

RESPIRATORY SYSTEM DISORDER PEDIATRICS

TONSILLITIS

Inflammation of the tonsil often as result of a viral and bacterial pharyngitis
Most common cause of tonsillitis is Group A beta haemolytic streptococcus

TYPES

- ACUTE CATARRHAL –
 - It is just a superficial tonsillitis
 - it affects only superficial epithelium
- ACUTE FOLLICULAR
 - It is due to the infection of crypts
 - Yellow spots on the crypts can be seen
- ACUTE PARENCHYMATOUS
 - Tonsil substance uniformly enlarged and red in color
- ACUTE MEMBRANEOUS
 - whitish membrane on the entire surface of the tonsil

CLINICAL ASSESSMENT

-Enlarged and red tonsils
-sore throat, difficulty in swallowing, snoring
-Acute follicular tonsils –yellow spots of purulent material at the opening crypts
-acute membranous tonsillitis—whitish membrane on medial surface of the tonsil
Acute parenchymatous tonsillitis- enlarged and congested tonsils that almost meet in midline

NURSING INTERVENTION

Provide soft or liquid diet
Use cool mist vaporiser
Salt gargles and Lozenges

SURGICAL MANAGEMENT

TONSILLECTOMY

POST OP MANAGEMENT

Position on the side or abdomen to facilitate drainage of secretions

Avoid suctioning

Observe for haemorrhage; signs may include frequent swallowing, increased pulse, vomiting bright red blood

Vomiting old dried blood or pink tinged emesis is normal

Offer clear fluids

Avoid spicy and irritating food. A bland diet can be given once the gag reflex is come

Do not give them red colored liquids, citrus juices, and milk based foods

Avoid coughing and nose blowing mouth gargles for few days

EPIGLOTTITIS

Life threatening Bacterial infection of the epiglottis and surrounding structures

Primary organism is *Haemophilus influenzae type B*

Rapid progression of swelling causes reduction in airway diameter ; may lead to sudden respiratory distress. Thus this is considered to be an emergency situation.

Affects commonly 3- 7 yr old

CLINICAL ASSESSMENT

High fever

Sore , red inflamed throat (Large cherry red oedematous epiglottis) –initial sign

Apprehension

Respiratory distress

- Nasal flaring
- Chest retractions
- Stridor

Drooling

Absence of spontaneous cough

Muffled voice

Irritability and restlessness

Child may assume tripod positioning – sitting upright, head forward jaw thrust out to widen the airway

INTEVENTIONS

Maintain patent airway

Avoid taking oral temperature

To prevent the spasm of the epiglottis and airway occlusion , no attempts should be made to visualise the posterior pharynx to obtain throat culture

Do not leave the patient alone as it is a extremely frightening situation

Do not force the child to lie down. Avoid placing the child supine because this position affect the respiratory status further

Do not restrain the child

Provide high humidification to cool the airway to decrease the swelling

Have resuscitation equipment available at bed side all the time

LARYNGOTRACHEOBRONCHITIS (Croup)

Viral infection of the larynx that may extend in to trachea and bronchi

Commonly affects children 6 months- 3yrs

Parainfluenza virus is the most common cause

It is characterised by gradual onset that may be preceded by an upper respiratory tract infection

CLINICAL ASSESSMENT

Low grade fever

Seal bark and brassy cough (initial sign)

Hoarse voice

Inspiratory stridor

Irritability and restlessness

Retractions

Nasal flaring

Diagnosis

X-ray – **Steeple sign**

INTERVENTIONS

Maintain airway

Instruct the parents to take child in to steamy bathroom for acute distress

After distress subsides, use cool mist vaporiser in bed room

Child can vomit large amount of mucus after the episode: reassure parents that this is normal

Humidified oxygen

Encourage fluid intake

Avoid cough syrups that can thicken the secretions
Administer bronchodilators to relieve stridor
Administer corticosteroids for inflammation
Have resuscitation equipment available all the time

BRONCHITIS

Infection of the major bronchi usually caused by virus
Usually occurs in association with an upper respiratory infection

ASSESSMENT

Dry hacking non productive cough that is worse in the night that becomes in 2 to 3 days
Fever

MEDICAL MANAGEMENT

Nebulise with bronchodilators
Steroids
Humidity, oxygen and Fluids

NURSING INTERVENTIONS

- Provide high humidity environment
- Provide adequate rest
- W/f dehydration
 - sunken fontenals
 - non elastic skin turgor
 - decreased and concentrated U/o
 - Dry mucous membrane
 - decreased tear production

BROCHOLIOTIS AND RESPIRATORY SYNCYTIAL VIRUS (RSV)

This is an inflammation of the bronchioles that causes production of thick mucus that occludes bronchioles and bronchi

RSV is the most common cause of bronchiolitis
Commonly affects 6 months to 2 yr old children

ASSESSMENT

INITIALLY

- Rhinorrhoea
- Wheezing
- Coughing
- Intermittent fever

LATER SIGNS

- signs of air hunger
- tachypnea and retractions

INTERVENTIONS

Airway management
Fowlers position with slightly extend neck to maintain an open airway
Humidified oxygen
Encourage fluids

Assess for dehydration

CARE FOR CHILD WITH RSV

Isolate the child in single room or child with RSV

Maintain effective hand hygiene as it is a highly contagious communicable disease transmitted by direct contact

Wear a gown when soiling of clothing may occur

Administer Ribavirin

-Administer Ribavirin via Hood, or mask or ventilator tubing

-pregnant nurse should not allowed to handle child

-The nurse wearing contact lenses should wear goggles when coming in contact with ribavirin because the mist may dissolve soft lenses

ASPIRATION OF FOREIGN BODY

Severity depends on the object

The curious toddlers are more affected

MEDICAL MANAGEMENT

Objects in the upper airway require immediate removal

Perform HEIMLICH MANEUVER

After removal, place the child in high humidity environment

Check gag reflex before feeding after bronchoscopy

CYSTIC FIBROSIS

It is an *autosomal recessive trait Disorder* characterised by dysfunction of the exocrine glands (Mucus producing glands of respiratory tract, GI tract, pancreas, sweat glands, and salivary glands)

In CF secretions from the mucus glands are extremely thick causing obstruction narrow passages and fibrosis of the tissue

AFFECTED SYSTEMS ARE:

RESPIRATORY SYSTEM:

Production of thick mucus secretions causes increased obstruction of airway, air trapping, and atelectasis

Since the respiratory secretions are abnormally thick, the secretions are unable to be moved. This will result in the accumulation of bacteria and it will result in infection and destruction of lung tissue

Emphysema and atelectasis occur as the airways become increasingly obstructed

Chronic hypoxemia causes contraction and hypertrophy of the muscle fibers in pulmonary arteries and arterioles leading to Pulmonary hypertension and eventually cor pulmonale (right sided heart failure)

C/M related to respiratory system

- respiratory distress
- barrel chest due to the trapping of air
- clubbing of fingers due to chronic hypoxemia
- wheezing and dry non productive cough
- frequent pseudomonas infections

GASTROINTESTINAL SYSTEM

- Meconium ileus
- Intestinal obstruction (distal intestinal obstructive syndrome) caused by thick intestinal secretions causes abdominal pain, distension, nausea and vomiting
- steatorrhea (stools are foul smelling, large frequent foamy and fatty)
- rectal prolapse

- voracious appetite
- deficiency of fat soluble vitamins ADEK
- malnutrition and failure to thrive

PANCREAS

-Obstruction of the pancreatic ducts and eventual fibrosis and atrophy of the pancreas leads to no release of pancreatic enzyme

absence of these enzymes causes malabsorption of the fats and proteins occur

unabsorbed food fractions excreted in the stool produce steatorrhea

Loss of nutrients and inability to absorb fat soluble vitamins causes Failure to thrive

REPRODUCTIVE SYSTEM

CF can delay puberty in girls

Fertility can be affected by the highly viscous cervical secretions which act as a plug and block the sperm entry

Males are sterile caused by the blockage of vas deferens

INTEGUMENTARY SYSTEM

Increased concentration of Na⁺ and Cl⁻ in sweat

Parents may report that infant taste salty when kisses

Dehydration and electrolyte imbalance especially in the hyperthermic conditions

DIAGNOSTIC TESTS

SWEAT CHLORIDE TEST

The production of sweat is stimulated by Pilocarpine then the sweat is collected. minimum 50gm sweat is needed.

Normally sweat chloride concentration is lower than 40mEq/L

a chloride concentration more than 60mEq/L suggests positive test result

A Chloride concentration 40 -60mEq/l are highly suggestive of CF and require a repeat test

INTERVENTIONS

RESPIRATORY SYSTEM

- Treatment aims at preventing and treating infection by removing secretions and administer antimicrobials
- chest physiotherapy to move the secretions
- cough suppressants should be avoided
- teach the child deep breathing exercises
- develop a regular physical exercise programme with the aim of establishing an effective habitual breathing pattern

GI SYSTEM

- Pancreatic enzyme insufficiency should be treated
- Pancreatic enzyme should be administered with meals and snacks
- Enteric coated pancreatic enzymes should not be crushed or chewed
- PANCREATIC Enzyme should not be given if the baby is NPO
- W/F constipation and intestinal obstruction

SUDDEN INFANT DEATH SYNDROME

Unexpected death of healthy infant younger than 1 yr

most commonly affected infants are from 2 months to 4 months

RISK FACTORS:

- Prone position
- use of soft bedding
- over heating
- possibility of sleeping with an adult

CLINICAL ASSESSMENT

- child may be cyanotic and aponeic
- diaper may be full of stools

interventions

- Infant should be placed in supine position for sleeping
- Soft mouldable mattresses should be avoided
- Stuffed animals and soft toys should not be in crib
- Babies should not be allowed to sleep with adults
- Avoid over heating

