoid excessive exercise – before exercise, child should use a metered dose inhaler for their bronchodilators.
 - In hospital – use opened ended questions.
 - In distress – sit on side of bed over bed side table and extend arms over it.
 - Avoid milk products.

Status Asthmatics

- Cont severe resp distress that will not respond to epinephrine or aminophylline.
- Medical emergency.
- Admitted to ICU with O2 and IV's.
- VS

Cystic Fibrosis

- Multifactorial – inherited recessive trait from both parents who carry a gene for disease.
- Defect in chromosome 7.
- Systems involved – resp, dig, and skin.

Cystic Fibrosis

- Lung Involvement
 - Expiration difficulty
 - Atelectasis
 - Obstructive emphysema
 - Barreled chest
 - Right ventricular enlargement.
 - Clubbing of finger and toes.
 - Pseudomonas infection
 - Survival depends on extent of lung damage.

Cystic Fibrosis

- Pancreatic Involvement
 - Fats and proteins are poorly digested.
 - Infants – stools loose, foul smelling, large and fatty, light in color.
 - No wt gain, child continues to have good appetite.
 - Look malnourished.
 - Abd distended, buttocks and thighs atrophy.
 - Meconium ileus – intestine of newborn becomes obstructed.

Cystic Fibrosis

- Sweat Glands
 - Increase sodium in sweat, tears, and saliva. Level 60 Eq/liter.
 - Sweat test – best diagnosis.
 - Lose a lot of salt due to sweating – watch for heat and electrolyte imbalance.
 - Liberal amt of salts should be given with food and extra flds in hot weather.

Cystic Fibrosis

- Complications
 - Rectal prolapse
 - Liver hardens
 - Strain on heart
 - Def in Vit A
 - Males become sterile
 - Adolescent girls experience amenorrhea during exacerbations.

Cystic Fibrosis

- Treatment and Care
 - Resp relief
 - Antibiotics
 - Aerosol therapy – followed by postural drainage before meals to prevent vomiting.
 - Inhalers
 - Bronchodilators
 - Postural drainage
 - Pancrease – pancreatic enzyme
 - Aids in dig and absorption of nutrients.
 - Replacement that child can not produce himself.

Cystic Fibrosis

- Diet
 - High in proteins and calories.
- Weigh daily
- I&O
- TPN – to increase calories.

Cystic Fibrosis

- General Hygiene
 - Skin care
 - Diaper irritation
 - Change positions
 - Do not overheat
 - Oral hygiene
 - Mouth care after postural drainage.

Cystic Fibrosis

- Long term
 - Minimize complications
 - Good nutrition
 - Promote growth and dev.
 - Assist family
 - Genetic counseling

Bronchopulmonary Dysplasia

- Fibrosis or thickening of alveolar wall and bronchiolar epithelium.
- O₂ concentration of 40%.
- Mechanical pressure ventilation to newborns for a prolong time.
- Swelling of tissues.
- Resp obstruction, mucus plugs, and atelectasis – end product.

Bronchopulmonary Dysplasia

- Prevention
 - Preterm births is best.
 - Give small amts of O₂ needed to prevent hypoxia.

Bronchopulmonary Dysplasia

- Symptoms
 - Wheezing
 - Retractions
 - Cyanosis
 - Use of accessory muscles.
 - Clubbing of fingers.
 - Failure to thrive.
 - Irritability.

Bronchopulmonary Dysplasia

- Treatment
 - Reduce inflammation of airway.
 - Wean child off vent.
 - Fld restrictions.
 - Bronchodilators
 - Diuretics
 - Trach of needed.
 - Can persist into adulthood.

Sudden Infant Death Syndrome

- SIDS – sudden, unexpected death from a healthy infant between 2 wks and 1 yr.
- Known as crib death.
- Peak 2 to 4 months.
- Death occurs during sleep.
- Child does not cry in distress.
- Parents can be in same room.

Sudden Infant Death Syndrome

- Factors
 - Brainstem abnormality of cardiorespiratory control system.
 - Overheating
 - Irreg resp pattern.
 - Decreased arousal responses.

Sudden Infant Death Syndrome

- Increased Risks
 - Maternal smoking.
 - Cocaine use that caused hypoxia.
 - Face down position.
 - Wrapping baby faced down.
 - Caffeine
 - Theophylline
 - Research is continuing.

Sudden Infant Death Syndrome

- Prevention
 - Home apnea monitors.
 - Parents should know CPR.
 - Infants should be placed in supine or sidelying position on firm mattress.
 - Do not give blankets or fluffy pillow.

Sudden Infant Death Syndrome

- Nursing Care
 - Parents are not responsible.
 - Experience guilt from family and friends.
 - Time to say good by.