



Southern Technical University



Technical Institute of Amara

**Southern Technical University**

**Technical Institute of Amara**

**Nursing Department**

**Second Class**

**PEDIATRIC NURSING**

**Done by**

**Dr. Mohammed Abbar Sharhan**

**Ph.D. Nursing- Baghdad University**

## المحاضرة الاولى

### Malnutrition disease



#### 1) Marasmus

Marasmus is one of the types of protein-energy malnutrition that affects children under the age of one. One of the main causes of marasmus is the inability of the mother to breastfeed, either because she can no longer lactate or because she lacks nutrients to. (Affect infant and young child, because of inadequate calories intake)

#### Causes: -

1. under feeding.
2. sever and chronic infection e.g. chronic UTI.
3. congenital abnormality e.g. in kidney or heart.
4. cystic fibrosis.
5. metabolic disorder.

#### Signs and symptoms

1. loss of subcutaneous fat, muscle wasting in all body gradually.
2. delay in growth and development. in sever cases loss of 60 % of body wt .
3. dehydration sign.
4. hypoglycemia sign.
5. later sign because of deficiency of protein and all foods ( edema, purpura , infection , skin ulcer , aspiration pneumonia ) .

\* Almost half the deaths of children under five in protein-energy malnutrition PEM-affected countries are from marasmus

#### Nursing care and Rx

1. Measure body wt daily.
2. Cheek sign of collapse (by measuring vital sign) .
3. Give food gradually (easily digested, low calorie, small amount).

4. If can't take food orally and in case of severe dehydration give I. V fluid.
5. Give vitamins supplements.
6. Plasma or blood.
7. Clean and warm environment.
8. Prevention from infection.
9. Prevention from skin ulcer because of chronic lying by (wash body with warm water then put cream or baby lotion and frequent movement).

### Prevention

1. Nutrition education to the family.
2. Early Dx and Rx .
3. Prevention from infection.

## 2- Kwashiorkor

Result from protein deficiency, affect children from 6 months - 6 yr ( at time of weaning ). The main difference between kwashiorkor and marasmus is caloric intake. Marasmus is characterised as minimal protein and energy intake, whereas kwashiorkor on the other hand is characterised as having minimal protein but with an average caloric intake. In other words, kwashiorkor is a protein deficiency disorder. Marasmus is inadequate calories intake)

**10 Differences between Kwashiorkor and Marasmus**

[www.majordifferences.com](http://www.majordifferences.com)

Comparison Table



**Kwashiorkor**

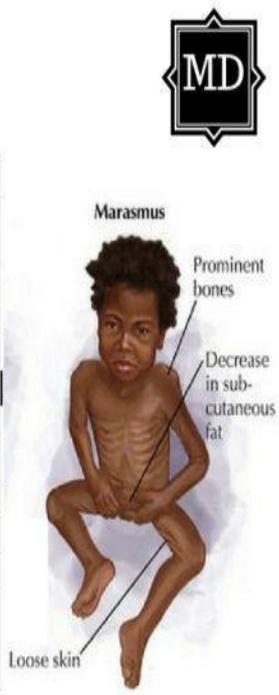
Protuberant belly

Itchy rash

Xerosis

Poor wound healing

| Kwashiorkor   | Marasmus   |
|---|--|
| It develops in children whose diets are deficient of protein.             | It is due to deficiency of proteins and calories.  |
| It occurs in children between 6 months and 3 years of age.                | It is common in infants under 1 year of age.   |
| Subcutaneous fat is preserved.  | Subcutaneous fat is not preserved.   |
| Oedema is present.  | Oedema is absent   |
| Enlarged fatty liver.   | No fatty liver.  |
| Ribs are not very prominent.  | Ribs become very prominent.  |
| Lethargic   | Alert and irritable.   |
| Muscle wasting mild or absent.  | Severe muscle wasting  |
| Poor appetite.  | Voracious feeder.  |
| The person suffering from Kwashiorkor needs adequate amounts of proteins. | The person suffering from Marasmus needs adequate amount of protein, fats and carbohydrates. |



**Marasmus**

Prominent bones

Decrease in subcutaneous fat

Loose skin

**Kwashiorkor vs Marasmus**

### Causes

1. Protein deficiency.
2. Chronic diarrhea.
3. Chronic infection.
4. Acute infectious disease (measles).
5. Worm infestation (ascariasis).
6. Family factors.

### Signs and symptoms

1. Edema in all body.
2. Delay in growth and development.
3. Child is depressed, misery.
4. Color of hair red, dry.
5. Anorexia, vomiting, pallor.
6. Enlargement of liver.

### Nursing care and Rx

It is done by complete medical team.

1. In simple cases; give (half cream milk) first in small amount;  
In anorexia give feeding by NG tube;  
In severe dehydration give I. V fluid.
2. Measure vital sign and body wt. daily.
3. Check urine output and amount of stool.
4. Give vitamins, and K<sup>+</sup> supplement.
5. Antibiotics if needed.
6. Psychological support.

### Prevention

1. Family nutrition education.
2. Prevention from infection.

## **3- Rickets**

This nutritional disease is caused by vitamin (D) deficiency. It occurs in children during the rapid growth especially between (3 months - 3 years) of age.

### Predisposing factors:

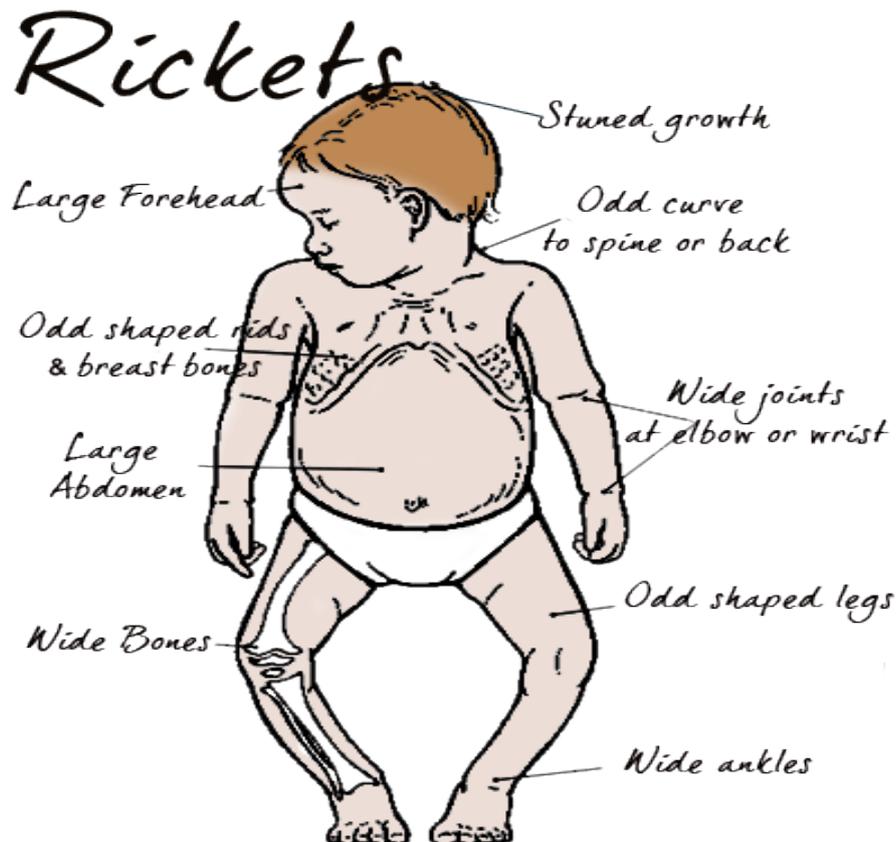
1. Inadequate exposure to sunlight (ultra violet).
2. The feeding of infant by half cream milk for long time.
3. Premature baby.

### The effect of vit . D . deficiency appear in :

1. Epiphysis of the bone by decrease its calcification which lead into its widening .
2. In muscle by decrease muscle tone .

### Signs and symptoms

1. Head shape like square , delay in fontanel closure , craniotables sign .
2. Chest : Rickitic rosary .
3. Kyphosis and scoliosis and narrowing of pelvis in female .
4. Upper limb : widening in wrist
5. Lower limb : bow ledge . knock knee , flat foot and widening in ankle .
6. Crunching : in advanced cases .
7. Decrease Muscle tone : delay in sitting , standing , walking .
8. Anemia .
9. Decrease Immunity so infectious disease mainly respiratory disease .



### Dx:

1. Blood sample : serum ca and ph in( early and simple cases ) .
2. Sign and symptom : in ( sever and advance cases ) .

### Rx and nursing care

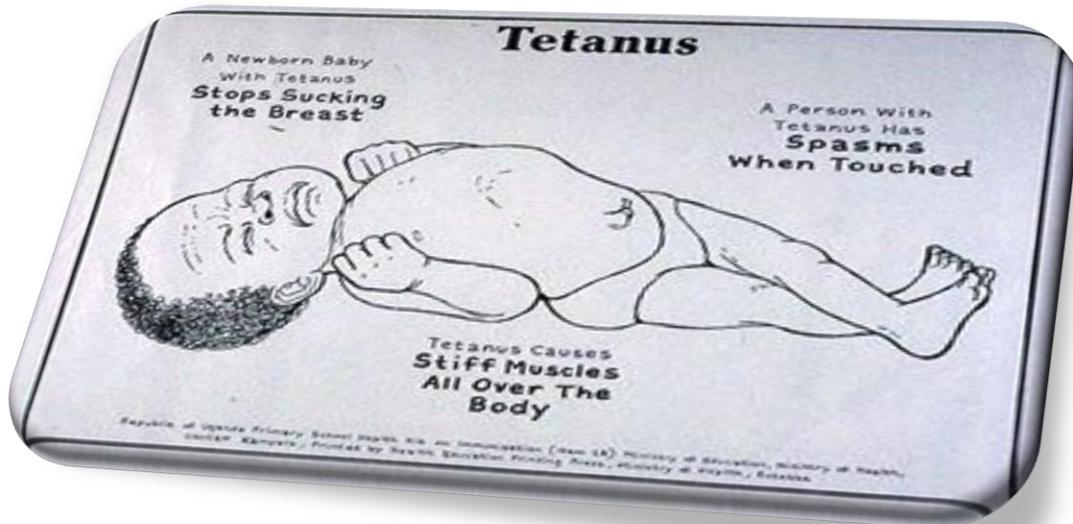
1. Vitamin D ( 1500 - 5000 / I.u / 24 hr) for 1 month and sometime 10.000 I.u .The infant should be exposed to sunlight .
2. The infant should be exposed to sunlight .
3. Treat respiratory disease in hospital.
4. Take care of child movement.
5. Don't leave the child to sleep on the same side for long time and to stand or sit for long time to prevent deformity.
6. Surgical interference in cases of deformity by splints ,braces , osteotomy.

### Prevention

1. Breast feeding , good feeding that contain (400 I.u of vitamin D / daily) .
2. Exposure to sunlight directly .
3. Family health education .

### 4- Tetany

It is decrease of ca in blood and in bone It is caused by vitamin D deficiency .



### Signs and symptoms

1. Spasm in muscle of hand , foot ( contraction and relaxation )
2. Spasm in muscle of face .
3. Spasm in larynx ( strider )
4. In sever spasm in respiratory tract may lead to apnea and cyanosis .

### Rx & nursing care

1. Ca . i.v , i.m or orally .
2. Vitamin D .
3. Rx of spasm by valium
4. O2
5. Suction of ( secretion in mouth )
6. If these measure failed do tracheostomy or artificial respiration .

### 5- Scurvy disease

Scurvy is a severe vitamin C deficiency. The human body needs vitamin C to produce collagen (the tissue that connects muscles and bones and makes up skin), heal wounds, support immune system, and help in many other internal processes.

The first symptoms of scurvy will typically develop after at least three months of extremely low vitamin C levels.

Unlike most other animals, humans can't make vitamin C within their own bodies. We have to get it from the foods that we eat.

### **Causes**

- Don't include fruits and vegetables in diet for many months
- Eat little food at all, due to an eating disorder or a treatment (such as chemotherapy)
- Abuse drugs
- Have a poor diet while pregnant or breastfeeding (when body needs extra vitamin C)
- Have type 1 diabetes and require higher levels of vitamin C

### **Symptoms**

- **Body aches.** It may feel similar to body aches from the flu.
- **Swelling.** Noticeable swelling happens mostly in arms and legs.
- **Bruising.**
- **Oral problems.** gums turn spongy and porous. breath will smell rotten, and teeth may loosen.
- **Old wounds open.** There isn't enough collagen left in body to continue creating scar tissue,

## **Treatment**

Recommend adding more fresh fruits and vegetables to diet.

They may also suggest adding a vitamin C supplement. Most patients feel better within 48 hours, and are completely cured within two weeks. They may also test for other vitamin deficiencies and make sure that the underlying cause has been addressed.

## المحاضرة الثانية

### Nursing care of respiratory tract disease

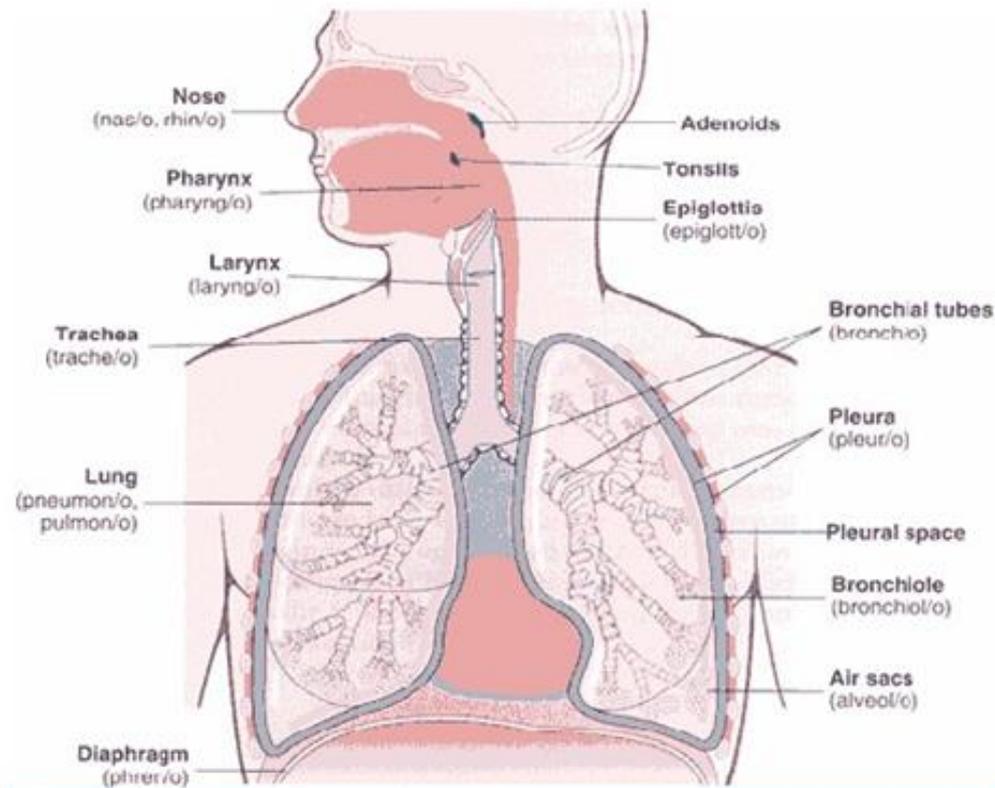
Respiratory system consist of :

i. Upper respiratory tract .

URT include :- Nose , pharynx ( nasopharynx , oropharynx , laryngopharynx ) , larynx , trachea , main bronchus ( Rt bronchus , Lt bronchus ) .

ii. Lower respiratory tract .

LRT include :- lung and inside it right bronchus left bronchus , bronchioles , alveolar tract and alveolar sac.



#### 1- (Common cold , Influenza , Coryza)

##### Epidemiology

- Causes : virus .
- Way of transmission by air droplet during sneezing or coughing
- Occur mainly in winter

##### Signs and symptoms

1. Fever 38 - 40 c
2. Nasal discharge ( clear , watery then , yellow or green )
3. Headache , generalized weakness , sneezing , coughing .
4. Nasal obstruction lead to difficulty in breathing and feeding .
5. Anorexia .

These S & S continue for (3 - 7 days).

### **Nursing care & Rx**

1. Bed rest , in warm and moist room . and isolation from other.
2. Increase warm fluid feeding .
3. Take care of nose and mouth cleaning .
4. Drugs ( antipyretic and analgesic ) + cold sponging .
5. Prevent transfer and contact with others to prevent contamination .

### **Complication**

1. Otitis media .
2. Sinusitis
3. Tonsillitis, pharyngitis
4. Acute laryngitis
5. Acute bronchitis
6. Pneumonia .

## **2- Tonsillitis**

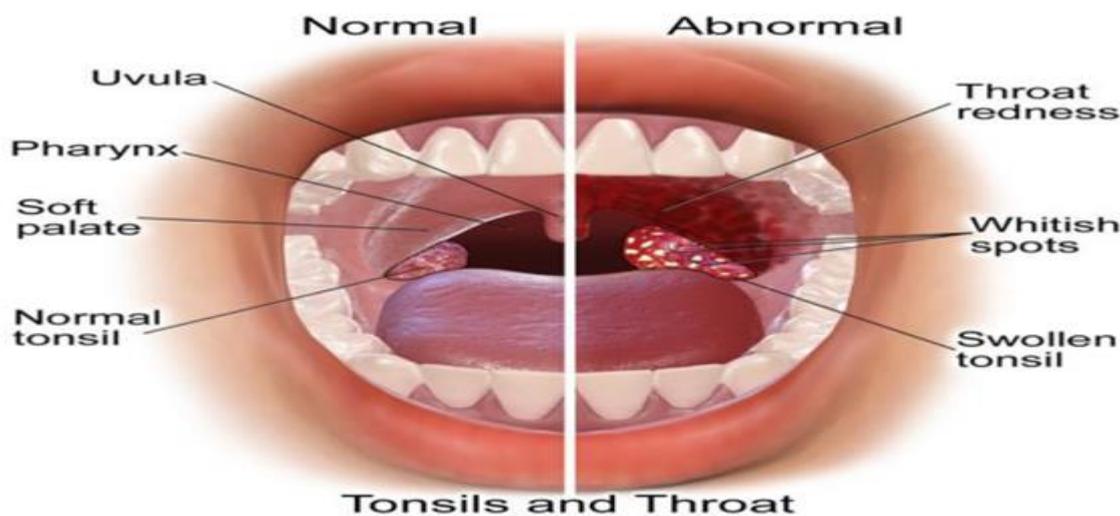
**Tonsils** : are 2 small lymph node in the mouth on each sides of or pharynx . it is regard as part of immune system .

**Acute tonsillitis** : It is an acute inflammation of tonsils .

#### • Causes

1. Group A beta hemolytic streptococcus in school age .
2. And other virus and bacteria .

Rarely occur. before 6 months of age .

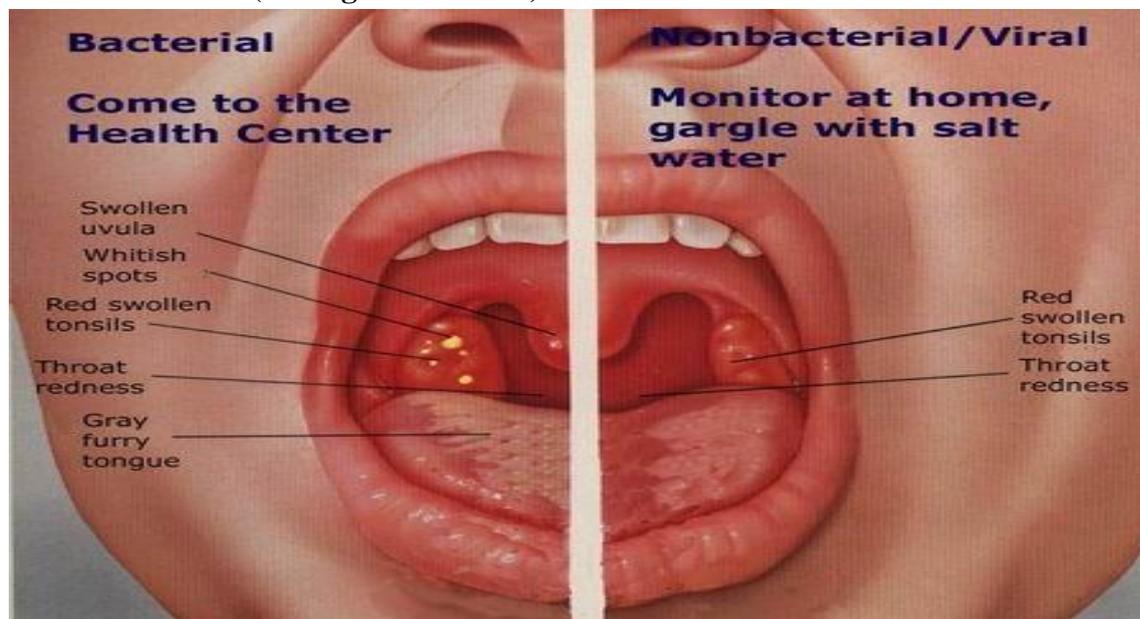


### **Signs and symptoms**

1. Fever ( 39 - 40 c ) with rigor .
2. Generalized weakness ,headache ,Ear, bone and joint ache .
3. Loss of appetite ( anorexia ), difficulty in swallowing, vomiting, and abdominal pain
4. Pain and redness in tongue , mouth , pharynx , larynx .
5. Enlargement of cervical lymph node .

### Type of acute tonsillitis

1. Follicular T
2. Lacunars T
3. Peri tonsillar abscess
4. Catarrhal ( enlargement + red ) .



### Nursing care & Rx

1. Bed rest and isolation .
2. Give fluid and semisolid food .
3. Give antipyretic, analgesic and cold sponging for fever and antibiotic on need .
4. Measure vital signs .

### Complication

1. Acute rheumatic fever .
2. Acute rheumatic carditis.
3. Acute nephritis .
4. Otitis media.

### Indication of tonsillectomy :

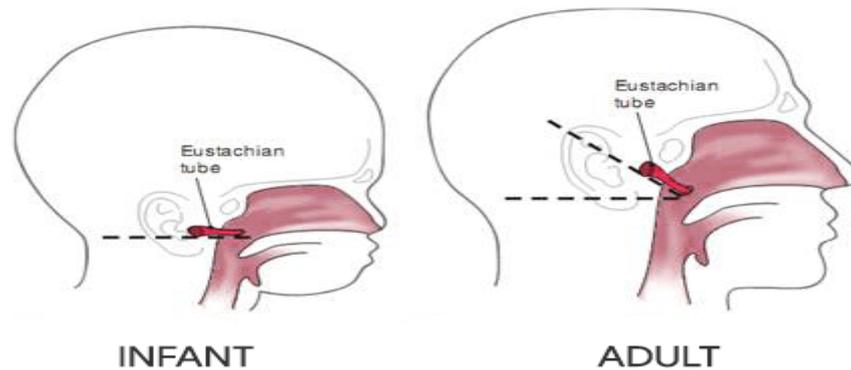
1. Frequent AT more than 10 times / yr .
2. Difficulty in breathing .
3. Risk of acute rheumatic fever .

### 3- Otitis media

Otitis media is an inflammation of the middle ear without reference to etiology or pathogenesis. It can be classified into many variants based on etiology, duration, symptomatology, and physical findings.

In children, developmental alterations of the eustachian tube, an immature immune system, and frequent infections of the upper respiratory mucosa all play major roles in AOM development.

### EUSTACHIAN TUBE COMPARISON



### Causes

1. Immature immune system.
2. Genetic predisposition.
3. Anatomic abnormality. Children with anatomic abnormalities of the palate and associated musculature have a higher risk for otitis media.
4. Bacterial pathogens. The most common bacterial pathogen is *Streptococcus pneumoniae*, followed by *Haemophilus influenzae*, and *Moraxella catarrhalis*.
5. Infant feeding methods. Many studies report that breastfeeding protects infants against otitis media.

### Clinical Manifestations

- **Otalgia.** (pulling on the affected ear or ears or pulling on the [hair](#)); otalgia apparently occurs more often when the child is lying down.
- **Otorrhea.** Discharge may come from the middle ear through a recently perforated tympanic membrane, or through another perforation.
- **Headache**
- **Symptoms of upper respiratory infection.** such as [cough](#), rhinorrhea or sinus [congestion](#).
- **Fever**
- **Irritability.** Irritability may be the sole early symptom in a young infant or toddler.

**Tympanocentesis.** The criterion standard in the diagnosis of otitis media is tympanocentesis to determine middle ear fluid, followed by culture of fluid to identify causative pathogens

**Antibiotic therapy.** for bilateral in children aged at least 6 months with severe signs and symptoms.

### Nursing Interventions

- **Positioning.** Have the child sit up, raise head on pillows, or lie on unaffected ear.
- **Heat application.** Apply heating pad or a warm hot water bottle.
- **Diet.** Encourage breastfeeding of infants as breastfeeding affords natural immunity to infectious agents; position bottle-fed infants upright when feeding.
- **Hygiene.** Teach family members to cover mouths and noses when sneezing or coughing and to wash hands frequently.
- **Monitoring hearing loss.** Assess hearing ability frequently.

## المحاضرة الثالثة

### Nursing care of respiratory tract disease

#### 4- Pneumonia

##### Pneumonia

Pneumonia is an inflammation of the lung parenchyma. It can be caused by a virus, bacteria, Mycoplasma, or a fungus. Respiratory viruses are the most common cause of pneumonia in younger children and the least common cause in older children. Viral pneumonia is usually better tolerated in children of all ages.

Children with bacterial pneumonia are more apt to present with a toxic appearance, but they generally recover rapidly if appropriate antibiotic treatment is instituted early. Streptococcus pneumoniae is a common cause of bacterial pneumonia in all ages of children, and M. pneumoniae is a common causative agent in the school-age child and adolescent. Fungal infection may also result in pneumonia. Aspiration pneumonia may result from aspiration of foreign material into the lower respiratory tract. Pneumonia occurs more often in winter and early spring. It is common in children but is seen most frequently in infants and young toddlers.

Pneumonia is usually a self-limited disease. A child who presents with recurrent pneumonia should be evaluated for chronic lung disease such as asthma or cystic fibrosis. Potential complications of pneumonia include bacteremia, pleural effusion, empyema, lung abscess, and pneumothorax. Excluding bacteremia, these complications are often treated with thoracentesis and/or chest tubes as well as antibiotics if appropriate. Pneumatocoles (thin-walled cavities developing in the lung) might occur with certain bacterial pneumonias and usually resolve spontaneously over time.

Therapeutic management of children with less severe disease includes antipyretics, adequate hydration, and close observation. Even bacterial pneumonia can be successfully managed at home if the work of breathing is not severe and oxygen saturation is within normal limits. However, hospitalization is required for children with more severe disease. The child with tachypnea, significant retractions, poor oral intake, or lethargy might require hospital admission for the administration of supplemental oxygen, intravenous hydration, and antibiotics.

**It is an acute inflammation of the lung tissue , either one lobe , 2 lobes or part of lobes or all lobes**

.

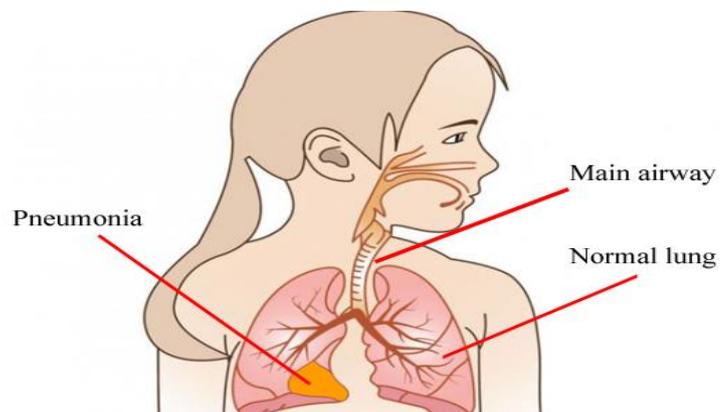
**It occurs mainly in winter and spring .**

##### • Causes

##### 1. Bacterial infection include :

- a) Staphylococcus
- b) Streptococcus
- c) Pneumococcus

##### 2. Viral infection .



### Signs and symptoms

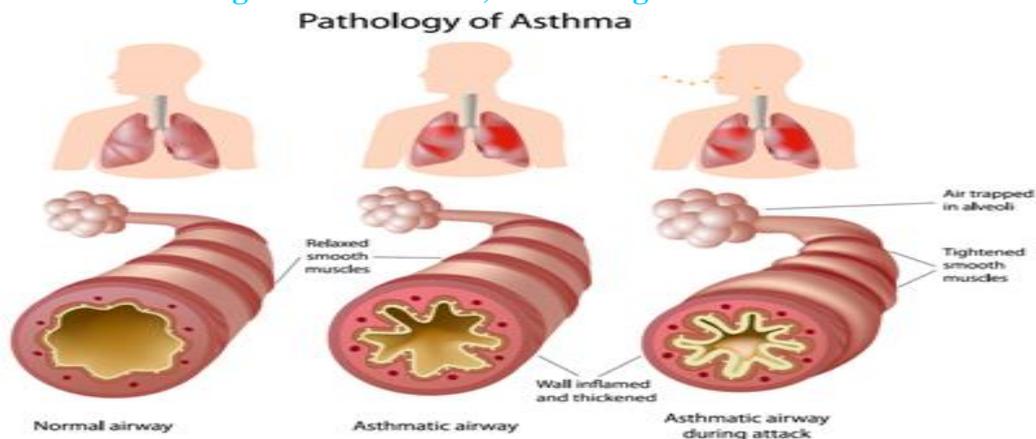
1. Sudden fever with rigor .
2. Tachypnea , dyspnea , added sound in expiration called grunting respiration .
3. Dry cough then productive cough and chest pain .
4. Cyanosis .
5. Difficulty in feeding , vomiting .
6. These s & s continue for 1wk then gradually decrease and disappear .

### Nursing care and Rx of Pneumonia

1. Bed rest in quiet room , good ventilated , with moderate moisture .
2. Put child in semi sitting position in sever distress .
3. Increase giving warm fluid .
4. Cold sponging for fever with analgesic and antipyretic .
5. Take care of cleaning the nose , mouth .
6. Measure the vital signs / 6hr .
7. Admission in case of sever dyspnea and cyanosis for O2 .
8. Other drugs according to doctor prescription .
9. Physiotherapy to the chest .

## 5- Asthma

It is an recurrent attack of dyspnea with wheezing because of temporary narrowing of bronchi and bronchioles. Asthma is a common respiratory condition. **It affects the small and medium-sized airways (also called breathing tubes or bronchi) in the lungs**



### Causes :

- asthma often runs in families
- asthma is associated with other conditions such as eczema, hay fever and allergies
- if one or both parents has an allergic condition such as asthma, hay fever or eczema, their child is more likely to develop asthma

We think that modern Western lifestyle may play a part in the rise in asthma that has occurred over the last few decades. Changes in housing, our diet and a more hygienic environment may be responsible - but we do not really know the cause of the increase in asthma.

We do know that:

- mother's smoking during pregnancy increases the risk of asthma in her child
- outdoor environmental pollution may make asthma symptoms worse but it does not actually cause asthma

One in four children in New Zealand will have asthma at some time during childhood.

Some common trigger factors for asthma are:

1. Colds (viruses)
2. changes in the weather
3. house dust-mites
4. mould
5. pollens
6. pets
7. cigarette smoke
8. exercise
9. emotions, such as being upset

Asthma symptoms and triggers may differ from child to child and from time to time. It is useful to know your child's triggers. Asthma affects your child's breathing. In severe asthma it may be hard for them to get enough oxygen.



### Signs and symptoms

When Signs and symptoms occur before 1yr of age not diagnosed as asthma (bronculitis) .  
when there is recurrent attack after 1yr diagnosed as asthma .

- 1) Dyspnea + wheeze .
- 2) Running nose , cough , sever mainly at night in sleep some time associated with cyanosis
- 3) Child is anxious .
- 4) Difficulty in feeding , vomiting .
- 5) In severe cases if attack is prolonged and not treated lead to death .



### **Nursing care & Rx of asthma**

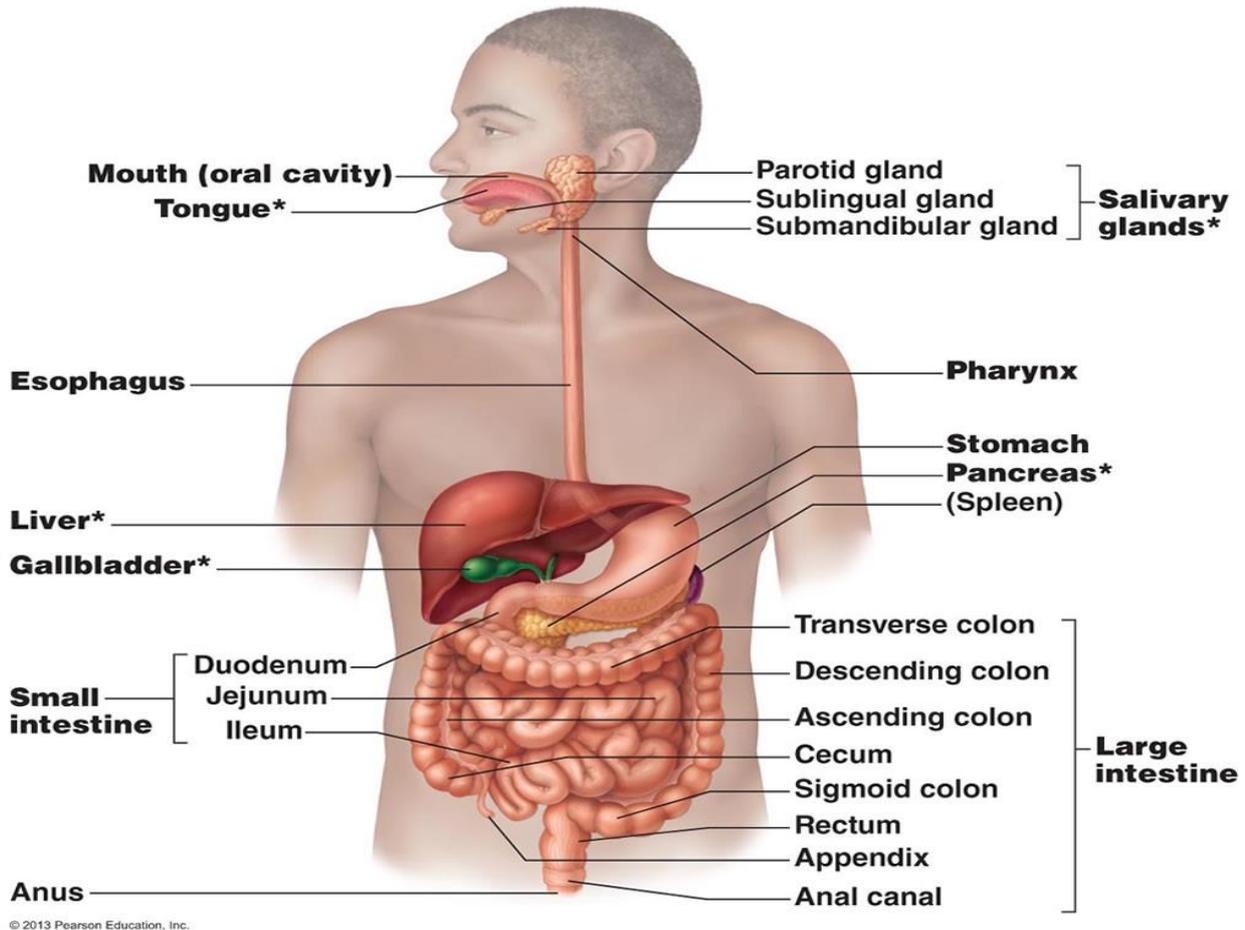
1. Bed rest .
2. Try to discover the causes and to prevent the child from exposure .
3. Family education .
4. Give sufficient amount of fluid ( with caution ) .
5. Prevent smoking in the home .
6. Rx in simple cases in home, in severe cases in hospital.
7. Oxygen .
8. Drug treatment include bronchodilator either orally , S.C or I.V .
9. Antibiotic only if there is bacterial infection ( tonsillitis , bronchitis ) .

### **Key points to remember about asthma**

- asthma is a condition that leads to narrowing of the airways of the lungs
- symptoms include wheeze, cough and difficulty breathing
- common asthma triggers are colds, exercise, dust, pollens and cigarette smoke
- an asthma action plan can help you understand and manage your child's asthma

## المحاضرة الرابعة

### Nursing care of alimentary diseases



### Nursing care of alimentary diseases

#### 1- Acute gastritis

Acute inflammation of the mucous membrane of stomach.

It is common disease in all age groups of children.

##### • Causes:

1. Poor family because of (little care) in nutrition.
2. Ingestion of infected food.
3. Ingestion of spices.
4. Food poisoning.

##### • Signs and symptoms

1. Fever.
2. Abdominal colic.
3. Diarrhoea if intestine affected.
4. Anorexia.
5. Vomiting.
6. Generalized weakness, crying.

### Nursing care and Rx

1. Stop oral feeding for 12 - 24 hours.
2. Oral fluid, glucose saline (Dextrolyte) ORS (frequent, in small amount).
3. In sever, repeated vomiting give I.V fluid in hospital till vomiting decrease, so try oral breast feeding gradually.
4. Record fluid input and out put, record vital signs, measure weight of infant.
5. Don't give any medication till doctor consultation.

## 2- Gastroenteritis

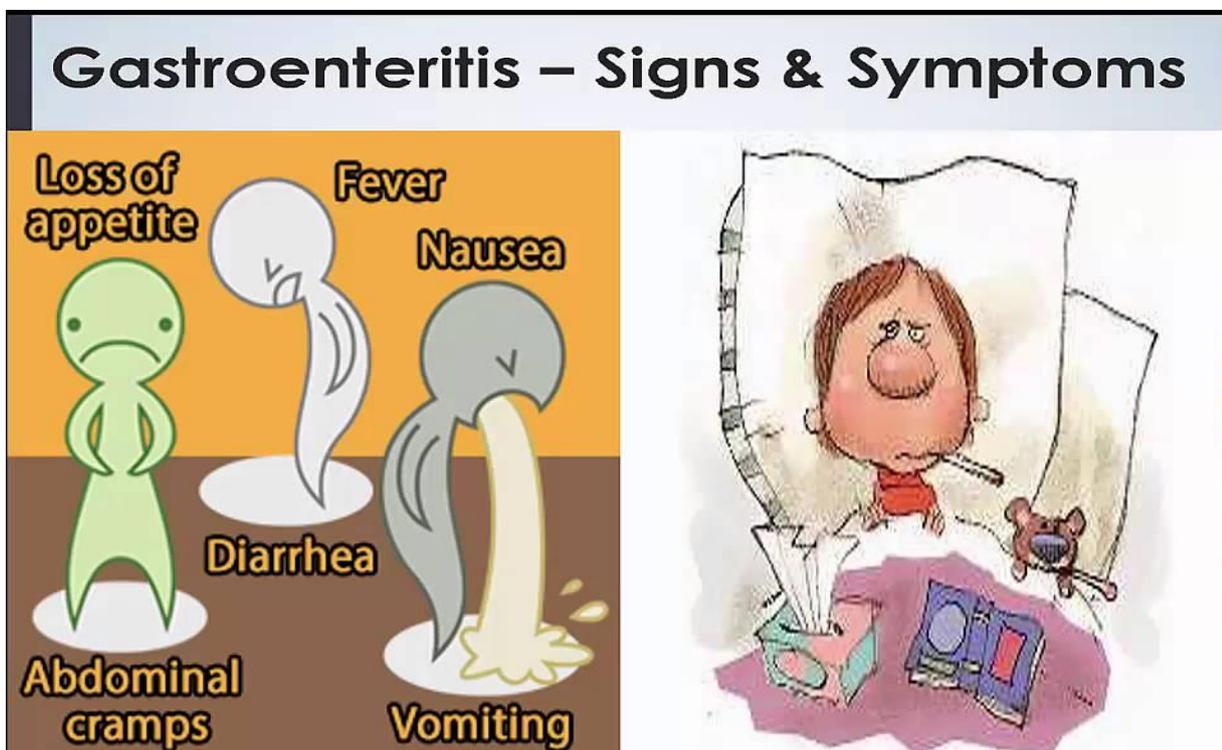
It is common disease in children and dangerous. Because can lead to death.  
Mainly occurs in summer.

### • Causes

1. Infected food (bacilli, salmonella) or viruses.
2. Fatty diet.
3. Infected (dirty bottle) .

### • Signs and symptoms

1. Repeated vomiting.
2. Abdominal pain, distension.
3. Fever.
4. Anorexia.
5. Diarrhoea s-t with mucous and blood.
6. Signs of dehydration (dryness of tongue and others if not treated quickly), bad odour from mouth & loss of consciousness.



### Nursing care

1. Stop oral feeding for 12 - 24 hr, give oral dextrolyte in small amount and frequently.
2. Give oral fluid and semi liquid diet (soup) small amount and frequently, yoghurt.
3. Then try breast feeding later.
4. Record, fluid input & output, vital signs, weight , diarrhoea type.
5. Take care of water, bottle feeding cleaning (boiling of water).
6. Don't gives any drug only after doctor consultation.

### 3- Abdominal colic

It is not a disease, occurs mainly in infant below 6 month of age.

#### Causes

1. False technique in feeding which lead into ingestion of gases into stomach which cause abdominal colic.
2. Allergy to specific food or milk.
3. Gastroenteritis.

#### Signs and symptoms

(Infant is uncomfortable, crying, face congestion, try to elevate his legs up, abdominal distension, pain).

#### Nursing care

1. Explain to the mother the true way in feeding and get out the gases after feeding by putting the infant on his abdomen to let the gases coming out.
2. Give warm fluid and water.
3. Drug not given until doctor consultation.



## المحاضرة الخامسة



### 1- Vomiting :

Vomiting in infant is not a disease by itself but it is symptom of many diseases.

#### Causes

1. Fault or (error) in way of feeding or position of infant during feeding.
2. Acute gastro - enteritis.
3. Allergy to milk or other food.
4. Congenital deformity in (gastro - intestinal tract).
5. Abnormality or disease of the nervous system.
6. Metabolic causes.
7. Others Renal causes , respiratory disease , ear disease

#### Nursing care and R of vomiting

- Try to find the cause and treat it.

### 2- Diarrhea

The normal consistency and frequency of bowel movements varies with a child's age and diet and the definition of diarrhea varies accordingly.

- **Frequency** : It is normal **for young infants** to have up to (3 to 10 stools per day), although this varies depending upon the child's diet (breast milk versus formula; breastfed children usually have more frequent stools). **Older infants, toddlers, and children** normally have (one to two bowel movements per day).

**Diarrhea can usually be defined** as an increase in stool frequency to twice the usual number per day in infants, or three or more loose or watery stools per day in older children.

**Consistency** : The consistency and color of a child's stool normally changes with age,.

**Young infants' stools** may be( yellow, green, or brown, and may be soft and/or appear to contain seeds or small curds). All children's stools can vary as a result of their diet. Development of stools that are watery, or contain mucus is a significant change that should be monitored. The presence of visible blood in stool is never normal and

**Duration** :

- i. Acute diarrhea (lasting less than one week).
- ii. Chronic diarrhea (lasting more than one week).

• **Causes** :

1) **Infections**

- a. **Viral infection** : Viral infection is the leading cause of diarrhea in children and is seen most commonly in the winter months in temperate climates. Symptoms of viral infection can include watery diarrhea, vomiting, fever (temperature higher than 100.4°F or 38°C), headache, abdominal cramps, lack of appetite, and muscle aches. Viral infection usually begins 12 hours to 4 days after exposure, and resolves within three to seven days. No specific treatment is available for viral causes of diarrhea. Children with diarrhea from viral infections are best treated with supportive measures (oral rehydration solution, limited diet, rest).
  - b. **Bacterial infection** : Bacterial infection is sometimes hard to distinguish from viral infection. Persistent high fever (higher than 40°C or 104°F) and diarrhea that is bloody or contains mucus are somewhat more common with bacterial infection. Most children with bacterial infection do not require antibiotics and will improve with time and supportive measures, however, treatment may be necessary in certain situations.
  - c. **Parasitic infection** : Generally, infection with a parasite is uncommon in developed countries but may be seen in children who have recently ingested contaminated water or who have traveled to or lived in developing countries. Diarrhea from parasitic infections may last longer than two weeks
- 2) **Side effects of antibiotics** : (penicillin, erythromycin). Antibiotic-associated diarrhea — A number of antibiotics can cause diarrhea in both children and adults. The diarrhea is usually mild and typically does not cause dehydration or weight loss. In most cases, antibiotics should not be stopped and the child's diet does not need to be changed. The diarrhea usually resolves one to two days after antibiotics are finished. Contact a healthcare provider if a child on antibiotics has diarrhea that is severe, contains blood, or does not resolve after the antibiotic is stopped.
- 3) **infections not related to the gastrointestinal (GI) system** :  
Otitis media, meningitis, renal infection
- 4) **less common causes of diarrhea** : Fatty diet, Milk allergy.

## DIARRHEA EVALUATION

The evaluation of diarrhea in children requires a careful review of medical history, a physical examination, and, on causes, diagnostic testing. The clinician will perform a thorough examination because there are some infections unrelated to the bowels (such as an ear infection) that can cause diarrhea.

Many tests are available to diagnose the cause of diarrhea and to determine the severity of dehydration, although most children will not require testing.

## HOME CARE OF DIARRHEA

### Dietary recommendations :

**Children who are not dehydrated** should continue to eat a regular diet and infants who are breastfeeding should continue to do so unless the parent(s) is told otherwise by their clinician. Dehydrated children require rehydration (replacement of lost fluid). After being rehydrated, many children will be able to resume a normal diet.

Specific suggestions for children who are tolerating a regular diet include the following:

- Most children with diarrhea tolerate full-strength cow's milk products. It is not necessary to dilute or avoid milk products (except in children with known allergies to cow's milk).
- Recommended foods include a combination of complex carbohydrates (rice, wheat, potatoes, bread), lean meats, yogurt, Apple, pear, and cherry juice, and other with high sugar content should be avoided.
- When clear liquids are recommended, the best choices are the commercially prepared oral rehydration solutions ORS for rehydration (eg, Pedialyte®).

**Four rules of treating Diarrhea at home**

- 

1. Give the child more fluids.
- 

2. Give Zinc tablets to the child, everyday for 10 days.
- 

3. Continue feeding the child as usual.
- 

4. Take the child immediately to a health-centre if the condition doesn't improve or worsens; the child is unable to eat or drink, develops fever & passes blood in stool.

 **USAID**  
FROM THE AMERICAN PEOPLE

## Monitoring for dehydration

**Mild dehydration** is common in children with diarrhea. Signs and symptoms of mild dehydration include:-

a slightly dry mouth, , and slightly decreased urine output (one wet diaper or void in six hours), increased thirst. Parents should monitor for signs of moderate to severe dehydration.

Common findings with **Moderate or Severe dehydration include :-**

dry mouth , markedly decreased urination (less than one wet diaper or void in six hours), lack of tears when crying, , and sunken eyes



**Table 2. Clinical Criteria Commonly Used For Classifying Dehydration Severity.**

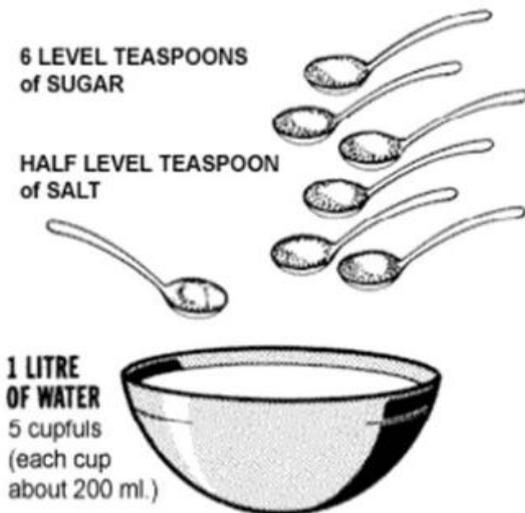
|                      | Mild (3-5%)                  | Moderate (6-9%)                  | Severe (> 10%)     |
|----------------------|------------------------------|----------------------------------|--------------------|
| Mental Status        | Well-appearing               | Ill-appearing, non-toxic         | Lethargic, toxic   |
| Heart rate           | Normal to increased          | Tachycardia                      | Marked tachycardia |
| Breathing            | Normal                       | Increased                        | Increased, deep    |
| Pulse                | Normal quality               | Normal to decr quality           | Poor quality       |
| Capillary refill     | Normal (< 2 sec)             | Normal to sl prolonged (2-4 sec) | Markedly prolonged |
| Perfusion            | Warm                         | Cool                             | Cold, mottled      |
| Blood pressure       | Normal                       | Normal                           | Hypotensive        |
| Eyes                 | Normal                       | Slightly sunken                  | Very sunken        |
| Tears                | Normal                       | Decreased                        | Absent             |
| Mucous Membranes     | Moist                        | Tacky                            | Very dry           |
| Skin turgor (recoil) | Instant recoil               | Delayed (2 sec)                  | Very prolonged     |
| Urine output         | Normal to slightly decreased | Decreased                        | Minimal            |

\*Source: Adapted as a composite from: WHO, 1995; Gorelick MH, Shaw KN, Murphy KO, 1997; Friedman JN, Goldman RD, Srivastava R, et al, 2004. See references 6, 10, and 11.

**Oral rehydration therapy** : Oral rehydration therapy (ORT) was developed as a safer, less expensive, and easier alternative to intravenous fluids. Oral rehydration solution (ORS) is a liquid solution that contains glucose (a sugar) and electrolytes (sodium, potassium, chloride) that are lost in children with vomiting and diarrhea.. ORT does not cure diarrhea, but it does help to treat the dehydration that often accompanies it. A few widely available brands include Pedialyte®, Infalyte®, and ReVital®, although generic brands are equally effective. Parents should not try to prepare ORS recipes at home because the formulas must be exact.

ORS may be given at home to a child who is mildly dehydrated, refusing to eat a normal diet, or has vomiting and/or diarrhea. If needed, ORS can be given in frequent, small amounts by spoon, bottle, or cup over three to four hours.

# Oral Rehydration Solution



## Ingredients:

Half (1/2) level teaspoon of Salt

Six (6) level teaspoons of Sugar

One (1) Litre of clean drinking or boiled water and then cooled  
5 cupfuls (each cup about 200 ml.)

## Preparation Method:

Stir the mixture till the salt and sugar dissolve.

**Medications :** Medications such as antibiotics and antidiarrheal agents are generally not necessary and could be harmful for infants or children with diarrhea. Rarely, **antibiotics** may be used in cases of bacterial infection when a specific cause of the diarrhea has been found or is strongly suspected, particularly after recent travel. Inappropriate use of antibiotics will not improve diarrhea. Furthermore, antibiotics can cause side effects and lead to development of antibiotic resistance.

**Antidiarrheal agents** (including Imodium®, Pepto-Bismol®, and Kaopectate®) are not recommended for infants or children, since the benefits do not outweigh the risks. One risk of using an antidiarrheal agent is that it could mask worsening symptoms and delay treatment.

**Preventing spread :** Parents with children who have diarrhea should be cautious to avoid spreading infection to themselves, their family, and friends. Care with hand washing, diapering, and keeping sick children out of school or day care until the diarrhea is gone are a few ways to limit the number of people exposed to the infection.



## Hygiene measures :

Hand washing is an essential and very effective way to prevent the spread of infection...

Hands should be cleaned after changing a diaper or touching any soiled item. They should also be washed before and after preparing food and eating, after going to the bathroom, after handling garbage or dirty laundry, after touching animals or pets, and after blowing the nose or sneezing.

### WHEN TO SEEK HELP FOR DIARRHEA

The following is a list of signs and symptoms that are worrisome and require immediate medical attention:

1. Bloody diarrhea
2. If an infant refuses to eat or drink anything for more than a few hours
3. Moderate to severe dehydration
4. Abdominal pain that comes and goes or is severe
5. Behaviour changes, including lethargy or decreased responsiveness

### Medications

such as antibiotics and antidiarrheal agents are generally not recommended for infants or children with diarrhea. Parents with children who have diarrhea should be cautious to avoid spreading infection to themselves, their family, friends, and others. Care with hand washing, diapering, and keeping sick children out of school or day care are a few ways to limit the number of persons exposed to infectious microorganisms.

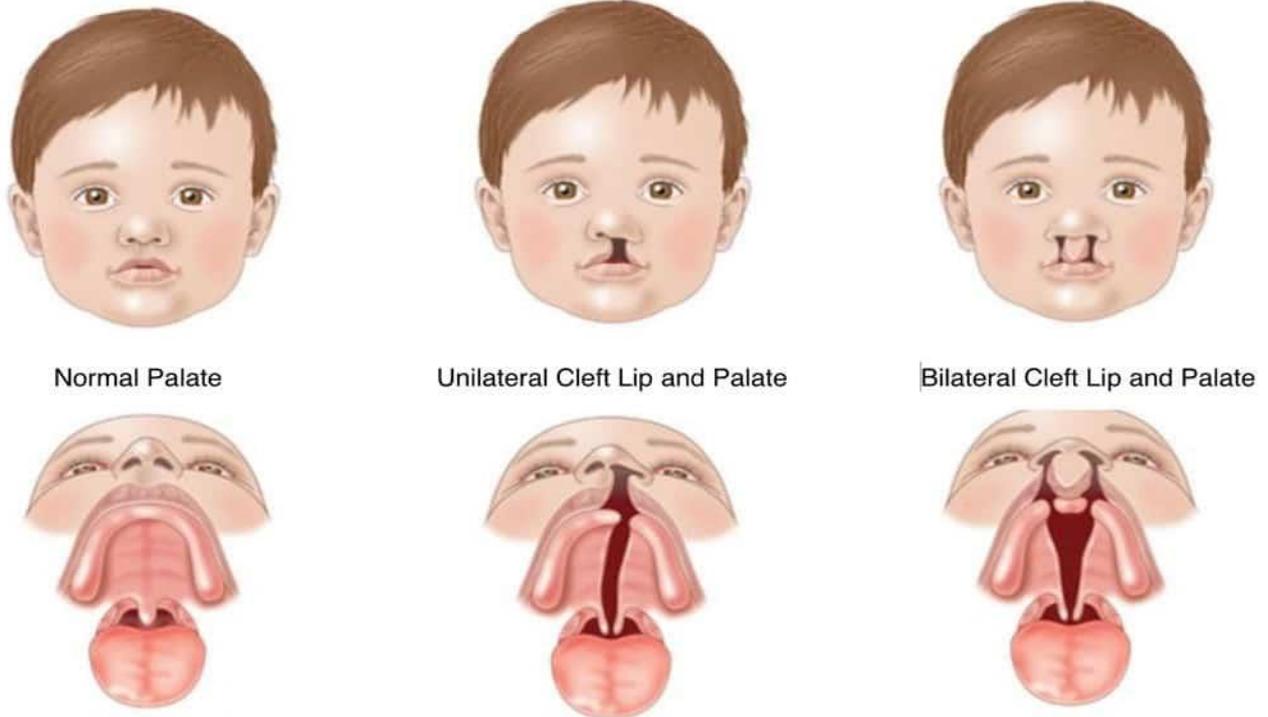
### \* Nursing care and R of diarrhea

| Simple diarrhea   | Sever diarrhea   |
|---|--|
| Oral dextrolyte for 12-24hrs (ORS)  | Sever diarrhea if there is repeated vomiting ,severe dehydration, give I.V fluid |
| Oral semi liquid food soup (small amount, frequently).                                      | =  |
| Isolation of infant if need admission.  | =  |
| Measure vital signs/6w  | =  |
| Measure fluid input and output.   | =  |
| Take care of cleaning mouth, cloths, food, bottle.  | =  |
| Mother health education about how to use dextrolyte.  | =  |
| Measure wt. daily, frequency of stool and appearance and if need do stool examination G.S.E | =  |

## المحاضرة السادسة

### Congenital digestive

#### 1- Cleft Lip and Cleft Palate



**Cleft lip** and cleft palate are facial and oral malformations that occur very early in **pregnancy**, while the **baby** is developing inside its mother. Clefing results when there is not enough tissue in the mouth or lip area, and the tissue that is available does not join together properly.

**A cleft lip** is a physical split or separation of the two sides of the upper lip and appears as a narrow opening or gap in the skin of the upper lip. This separation often extends beyond the base of the nose and includes the bones of the upper jaw and/or upper gum.

**A cleft palate** is a split or opening in the roof of the mouth. A cleft palate can involve the hard palate (the bony front portion of the roof of the mouth), and/or the soft palate (the soft back portion of the roof of the mouth)

Cleft lip and cleft palate can occur on one or both sides of the mouth.

Because the lip and the palate develop separately, it is possible to have a cleft lip without a cleft palate, a cleft palate without a cleft lip, or both a cleft lip and cleft palate together

#### Who Gets Cleft Lip and Cleft Palate?

Cleft lip, with or without cleft palate, affects one in 700 babies annually, and is the fourth most common **birth defect** in the U.S. Clefts occur more often in **children** of Asian, Latino, or Native American descent. Compared with girls, twice as many boys have a cleft lip,

both with and without a cleft palate. However, compared with boys, twice as many girls have cleft palate without a cleft lip.

### What Causes a Cleft Lip and Cleft Palate?

In most cases, the cause of cleft lip and cleft palate is 1. unknown. These conditions cannot be prevented. Most scientists believe clefts are due to 2. a combination of genetic and environmental factors. There appears to be a greater chance of clefting in a newborn if a sibling, parent, or relative has had the problem.

Another potential cause may be related to 3. a medication a mother may have taken during her pregnancy. Some drugs may cause cleft lip and cleft palate. Among them: anti-seizure/anticonvulsant medications, acne medications containing Accutane, and methotrexate, a drug commonly used for treating cancer, arthritis, and psoriasis.

Cleft lip and cleft palate may also occur as 4. a result of exposure to viruses or chemicals while the fetus is developing in the womb.

In other situations, cleft lip and cleft palate may be part of another medical condition

### How Are Cleft Lip and Cleft Palate Diagnosed?

1. Prenatal ultrasound can sometimes determine if a cleft exists in an unborn child. If the clefting has not been detected in an ultrasound prior to the baby's birth,
2. A physical examination of the mouth, nose and palate confirms the presence of cleft lip or cleft palate after a child's birth.

### What Problems Are Associated With Cleft Lip and/or Cleft Palate?

1. **Eating problems.** With a separation or opening in the palate, food and liquids can pass from the mouth back through the nose. Fortunately, specially designed baby bottles and nipples that help keep fluids flowing downward toward the stomach are available. Children with a cleft palate may need to wear a man-made palate to help them eat properly and ensure that they are receiving adequate nutrition until surgical treatment is provided.
2. **Ear infections/hearing loss.** Children with cleft palate are at increased risk of ear infections since they are more prone to fluid build-up in the middle ear. If left untreated, ear infections can cause hearing loss. To prevent this from happening, children with cleft palate usually need special tubes placed in the eardrums to aid fluid drainage, and their hearing needs to be checked once a year.
3. **Speech problems.** Children with cleft lip or cleft palate may also have trouble speaking. These children's voices don't carry well, the voice may take on a nasal sound, and the speech may be difficult to understand. Not all children have these problems and surgery may fix these problems entirely for some. For others, a special doctor, called speech pathologist, will work with the child to resolve speech difficulties.
4. **Dental Problems.** Children with clefts are often have missing, extra, malformed, or displaced teeth requiring dental and orthodontic treatments. These problems can usually be repaired through oral surgery.



### **Who Treats Children with Cleft Lip and/or Palate?**

A team of doctors and other specialists is usually involved in the care of these children. Members of a cleft lip and palate team typically include:

1. **Plastic surgeon** to evaluate and perform necessary surgeries on the lip and/or palate
2. **An otolaryngologist** (an ear, nose, and throat doctor) to evaluate hearing problems and consider treatment options for hearing problems
3. **An oral surgeon** to reposition segments of the upper jaw when needed, to improve function and appearance and to repair the cleft of the gum
4. **An orthodontist** to straighten and reposition teeth
5. **A dentist** to perform routine dental care
6. **A prosthodontist** to make artificial teeth and dental appliances to improve the appearance and to meet functional requirements for eating and speaking
7. **A speech pathologist** to assess speech and feeding problems
8. **A speech therapist** to work with the child to improve speech
9. **An audiologist**; to assess and monitor hearing
10. **A nurse coordinator** to provide ongoing supervision of the child's health
11. **A social worker/psychologist** to support the family and assess any adjustment problems
12. **A geneticist** to help parents and adult patients understand the chances of having more children with these conditions , The health care team works together to develop a plan of care to meet the individual needs of each patient. Treatment usually begins in infancy and often continues through early adulthood.

### **Cleft Lip and Cleft Palate Surgery**

A cleft lip may require one or two surgeries depending on the extent of the repair needed. The initial surgery is usually performed by the time a baby is 3 months old.

Repair of a cleft palate often requires multiple surgeries over the course of 18 years. The first surgery to repair the palate usually occurs when the baby is between 6 and 12 months old. The initial surgery creates a functional palate, reduces the chances that fluid will develop in the middle ears, and aids in the proper development of the teeth and facial bones.



### **What Is the Outlook for Children With Cleft Lip and/or Cleft Palate?**

Although treatment for a cleft lip and/or cleft palate may extend over several years and require several surgeries depending upon the involvement, most children affected by this condition can achieve normal appearance, speech, and eating.

make special appliances called "speech bulbs" or "palatal lifts" to help close the nose from the mouth so that speech sounds more normal. The prosthodontist coordinates treatment with the oral or plastic surgeon and with the speech pathologist.

### **Nursing care after birth of newborn and before operation :**

1. Psychological support to family.
2. Tell the parents that if only this deformity, it is not severe and not affect the life of the baby and can be corrected by surgery.
3. Tell the mother & explain to her (way of feeding):-
  - a) Feeding by spoon, dropper, special bottle and teat.
  - b) Elevate the head & shoulder of infant in feeding.
  - c) Insure that the baby swallow the milk.
  - d) Discharge abdominal gases after feeding.

### **Nursing care after operation of cleft lip:**

1. Pull arm of baby on each side of bed in order not to touch wound.
2. Daily dressing.
3. I.V fluid.
4. Sucker for mouth (suction )
5. A after I.V fluid start oral milk feeding by dropper on angle of mouth and the same way as before operation.

## 2- Imperforated anus

Congenital abnormality, NBB born with out of anus opening.

### Causes:

- Hereditary
- Drug
- Failure in fetal development

Children with imperforate anus may have other problems that are associated with the condition. These may include problems with:

1. The bones that make up the spine (vertebrae)
2. The lowest part of the spine, just above the tailbone (sacrum)
3. The windpipe (trachea)
4. The tube that connects the mouth to the stomach (esophagus)
5. Heart
6. Arms and legs
7. Kidneys

### Signs and symptoms of imperforate anus include:

1. No passage of stool within a day or two of birth
2. Passing stool through another opening, like the urethra in boys or vagina in girls
3. Swollen belly
4. Opening to the anus missing or not in the usual place
5. In girls, opening near the vagina

### Imperforate Anus Diagnosis

Doctors usually find imperforate anus when they examine a baby right after birth. Usually, a physical exam is enough to make the diagnosis. After identifying a potential problem, though, your baby's doctor may ask for some imaging tests:

- X-ray of the belly
- Ultrasound

**R** :- Surgical R is of 2 types it depend on severity of imperforated anus .

- If simple do one step operation . ( Colostomy )
- If sever do 2 steps operation. ( Corrective operation )

### Nursing care after operation

1. I.V fluid.
2. Take care of colostomy opening, cleaning it & cleaning it with special colostomy bag, change bag daily.
3. Train the mother about how to take care of colostomy.
4. Doctor visit time should be prepared to mother for baby follow up.

## المحاضرة السابعة

### Nursing care of the urinary tract diseases

#### What are the kidneys, and what do they do?

The kidneys are two bean-shaped organs located near the middle of the back, just below the rib cage. When blood flows through the kidneys, waste products and extra water are removed from the blood and sent to the bladder as urine. The kidneys also regulate blood pressure, balance chemicals like sodium and potassium, and make hormones to help bones grow and keep the blood healthy by making new red blood cells.

#### 1- Acute glomerulonephritis

Glomerulonephritis is an inflammation of the microscopic filtering units of the [kidney](#) called the glomeruli. Although both kidneys are usually affected, not all glomeruli are affected at the same time.

The inflammation damages the glomeruli so they can't sift waste products, salt and water effectively from the bloodstream. These harmful substances then build up in the body, causing complications.

Glomerulonephritis may be temporary and reversible, or it may progress to [chronic renal \(kidney\) failure](#).

#### Causes of glomerulonephritis in children

The precise cause of most cases of glomerulonephritis is often 1.unknown. In children, a common cause used to 2.bacterial infection with group A haemolytic streptococcus, typically a throat, upper respiratory tract or skin infection. This condition, often referred to as acute post-streptococcal glomerulonephritis (APSGN), is much less common now because of the widespread use of antibiotics.

Other common causes include 3.immune-mediated diseases such as [systemic lupus erythematosus](#).

#### Who's affected by glomerulonephritis?

Anyone can develop glomerulonephritis, but those people exposed to the factors listed above are most at risk. APSGN particularly affects children between the ages of six and ten, and develops one to two weeks after a throat infection or three to four weeks after a skin infection.

#### Symptoms of glomerulonephritis in children

**In mild cases**, there may be no symptoms; the disease is only discovered by a routine urine test or when chronic kidney failure develops.

When present, symptoms may include:

1. Blood-stained, brown, smoky or foamy urine

2. **Reduced amounts of urine (although sometimes it is increased)**
3. **Tiredness**
4. **Lethargy**
5. **Nausea**
6. **Vomiting**
7. **Sore throat**
8. **Headaches**
9. **Problems with breathing**
10. **Weight loss**
11. **Joint pains**
12. **Pale skin**
13. **Fluid accumulation in the tissues**
14. **High blood pressure**
15. **Seizures**

### **Diagnosis and treatment of glomerulonephritis**

**Glomerulonephritis must be diagnosed by a doctor, following**

1. **urine and blood tests**
2. **throat swabs (to look for a bacterial infection)**
3. **ultrasound scan of the kidneys or eventually a biopsy (where a small sample of tissue is taken from the kidney through a needle).**

### **Treatment aims**

1. **palliative the severity of the disease**
2. **prevent complications**
3. **improve the kidneys to do their functions**

### **Possible treatments include**

1. **fluid restriction**
2. **a diet low in protein, salt and potassium**
3. **diuretics (tablets that increase urine production)**
4. **blood pressure medicines**
5. **antibiotics**
6. **steroids and drugs that suppress the immune system. In severe cases,**
7. **kidney dialysis may be needed.**

### **Nursing care & Rx :**

1. **Bed rest till fever disappear and especially if there is heart failure .**
2. **Diet with salt restriction.**
3. **Daily wt. measurement.**
4. **Drugs according doctor prescription (antipyretic, antihypertensive).**

5. Observation of urine (amount, color), edema, uremia.
6. If there is repeated vomiting and appear sign of dehydration give I.V fluid. In case of hyperkalemia or renal failure (oliguria) can do peritoneal dialysis.

## 2- Nephrotic syndrome

is kidney disease with proteinuria, hypoalbuminemia, and edema.

### Nephrotic syndrome Classification

Nephrotic syndrome can be **primary**, being a disease specific to the kidneys or it can be **secondary**, being a renal manifestation of a systemic general illness. Secondary causes include the following, in order of approximate frequency:

- Diabetes mellitus
- Lupus erythematosus
- Viral infections (eg, hepatitis B, hepatitis C, human immunodeficiency virus [HIV] )
- unknown.

### Signs and symptoms

1. Bupness of face (around eye) , ankle edema, then generalized edema (ascitis), hydrothorax, scrotum swelling.
2. Oliguria.
3. Increase wt of child.
4. Pallor
5. Anorexia + vomiting.
6. In G.U.E (albumin in urine) ,in serum ( increase cholesterol & decrease albumin).
7. B.P & temp normal.
8. Decrease immunity.

### Nursing care & Rx :

1. Prevention of infection by isolation of Nephrotic syndrome child from others with infectious disease.
2. Good & stable diet ( Increase protein with salt restriction).
3. Drugs diuretic + corticosteroid (prednisolone tab) in special regime for 3moths.
4. Bed rest + prepare toy for playing.
5. Measure wt, fluid intake & output daily.
6. Educate the family about (disease, side effects of drug & follow up).

(From a therapeutic perspective, nephrotic syndrome may be classified as steroid sensitive, steroid resistant, steroid dependent, or frequently relapsing.)

(Corticosteroids (prednisone), cyclophosphamide, and cyclosporine are used to induce remission in nephrotic syndrome. Diuretics are used to reduce edema. Angiotensin-converting enzyme inhibitors and angiotensin II receptor blockers are administered to reduce proteinuria.)

\* Prognosis of Nephrotic syndrome :

With proper Rx and care complete cure gradually but some children develop complication.

\* Complications :-

1. Chronic nephritis
2. Renal failure

### 3- Pyelitis and pyelonephritis

\* Pyelitis = inflammation of renal pelvis.

\* pyelonephritis = inflammation of renal Pelvis + renal parenchyma associated with inflammation of ureter and bladder.

\* Age incidence 2 months - 2 yr, affected female than boys.

\* predisposing factor is congenital abnormality of the renal system.

\* The causes are E-coli, proteus, pseudomonas.

### Signs and symptoms of Pyelitis and pyelonephritis

Fever, pallor, vomiting, diarrhea, (frequency, pyuria, hematuria, cast in G.U.E) + leukocytosis in C.B.P .

\* Nursing care & Rx :

1. Bed rest.
2. G.U.E (clean the area with water and soap )then collect urine in urine bag or tube and put urine in clean cup .
3. urine C & S in sterile test tube.
4. Give antibiotic & antipyretic.
5. Encourage the child to drink a lot of fluid frequently

### 4- Renal failure

It means the kidney no longer meets the body's need to maintain water, electrolyte, acid base balance and to eliminate the end product of protein metabolism.

It is of 2 types: -

**1- Organic :- either a. Acute or b.Chronic**

**Cause (glomerulonephritis ,Pyelitis and pyelonephritis).**

**2-Functional:Kidney is normal but because of decrease of blood that pass to kidney**

**a.(hypovolemia) « sever vomiting, diarrhea , bleeding, sever burn ,».**

**Signs and symptoms :**

**Anorexia, vomiting, edema (around eye, leg) then generalized, dyspnea, NA retention, hyperkalemia ,water retention, metabolic acidosis , increase urea in blood which may lead to encephalopathy.**

**Treatment & NC of Renal failure :**

**1. Bed rest and R the cause.**

**2. Calculate fluid input & out put and wt measuring daily.**

**3. Regulars & special diet (restriction in salt, protein & rich in Vit.& glucose) .**

**4. In case of hypovolemia (should measure daily requirement of salt& give it.**

**5. laboratory investigation (urine, blood urea,creatinin &electrolyte**

**6. If these measure failed, should do dialysis (peritoneal dialysis .)**

**\*This process done in dialysis unite to clear the blood from K & urea.**

**\* Children preparation (aseptic media, measure & record vital sing, fluid input & out put and take care of child cur fully) .It continues for (12-36) hr.**

## المحاضرة الثامنة

# The nursing care of heart and blood disease

## Blood disorder

### 1- Hemorrhagic disease: - Included ;

Hemophilia A = ( factor 8 deficiency ) , 85 % cases .

Hemophilia B = ( factor 9 deficiency ) , 15 % cases .

### Clinical picture

Repeated episode of bleeding ( spontaneous , traumatic ) through out the life it occur only in male

Diagnosis PTT ( partial thromboplastin time ) prolonged .

### Treatment

- 1- Infant should receive ( hepatitis B - vaccine ) .
- 2- AID now second most common cause of death after uncontrolled bleeding .
- 3- Rx of acute bleeding either by
  - a- Fresh frozen plasma for ( f 8 & f9 ) .
  - b- Cryoprecipitate for ( factor 8 ) .
  - c- Or specific factor 8 or factor 9 .

Aim of Rx :- to prevent bleeding by increase the factor to ( 30 - 50 % ) of normal .

### Severity of hemophilia :-

depend on level of factor in blood ;

\*less than 1% mean sever disease lead to( spontaneous or traumatic bleeding ) .

\* 1 - 5 % mean moderately sever disease.

\* 5 - 30 % mild hemophilia .

\* Prevention of bleeding is done by:-

1. Protection of child from trauma .
2. clean mouth properly to prevent gum bleeding and use soft tooth brush .
3. Intramuscular injection is contraindicated .
4. Take care of venapuncture .
5. Give good instruction to the family about care their child in home and school to prevent bleeding .
6. Prevention of bleeding when the patient had surgery by replacing the factor .

## **2- Anemia**

It is a decrease in the hemoglobin level necessary to meet the tissues need for oxygen delivery .

### **\* Causes**

**1- Reduce capacity** to produce RBC :

- a. Bone marrow failure e.g. aplastic anemia .
- b. Deficiency of iron , folate , b12 ( megaloblastic anemia) .

**2- Haemolysis :**

- a. Hemoglobinopathy : thalassemia & ( sickle cell anemia) .
- b. Iso immune ( Rh & ABO incompatibility in neonate ) .
- c. Intravascular ( transfusion reaction ) .

**3- Blood loss :**

- a. Gastrointestinal or other .
- b. Trauma .

## **3- Sickle cell anemia**

Formation of Hbs , which result in crystallization or formation of gel when deoxygenated .So RBC survival is shortened so lead to :

- 1- Infarction of bones , viscera, lead to pain .
- 2- Spleen is damaged so liability to infection .

### **\* Diagnosis :-**

- 1- Presence of sickle cell in the peripheral smear .
- 2- Presence of Hbs only on Hb electrophoresis .

### **\* Treatment :-**

- 1- Blood transfusion .
- 2- Pain medication .
- 3- Antibiotics with every fever episode .
- 4- Rehydration with alkalinization .

## **4- Thalassemia**

Mean hereditary persistence of fetal Hb ( Hb f ) .Normally HbA, and this result in RBC destruction either in bone marrow or in spleen . It occur in the bordering the Mediterranean sea ,Africa , middle east , America of Italian and Greek origins . Age incidence ( 6mth - 1yr ) .

**Thalassemia either major or minor .**

### **Clinical picture of ( beta Thalassemia major )**

1. Severe anemia which result in growth failure , and heart failure.
2. Severe hepatomegaly and splenomegaly .

3. expansion of marrow of face and skull produce characteristic faces . maxilla is thick , prominence of the teeth.
4. Pallor & jaundice lead to a greenish brown complexion.maxilla is thic prominence the teeth.

#### Diagnosis :-

- 1.Complete blood picture(C.B.P) → Hb is decrease .
- 2.confirm Dx by Hb electrophoresis .

#### \* Rx and nursing care

**a-Thalassemia minor**, need no Rx. No regular blood transfusion and it like iron deficiency anemia .

**b- thalassemia major** need :

- 1- Regular and frequent blood transfusion + folic acid .
- 2- Psychological support .

### **5- Leukemia**

It is malignant disease in which immature lymphoid cells (lymphoblast) accumulate in bone marrow , released in to peripheral blood , spread through out the body . Affect bmore than ♀ .

#### Leukemia either :-

- (A) Acute has repaid clinical coarse , bad prognosis.
- (B) Chronic has long clinical coarse, better prognosis.

#### \* S&S

1. Sever anemia, Pallor.
2. Fever, generalized weakness, lethargy, loss wt.
3. Generalized lymphadenopathy .
4. Pain &s.t swelling in joint.
5. Gum inflamation,&hypertrophy.
6. Purpura & internal bleeding.
7. Hepatospleno megally.
8. Nervous system sign &symptom if it affected.
9. decrease immunity.

#### Rx & NC

##### **1. General Rx**

- a. anemia (blood , plate let).
- b. fever& pain (analgesic+ antipyretic).
- c. infection ( antibiotics) .

##### **2. Specific Rx**

- a. cytotoxic chemotherapy
- b. Radiotherapy.

**3. Psychological support** to both child & family.

**4. Tall the parents** about side effect of drug (cytotoxic & steroid).

**5. Take care when** do venipuncture & bone marrow aspiration.

## **Congenital Heart Disease**

### **Cardiac structure and function**

Cardiovascular disorders in children are divided into two major groups: Congenital Cardiac Defects and Acquired Heart Disorders.

Congenital heart defects are anatomic abnormality that is present at birth that result in abnormal cardiac function.

The clinical consequences of congenital heart defects fall into two broad categories: Congestive Heart Failure and Hypoxemia.

Acquired cardiac disorders refer to disease processes or abnormalities that occur after birth and can be seen in the normal heart or in the presence of congenital heart defects. They result from various factors, including **infection, autoimmune responses, environmental factors, and familial tendencies.**

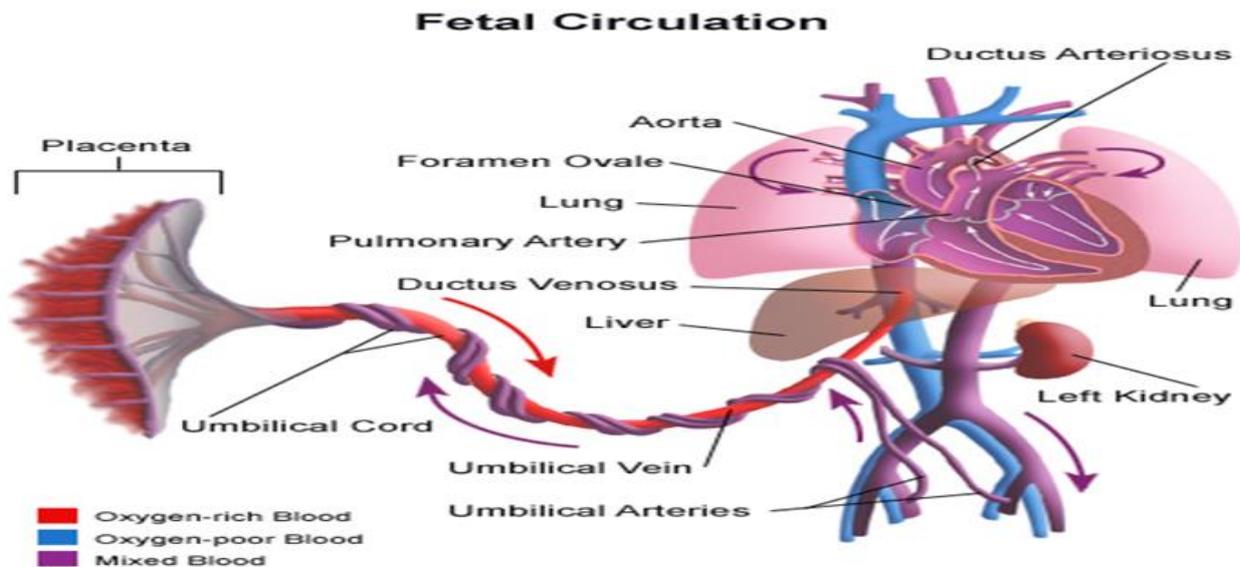
The heart and other components of the circulatory system (blood, blood vessels, lymph) begin to develop during the fourth week of gestation and are completed by the eighth week.

### **Fetal circulation**

The fetal brain requires highest oxygen concentration. The lungs are essentially nonfunctional, and the liver is only partially functional: therefore, less blood is needed in these organs in fetal life.

Blood carrying oxygen and nutritive materials from the placenta enters the fetal system through the umbilicus via (the large umbilical vein). The blood then travels to the liver, where it divides; part of the blood enters the portal and hepatic circulation of liver; and the remainder travels directly to the inferior vena cava (IVC) by way of the ductus venosus. Because of the higher pressure of blood entering the RA from the IVC it is directed posteriorly in a straight pathway across the RA and through the foramen ovale to the LA. Oxygenated blood enters the LA and LV to be pumped through the aorta to the head and upper extremities. Blood from the head and upper extremities entering the RA from the superior vena cava (SVC) is directed downward through the tricuspid valve into the RV. From there it is pumped through the pulmonary artery, where the major portion is shunted to the descending aorta via the ductus arteriosus. A small amount flows to and from the nonfunctioning fetal lungs. Blood is returned to the placenta from the descending aorta through the placenta from the descending aorta through the two umbilical arteries.

Before birth, the high pulmonary vascular resistance created by the collapsed fetal lung causes greater pressures in the right side of the heart and the pulmonary artery. At the same time, the free-flowing placental circulation and the ductus arteriosus produce a low systemic vascular resistance in the remainder of the fetal vascular system. With the clamping of the umbilical cord and the expansion of the lungs at birth, the hemodynamic of the fetal vascular system undergoes pronounced and abrupt changes of the placental blood flow and the beginning of lung reparation.



## Congenital Heart Disease

CHD is a type of heart disease that children are born with, usually caused by heart defects that are present at birth. In fact, the most common heart conditions found in children are structural heart defects.

### Etiology

1. Unknown.
2. Complex interaction of genetic and environmental factors.
3. Risk factors as:
  - a. Maternal factors include chronic illness as DM or poorly controlling phenylketonuria (PKU), Alcohol consumption, and exposure to environmental toxins and infection (rubella in early pregnancy), medications, such as anti-seizure.
  - b. Family history.
  - c. Associated with chromosomal abnormalities, syndromes, or congenital defect.

### Diagnosis of CHD

1. Electrocardiogram ECG
2. Chest -x-ray
3. Echocardiography
4. Cardiac catheterization

### General signs and symptoms of CHD

1. Dyspnea
2. Tachycardia
3. Apnea
4. Difficult in feeding
5. Heart murmur
6. Cyanosis
7. Failure to gain
8. Clubbing finger
9. Fatigue
10. Recurrent respiratory infection

## General Nursing Management of CHD

1. Keep child in comfortable position (knee-position or head elevated to facilitate breathing).
2. Small frequent feeding.
3. O<sub>2</sub> on needed.
4. Check vital signs frequently.
5. Daily weight.
6. Record input and output.
7. Give drug in right time and dose and explain the using for family
8. Suitable diet such as ↓sodium, adequate fluid.
9. Prepare resuscitation for cardiac arrest.
10. Reduce stress and provide emotional support for child and family.
11. Give drug according to the Dr. order such as digoxin , diuretic.
12. Restricted activity.
13. Prepare family for cardiac catheterization or surgery.



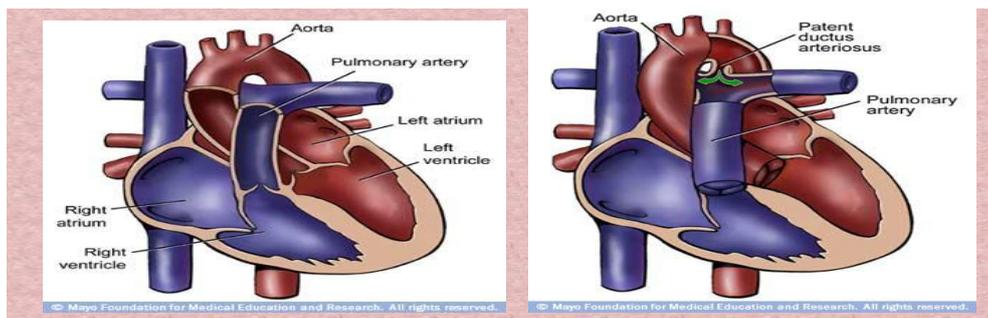
## Classification and clinical consequences

1. A cyanotic defect.
2. Cyanotic defects.

### A. A cyanotic defect.

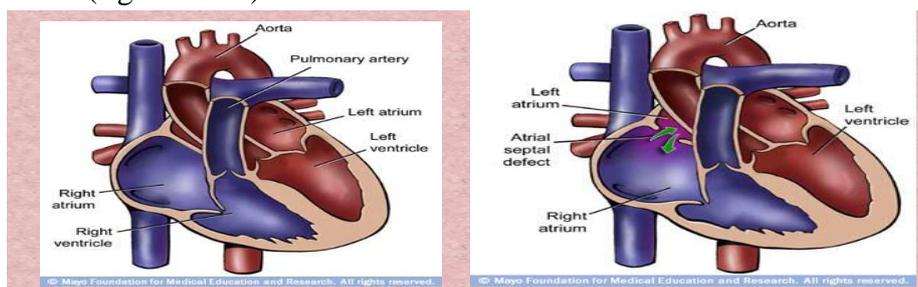
#### 1. Patent Ductus Arteriosus (PDA)

Failure of the fetal ductus arteriosus to close within the first weeks of life (artery connecting the aorta and pulmonary artery). The continued patency of this vessel allows blood to flow from the higher-pressure aorta to the lower pressure pulmonary artery, causing a left to right shunt.



#### 2. Atrial Septal Defect (ASD)

Abnormal opening between the atria allowing blood from the higher pressure (left atrium) to flow in the lower pressure (right atrium).

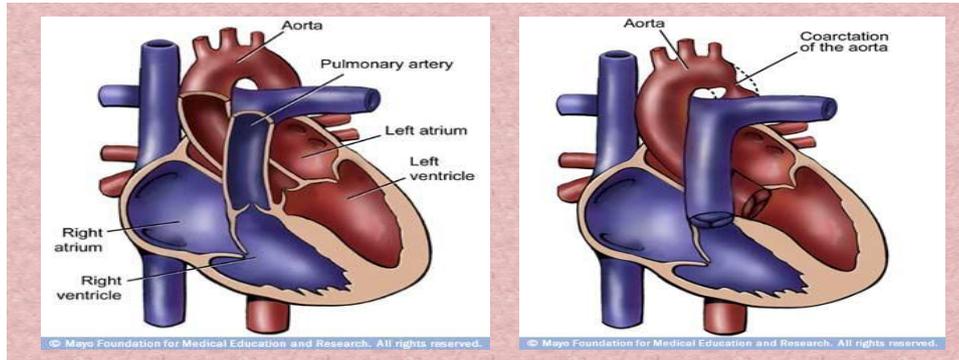


### 3. Ventricular Septal Defect (VSD)

Abnormal opening between the two right and left ventricles. May VSDs (20%-60%) are through to close spontaneously. Spontaneous closure is most likely to occur during first year of life in children have small or moderate defects.

### 4. Coarctation of the Aorta

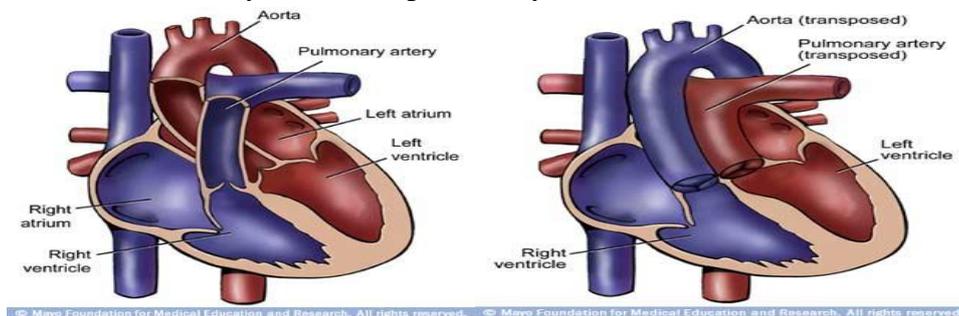
Localized narrowing in the aorta, obstructing blood flow to the lower part of the body and increasing blood pressure in head and upper extremities.



## B. Cyanotic defects

### 1. Transposition of the Great Arteries

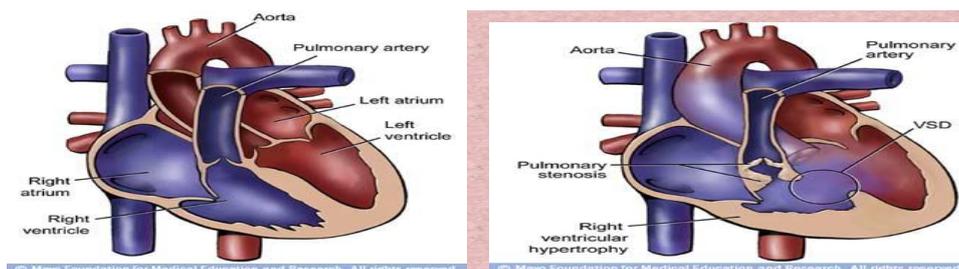
Pulmonary artery leaves the left ventricle, and the aorta exits from the right ventricle, with no communication between the systemic and pulmonary circulations.



### 2. Tetralogy of Fallot (TOF):

This condition is characterized by the following four defects:

1. Ventricular Septal defect.
2. Pulmonary stenosis.
3. Overriding aorta.
4. Right ventricle hypertrophy.

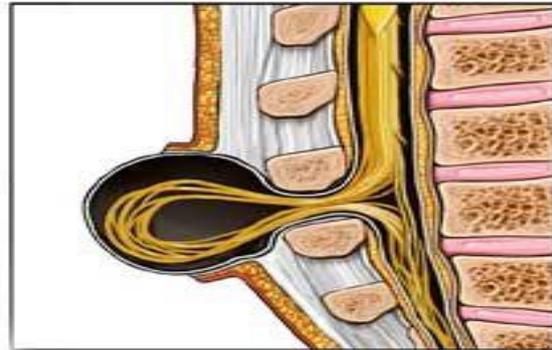


## المحاضرة التاسعة Nervous system

### Congenital anomalies

#### 1- Spina bifid

Malformation of spine (posterior portion of lamina vertebra fail to close)



Defect in vertebrae allows spinal nerves to protrude

1. **Spina bifida occulta**: only vertebral defect
2. **Meningocele**: the meninges are protruded
3. **Meningomyelocele**: both the meninges and spinal cord

#### Clinical features

Loss of sensation in lower limbs

#### Nursing care

1. Avoid trauma and pressure
2. Prevent contamination with urine and feces

#### Treatment

Surgical repair

#### 2- Mastoiditis

An infection of mastoid bone

#### Infectious agents

(Streptococcus, H.influenza and pneumococcal)

#### Clinical features

Pain, tender, fever, swelling and vomiting

#### Nursing care

Clean, dryness

#### Treatment

Antibiotic and surgical drainage

#### Complication

Brain abscess and meningitis

### 3- Hydrocephalus

Due to inadequate absorption of cerebrospinal fluid, which leads to increased pressure in CSF spaces



#### Causes

1. Congenital (spina bifida & maldevelopment of ventricular foramen)
2. Acquired (meningitis & trauma)

#### Clinical features

1. Expanded OFC
2. Signs of increased ICP (sun-setting eyes, change in personality (irritability, poor sleep and feed), vomiting-seizures)

#### Management

1. Ventricular shunt
2. Endoscopic surgery

#### Nursing care

1. Oxygen therapy
2. Check vital signs
3. Check head circumference
4. Cleaning
5. Check output and input

## **4- Meningitis**

### **Causes**

1. Infection (bacteria, viruses, fungi and parasites)
2. Non infection (malignancies & drugs)

### **Bacterial meningitis**

6-12 months

Common microorganism

H. influenza

### **Clinical features**

1. Fever, nausea, vomiting, irritability, neck stiffness and reduced conscious level
2. Signs of increase ICP (bulging fontanel)
3. Tonic seizures & coma
4. Skin rash in meningococcal toxemia

### **Diagnosis**

1. Lumbar puncture. CSF findings:
  - a. Raised WBC (polymorph)
  - b. Raised protein and decrease sugar
  - c. Organism and gram staining in culture
2. CT scan and MRI

### **Treatment**

1. High doses antibiotic in compensation
2. Steroids
3. Treatment the complication (seizures, dehydration)

### **Nursing Care**

1. Isolation
2. Good ventilation
3. Avoid contamination
4. Check vital signs

## المحاضرة العاشرة

### Infectious disease

Infectious disease is an illness that caused by an infectious agent or its toxic product and transmitted from one person to another by direct or indirect contact. Infectious diseases usually considered as a leading cause of mortality among children also accounts for approximately in 50% of all visits to child health setting.

#### Vulnerability of children to infection

1. Their immune responses are immature
2. Disease protection through immunization is yet incomplete.
3. Passively acquired maternal antibodies are decreasing with age.

#### Stages of infectious disease

1. **Communicability period:** is the time during which an infected person can transmit the disease directly or indirectly to another person.
2. **Incubation period:** is the time between exposure to an infectious and the appearance of the first signs or symptoms (grow and multiply). The length of incubation period varies depending on the type of pathogen.
3. **Prodromal period:** time between the begging of non-specific and the specific symptoms (usually it is short and ranging from hours to a few days).
4. **Illness period:** during which specific symptoms are evident and have local symptoms related to the organ affected.
5. **The convalescent period:** when the symptoms began to fade and the patient returns to full wellness.

### A) Viral diseases

#### Hepatitis

1. Hepatitis A virus (feco–oral route of transmission)
2. Hepatitis B virus (syringes & blood contamination)

#### Clinical features

Nausea, vomiting, anorexia, abdominal discomfort and jaundice, yellow urine and clay color stool, itching & hepatosplenomegaly.

#### Complications

Chronic Hepatitis

#### Nursing care

Isolation, rest, observe the sclera, avoid drug, encourage for small frequent diet & high carbohydrate, sterile equipment & avoid infection.

#### Measles (Rubeola)

#### Clinical features

Fever, conjunctivitis, coryza, cough, photophobia, Koplik spots (small whites spots on a red background in buccal mucosa) and skin rashes (brown or pinkish start behind the ear, forehead then extend to cheek & extremities within 5 days).

#### Methods of spreads

1. Direct contact & air borne droplet
2. Contaminated dust

### **Complication**

Otitis media, bronchopneumonia and encephalitis

### **Communicability**

5 days after rash

### **Nursing care**

Rest, good feeding, dim light, cool room soft blanket and paracetamol,

## **German measles (Rubella)**

### **Clinical features**

Mild disease, pink nonproductive maculopapular rash, fever no koplik spots also no photophobia.

### **Nursing care**

Antipyretic

### **Chicken pox**

### **Clinical features**

Fever, vomiting, itching and skin eruption (macules, papules & vesicles)

### **Communicability**

1-2 days before and 5 days after symptom

### **Transmission**

Direct & indirect

### **Nursing care**

Feeding, antipyretics & anti-itching

### **Complications**

Laryngitis ,pneumonia .meningitis , Fever, vomiting, itching and skin eruption (macules, papules & vesicles)

### **Communicability**

1-2 days before and 5 days after symptom

### **Transmission**

Direct & indirect

### **Nursing care**

Feeding, antipyretics & anti-itching

### **Complications**

Laryngitis ,pneumonia .meningitis

## **Poliomyelitis**

Poliovirus

### **Clinical features**

Fever and sore throat, affect respiratory and central nervous system so lead to stiffness, headache, vomiting, also respiratory distress.

### **Transmission**

Feco-oral route

**Complications** :permanent paralysis, meningitis , encephalitis

### **Nursing care**

Observe respiratory paralysis, feeding, iv fluid, immunoglobulin and rehabilitation

## **Mumps (parotitis)**

Paramyxovirus

### **Clinical features**

Fever, earache, pain in chewing, swelling of parroted gland

**Communicability** : 1-6 days before and 9 days after symptoms

### **Nursing care**

Cold application, soft food, clean mouth, antipyretic

### **Complications**

Orchitis, oophritis and pancreatitis

**Nursing care**

Sick leave and analgesia

## **B) Bacterial diseases**

### **Pertussis (whooping cough)**

(Pordetella pertussis)

**Clinical features**

Coryza, paroxysmal cough, vomiting, dehydration.

**Communicability period** :4-6 weeks

**Complications** : Pneumonia, bronchitis, otitis media, and seizures (encephalitis)

**Nursing care** : Monitor respiration, oxygen and humidity in room, gentle suctioning with antitussive, salbutamol and broad spectrum A.B.

### **Tetanus (Lucked Jaw)**

Clostridium tetani (found in soil and entre the body through deep injuries)

**Clinical features** : Fever, pallor, stiffness of neck and jaw. Painful muscles spasm (convulsion), difficulty in swallowing.

**Nursing care**

Feeding by n. g. tube, avoid movement & noise, skin and reparatory care, I. V. fluid, diazepam, broad-spectrum antibiotic with antitoxin.

**Diphtheria**

Coryne bacterium diphtheria

**Clinical features**

Fever, rhinorrhea, membrane over throat, foul odor, cough, hoarseness, pharyngitis, noisy breathing.

Communicability : 2 weeks

**Complications** : Myocarditis, neuropathy.

**Nursing care**

Humidified oxygen, oral suction, mouthwash, liquid diet, observe respiration with immunoglobulin and antitoxoid also erythromycin to eradicate the bacteria

### **Tuberculosis (T.B)**

Acid-fast bacilli (mycobacterium tuberculosis)

**Clinical features**

1. Symptomless
2. Fever
3. Decrease weight
4. Night cough
5. Hemoptysis
6. Sweating
7. Chest pain

**Communicability** : Till -ve culture

**Nursing care**

1. Anti. T.B. for 6 months (INH , streptomycin and rifampicin)
2. Isolation
3. Good feeding
4. Cleaning
5. Air ventilation

## **Typhoid fever**

Salmonella typhi. Transmitted by feco-oral route & dust inhalation.

### **Diagnosis**

By

1. Low WBC
2. Widal test
3. Culture

### **Clinical features**

Fever, headache, drowsiness, lymphadenitis, splenomegaly and skin rash.

### **Nursing care**

Rest, fluid, cold sponging, cleaning, isolation, health education

**Treatment :** Antibiotics

## المحاضرة الحادية عشر

### Nursing care at communicable disease

#### **Malaria**

##### **Types**

1. Plasmodium
2. Plasmodium ovali
3. Plasmodium vivax
4. Plasmodium falciparum

##### **Clinical features**

Fever, rigor, anorexia, vomiting, diarrhea, anemia, fit and hepatomegaly

##### **Prevention**

Avoid mosquito anopheles

##### **Treatment**

(quinine, chloroquine)

#### **Cholera**

Caused by vibrio cholera, transmitted by contaminated water, food and flies

##### **Clinical features**

Vomiting, frequent bowel motion, which lead to sever dehydration & electrolyte disturbance

##### **Prevention**

1. Sterilize water by boiling
2. Waste drainage
3. Wash vegetable
4. Pasteurizing milk
5. Health education
6. Immunization

##### **Treatment**

I.V. fluid and antibiotic

Brucellosis (Malta fever)

Source of infection Animals directly or by milk and its products

##### **Clinical features**

Fever –headache, joints, muscle pain, profuse sweating and psychological disturbance

##### **Prevention**

1. milk pasteurization
2. Treatment of infected animal

#### **Schistomiasis (bilhareziasis)**

##### **Types**

1. Schistomiasis Hematobum
2. Schistomiasis Mansoni
3. Schistomiasis japonicum

##### **Clinical features**

Fever, skin allergy, hematuria

#### **Tinia solium**

Transmitted by contaminated vegetable

#### **Tinia saginata**

Contaminated meat

**Clinical features**

abdominal pain, anemia, weight loss, increase appetite

**Treatment :** mebendazole

**Oxyuris**

**Transmitted by :** 1. Dirty nails 2. Contaminated food

**Clinical features:**

1-anal itching mainly at night

2-enuresis & disturb sleep

3-anemia & wt. loss

**Nursing care:** cleaning, **Treatment:** mebendazole

## المحاضرة الثانية عشر

### Nursing care at endocrine disorders

The thyroid is small gland, like butterfly shaped, located in the lower part of the neck, its function to secret (T3-T4).

-Thyroid hormone is important for normal brain growth and development in first 2 years of life.

#### 1-Hypothyroidism

-may occur at birth (congenital hypothyroidism) or at any time during childhood or adolescence

-disease which effect children due to unable thyroid gland to secrete thyroxin hormone.

#### Signs and symptoms:

- 1- Prolonged neonatal jaundice
- 2- Lethargy.
- 3- constipation.
- 4- coarse facial appearance.
- 5- Large protruding tongue.
- 6- Horsiness of cry.
- 7- umbilical hernia.
- 8- dry, cold and thick skin.
- 9- delay development.

#### Diagnosis:

1-decrease T3, decrease T4 & increase TSH.

2-Assessment of skeletal age (knee or wrist x-ray) called bone age which was delayed

#### Treatment

1-Early diagnosis.

2-Thyroxin hormone for long time

#### 2-Hyperthyroidism:

Rare in childhood due to previously thyrotoxicosis mother cause increase in secretion of the thyroxin hormone.

#### Signs and symptoms

Increase appetite, tachycardia, and palpitation, nervous, thin and long.

#### Treatment

-Carbimazole (ant thyroid).

-Propranolol.

-Some time need surgery as partial thyroidectomy

#### 3-Diabetes mellitus (D.M)

Called juvenile diabetes its more danger than adult due to decrease the insulin in the blood due to poor action of the pancreas, the disease appears before the baby reach 15 years of the age and unusual to the disease before 2 years of age.

**Signs and symptoms**

- Polyuria
- polydipsia
- loss of weight
- loss of appetite
- increase the sugar level in the urine and glucose in the blood
- vomiting and sometime coma.

**Nursing care:**

- 1-Insuline and be carful in giving by subcutaneous injection.
- 2-Decrease the carbohydrate and glucose in the foods.
- 3-Observation the diet of the child with diabetes for the growth and development.
- 4-Education the mother how give insulin injection &how to prepare.

## المحاضرة الثالثة عشر Handicap child

### Causes

- 1-congenital anomalies
- 2-comunicale diseases
- 3- accidents [burns ,full from high & rode traffic accidents ]
- 4-metabolic disorders

### Prevention

- 1-labritory tests before marriage
- 2-prenatal & postnatal care
- 3-care of newborn babies
- 4-good nutrition
- 5- vaccination
- 6-health education

### Care of orphan

Child who lost one parent or both so he is losing love & security .

- 1-establish of children for normal life [ physical , mental &social ].
- 2-give name & identify the unknown origin.
- 3-prevent any differentiation between them to give them values in society.

### Services of orphan care

- 1-provide family atmosphere
- 2-school &follow up developmental state
- 3- provide feeding , clothes &health care
- 4-solving social problems
- 5-follow up after graduating.

### Characteristics of education directors

- 1-well trained & have experiences
- 2-intrrested in field
- 3-stading problems
- 4-can explain the child behaviors.

## المحاضرة الرابعة عشر Rehabilitation

Recurrent of handicap to be able to live normally.

### Types of rehabilitations

- 1-physical
- 2- psychological
- 3-social
- 4- occupational .

### Values of rehabilitation

- 1-Good physical , social &mental health
- 2-Can took care of himself
- 3-Rest in family & society
- 4-Can adapt with environmental factors.

### Prevent accidents

- 1-Education about accidents [poisoning , burn & RTA]
- 2-Keep [oils , kerosene , drugs , chemical agents] in locked container
- 3-Keep knives &matches away from children .
- 4-Barriers for stairs .
- 5-Not leave child alone specially the hyperactive one
- 6-Educate mothers about growth & development
- 7-Arrange house furnishes specially in kitchen
- 8-In case of poisoning encourage child to vomit but not for kerosene

## المحاضرة الخامسة عشر

### Dying child

#### **Nursing care of child attending to death**

- 1-call for doctor & not leave him alone
- 2-call parents
- 3-transfer the child to separated room with good light & ventilation
- 4-provide any like or dislike for child
- 5-clean & humidify the mouth
- 6-check for urine & stool
- 7- check vital signs
- 8-give drugs as the doctor orders

#### **Care after death**

- 1-close eyes & mouth
- 2-keep extremities in striate position
- 3-clean body & change clothes
- 4-cover him with clean sheet
- 5-record notes for the report of death
- 6-psychological support for the parents