**PAEDIATRIC CONDITIONS**

**Def**: This is the branch of medicine dealing with the care and development of children with the treatment of children and with the disease that affects them.

**Pediatrician**: A specialist in children diseases

**Impact of sickness and admission on children, parents/family**

**Reaction of children**

Reaction from child differs and also differs with age

An older child is tolerant than smaller child due to previous expose

A child admitted with a guardian is able to cope than one who is alone. Also its important to note that previous treatment of children at home will provide a better opportunity than a child who is in hospital.

A child is able to compare herbal treatment got at home with the hospital treatment. Due to this nurses and doctors should be able to understand cultures, customs and norms of different ethnic groups to understand customs and norms of different ethnic groups. When dealing with children. This helps in the management of children.

**Physical effect on the child**

Child can show this by crying especially when angry feeling pain, when touched, feels restless etc.

**Pain in the ear**- Children pool either ear or hair

**Abdominal problem**- Children becomes restless and at times falls from a couch. Pain is always expressed in crying and restlessness.

Social effect of the child- children are not able to verbalize their problems. Are un-able to mix with other children and so learn alone and so these children are withdrawn

Separation from parents brothers and sisters while in hospital, they become anxious and emotionally disturbed

Have fear over the new environment which is strange, smell, injections, dressings and new faces etc

Good explanation is required to these kids should be told that doctors and nurses are their friends who assist them to overcome their problem.

Explain to them other sick children are their brothers and sisters and should live together as a family

Their parents should be encouraged to stay with them in the hospital.

**Psychological effects on the child**

Children develop anxiety due to pain, fear of unknown, environment, injection, drugs trolley, suction machine, oxygen cylinder etc

Lack of appetite due to illness, type of food provided by the hospital

Lack of sleep, those from small families may fear the multitude from the hospital.

**Spiritual reaction**

Create an environment for spiritual care

It depends with parents cultural believes

This mostly affects the parents

**PNEUMONIA**

**Def**: Infections of the lungs involving not only the bronchi but also the alveoli are called pneumonia. The surface of alveoli equals 100 times the skin surface and thus the child will be very ill if only a small part of this richly vascular area becomes inflamed.

**Predisposing factors**

Children between 6 months and 3 years

In malnourished children

In combination with measles or whooping cough

In AIDS

Causes

Pneumococci

Haemophilus influenza or staphylococci

Viral pneumonia by virus

NB: The distinction between lobar pneumonia and bronchopneumonia has no practical value as far as children are concerned; treatment is the same since both can be caused by pneumococci.

**Pathophysiology**

The bacteria causing pneumonia often are found in the surroundings and even the skin and may invade the lungs incase of: a viral infection, a foreign body or plug of mucus blocks part of the bronchial tree, malnutrition or other diseases affecting the immunity,

The infection if not controlled, develop into lung abscess, spread in the pleural cavity or through the blood stream (septicaemia).

The heart has difficulty in pumping through the diseased lung and may give up in cardiac failure, especially if the child is also anemic.

**Clinical features**

Fever, toxic appearance, rapid pulse, rapid breathing (>60b/min) and other general signs of infection

Rapid difficult breathing (dyspnoea)

Nasal flaring

Chest indrawing and cyanosis

Crepitations

Diminished breath sounds

Bronchial breathing and slight dullness on percussion

**Diagnosis**

Physical examination

Chest x-ray

FHG (leukositosis)

ESR

Sputum for C/S

**Management**

Give antibiotics as per the C/S results

Give oral penicillin 50mg/kg/day in three divided doses for 5-7 days

Cotrimoxazole 48mg/kg/day in two divided doses for 5 days

Support of respiration: oxygen if available and necessary. Never give dry oxygen since it might only worsen the condition

Position the child comfortably in bed

Give general supportive measures by providing enough fluids and soft drinks

Give paracetamol only if the experiences fever above 39C0

Rule out malaria since it’s mostly combined with pneumonia and might mimic the pneumonia symptoms  
In-case of pleuritic involvement tapping is done and strong antibiotics are given

**Prevention**

Vaccinations against measles and other diseases

Early and correct diagnosis

Early treatment of URTIs

Early diagnosis

Maintaining proper hygiene and proper nutrition

**Complications**

Abscess formation

Pleuritic involvement

Atelectasis (lung collapse)

Cardiac failure

**ASTHMA**

**Def**: It is a condition in which the airways are narrowed because of hyperactivity to certain stimuli OR Is a condition characterized by wheezing due to narrowing of air passage caused by spasms and swelling of the mucus membrane.

**Causes of asthma**

**Allergic factors** divided into : inhalants e.g smoke, food e.g meat and drugs e.g morphine

**Emotional factors**- these can often be abscend in the child’s relationship with his parents. Very commonly the child is described as being quiet and introspective and is often of above average intelligence lines of acute excitement as well as anxiety can be the triggering factors.

**Infection** – infection may trigger an effect in a child and this is usually of one origin

**Exercise** – exercise has been implicated in precipitating an attack to the sensitive child

Exposure to cold air

**Predisposing factors**

Hereditary

Exposure to cold air

Any upper respiratory infection

Overcrowding

Emotional stress

Irritants

**Pathophysiology**

Asthma affects the smooth muscles of bronchi which go into spasm and tissue lining the airway under-go inflammation and secrete mucus into the airway. These actions narrow the diameter of airway (broncho constriction) which requires the child to exert more air in and out.

**Clinical features**

Wheezing sound

Prolonged expiratory phase of respiration

Diminished air entry

Lower chest wall in drawing

Recurrent cough especially at night

Hyper-inflated chest

Cyanosis in severe cases

**Diagnosis**

Wheezing sound felt on auscultation

Esinophils are increased on FHG

Spirometry test- test used to assess the severity of air obstruction to monitor treatment

Allergic skin testing to determine the allergen

**Management**

Sit the patient up well supported with pillows comfort may be gained by leaning forward in a bed covered with a pillow and open nearby window

Administer oxygen and suction the patient if indicated

Encourage the child to rest due to shortage of oxygen and forced expiration

Intravenous infusion may be set up for administration of bronchodilators during the first 24 hours

In persistent attacks corticosteroids may be given

Parents are encouraged to stay with the child and participate in aspects of nursing care of the baby

Diversion play therapy may help to relieve anxiety

Sips of cold drinks will be soothing and normal diet will be best fairly quickly relieve nausea

**Management before attacks**

In case of infection they should be treated with antibiotics for one week. If tonsillitis or otitis is frequency causing the attack, then tonsillectomy is done.

Infection by cold environment or smoke should be avoided

In case of allergy the child should sleep in a dust free environment. They should use rubber mattress

In severe chronic asthma give steroid e.g preferably inhalation e.g dexamethasone dipropionate (recotide) 100ug 2-4 times daily

**During attack**

In m moderate or severe attack, adrenaline should be given 0.015mls/kg be injected repeatedly half hourly until the attack is over

If no response, aminophilline 3-6 mg/kg slowly over 20min I.V. this can be repeated 8 hourly or PRN

If severe attack, steroids should be started or predinsolone 1mg/kg for 2-3 days or hydrocortisone 5-10mg/kg IV 6hourly for 1-2days

Give oxygen therapy

If respiratory tract infection is likely to be playing a role, treat the patient with 30mg/kg amoxicillin and cotrimoxazole 120mg twice from six months to five years and 480mg twice for 6years-12 years of age

**Complications**

Status asthmaticus

Pneumothorax

Bronchiectasis

Emphysema

**Prevention**

Avoid causative factors e.g smoke, animal fur

Change mattress to reduce excess dust

Irritating fumes e.g smoking should also be avoided

Better nutrition for high general resistance

Immunization to measles and whooping cough to avoid predisposing factors

Early treatment of URTI

Protection from cold and net proper adjustment of clothing to often change environment especially in mountaineers

**DIARRHEA DISEASES**

**Def**: Is an excessive passage of loose or unformed stool which may occur more than four times in 24hrs.

This loose stool may be watery and still blood stained/mucus stained depending on the cause

Diarrhea is also called gastroenteritis in young children

**Causes**

**Parenteral infection** – any acute infection outside the digestive tract can cause diarrhea with or without vomiting. Common ones are malaria, measles, pneumonia, otitis media, tonsillitis and UTI

**Enteral infection** – direct infection of intestinal tract itself that may be caused by bacteria such as salmonella shigella and vibrio cholera. Most common are eschericia coli

Viruses e.g rotavirus and rotavirus and adenovirus although suspected of causing diarrhea for many years. HIV also causes diarrhea by reducing the numbers of cells in the bowel that protect against organisms that normally do not cause diarrhea

Parasites – particularly protozoa, entamoeba histolytica is the cause of amoebic dysentery which can present as an acute bloody diarrhea

Intestinal worms – strongyloids, strichuris (whip worm) and schistosoma mansoni may cause diarrhea

**Intussusceptions** (acute condition when part of the bowel turns outside in) – is often associated with diarrhea and can cause acute abdominal colicky pains and blood looking like red currant jelly

**Ingestion of certain poisonous herbs** or the administration of laxatives can sometimes cause diarrhea

**Pathophysiology of diarrhea**

Diarrhea arises as the result of an abnormal leaking away of fluid and electrolytes from the intestines. There are three main reasons why this loss of fluid may occur:

Poor absorption of fluid by the intestines

Increased fluid secretion in the intestines

Exudation (as serum exudes from an ulcer) from the intestines

**Investigations**

Stool for ova and cyst

Blood sample for malaria

Stool for cuture and sensitivity

**Compensation mechanism in dehydration**

Diarrhea stools do not contain just water but also contain considerable amount of electrolytes. Mainly sodium, potassium, chloride and bicarbonate are lost.

The body tries to compensate for this water and electrolyte imbalance whenever fluid loss occurs. The kidneys retain water and electrolytes and the urine output is reduced.

However this compensation mechanism is only effective within limits. If fluid losses are severe, the body takes fluid from all its compartments in order to supply the kidneys with enough fluid to keep circulation going.

This results in clinical signs of dehydration. If the fluid losses are even more severe the urine output become zero and signs of shock and cellular damage ( heart; cardiac arrest: brain : convulsions) soon follow. The body tries to get rid of excess of excess acid products by forced respiration (acidotic respiration)

As long as the kidneys can be supplied with enough fluid to produce sufficient urine, the compensation mechanism work all right but if fluid and electrolytes are not replaced in time, death is inevitable.

**I.V rehydration**

This is done for very severely dehydrated children

These children have to be given I.V infusion according to their body weight

It’s estimated that in severe diarrhea a child looses approximately 100mls/kg in 24 hours

Follow rehydration formula i.e

Children under 5kgs give 25 mls/kg/hr

Children between 5-9kgs give 50ml/kg within an hour

Children between 10-14 kgs give 75mls/kg within an hour

Over 15 kgs give 100ml/kg within an hour

Observe for improvement after every one hour to avoid overhydration

**General management**

Isolation- nurse in an isolation room of pediatric to prevent infecting other children with general conditions. Burrier nursing with what it entails. Ensure adequate rest

Obtain stool for ova and cyst and for cuture and sensitivity to identify causative organism

Treat causative organism by giving appropriate antibiotics then treat vomiting by giving antihemetics

Maintain strict input and output chart

Observe for signs of severe dehydration and describe content of diarrhea

Change the child frequently to prevent pressure areas

Regulate the rate of intravenous flow

Reassure mother and explain to parents/ relatives about the child’s management

As soon as condition improves, give child oral fluids. Introduce small amounts and if child is not vomiting then stop the drip

Encourage feeding as soon as vomiting stops

Educate mother on fluid intake and diet (ORS)

Do proper weaning to avoid bottle feeding and adopt cup and spoon

Advice on general cleanliness, boiling of drinking water, balanced diet, child immunization and family planning.

Health educate on oral rehydration at home

**Complications**

Dehydration

Anemia incase of amoebic dysentery

Failure to thrive

Hypoglycemia

CCF

Chronic diarrhea

**Prevention**

Discourage bottle feeding

General hygiene

Early treatment of parenteral disease

Immunization against measles which can cause immunosuppression

Good disposal of waste materials

Well cooked food

**OTITIS MEDIA**

**Def** : Inflammation of the middle ear when there is inflammation of the Eustachian tube

**OR** It is the infection of the middle ear which commonly occurs after a respiratory tract infection is from the Eustachian tube where the microorganisms ascend

**Types**

Acute Otitis media

Chronic otitis media

**Acute otitis media**

This is the most common especially in cold season

It responds well with the treatment of penicillin antibiotics

**Chronic otitis media**

It occurs after repeated episodes of infection of the middle ear and with inadequate antibiotics therapy

It may take a long time to heal because micro organisms have become resistant to drugs

It’s important for this condition to be referred to a specialist

**Predisposing factors**

Upper respiratory infection through the Eustachian tube

In children whose Eustachian tube is short thus easy ascending of micro organisms

Malnourished children due to low immunity

**Pathophysiology**

The bacteria spread up to the Eustachian tube from the nasal pharynx. These bacteria gain entrance when there is lowered resistance as a result of infection which causes the inflammation of the middle ear.

**Causes**

Streptococcus pneumoniae

Hemophilus influenza

Staphylococcus

Diplococcal pneumonia

Beta hemolytic

**Signs and symptoms**

Complains of pain where baby pools the ear and roll in bed

Fever of above 390c

Vomiting and diarrhea

Swelling of mucus membrane

Rupture of eardrum leading to oozing of pus

Irritation of nasopharynx

Loss of hearing

**Diagnosis**

Physical examination

Ear swab for cuture and sensitivity

Use otoscope to visualize the eardrum

**Management**

Mostly treated as outpatient

Child to lie on the affected side to allow drainage

Wash the ear with normal saline if the pus is draining

Give antibiotics e.g benzyle penicillin or as for C/S results

Ensure bed rest

Give nasal drops in case of swelling

Give eardrops like gentamycin eardrops 2-3 three times for seven days

Hygiene should be maintained

Give balanced diet

Myringotomy done (Incision and drainage of the eardrum to drain pus

Give corticosteroids to avoid further inflammation

**Complications**

Chronic otitis media

Infection of the mastoid bone (mastoiditis)

Infection of the vestibulochochlea which lead to meningitis

Paralysis of the facial nerve

Deafness

Encephalitis (brain inflammation)

**Prevention**

Early treatment of respiratory tract infection

Removal of chronic affected adenoids

**ANEMIA**

This is hemoglobin level below the normal range for the child of that age

From one year to puberty is known as Hb below 11g/dl

It is classified according to cause and shape of red blood cells

At birth it may occur due to hemorrhage

Hemolysis can occur due to rhesus isoimmunization and other blood group incompatibility

**Causes**

Lack of raw materials to make sufficient Hb e. iron, folic acid, vit b12 and proteins

Hook warm infestation or mal absorption of nutrients

Failure to manufacture enough RBC’s in bone marrow due to toxic drugs e.g CAF, infections or malignant tumors of bone marrow( aplastic anemia)

Hemorrhage – this can be caused by accidents or GIT bleeding

Breakdown of RBCs – hemolytic anemia due to malaria, toxic drugs, sickle cell anemia, rhesus incompatibility etc

Hb levels

Below 10gdl-mild anemia

Between 7-9 gdl – moderate anemia

7 and below – severe anemia

Predisposing factors

Malaria

Hookworm

Malnutrition

Multiple pregnancy

Anemia in pregnancy

Drugs that interfere with bone marrow activity

Hemolytic diseases

**Pathophysiology**

As anemia rises, the O2 carrying capacity ability of the blood fails. Blood circulation ability of the blood fails. Blood circulation has to rise to keep up with the need of the body tissue for O2 including the heart muscles itself which double to keep up the O2 supply.

The heart enlarges the apex bit moves laterally outside the line of nipple into the ataxia and heart bit rise so that the vein becomes distended and the liver become large as it progresses. Further fall of the hemoglobin begins to fall leading to low blood pressure and breathlessness.

**Clinical features**

Pallor of conjunctiva, lips, fingers, nails, palms and tongue

Fatigue

Unusual and rising dyspnoea

Rapid pulse

Weight loss

There may be splenomegally

Severe cases present with heart failure

**In severe anemia**

Edema

Heart enlargement

Dyspnoea

Weak pulse

Hepartomegally

**Investigations**

Blood for hemoglobin levels to determine severity

Stool for ova and cyst

Stool for ova and helminthes

Full hemogram

Take B/S for mps

Urine for: proteins, bilirubin and urobilinogen, microscopy for RBCs and WBCs

**Management of anemia**

Specific management depends on the cause

Iron deficiency anemia :

-Give FeSo4 1 tea spoon syr tds(5mls-6mls) in infants

-2 tea spoonful (10mls) tds in children of 1-5years

-3 teaspoonfuls (15mls) tds in children 6-12 years

Give dextran (inteferone 20mg/kg 0.4 mls/kg) give deep IM

In case of cardiac failure, give frusemide 1mg/kg IM or slow IV should be given before transfusion

Hookworm anemia

Many hookworms cause iron deficiency anemia so FeSo4 in small children.

Give :

-Injection 200mg iron (0.4 mls/kg)

-High energy and high protein diet is necessary to educate mother on available high protein foods e.g eggs,milk, meat, fish etc

-Deworming with albendazole 400mg stat or mebendazole 100mg bd for three days

Anemia due to malaria

Give :

-The antimalarial drugs as per the weight e.g AL tabs 20/120mg bd for 3 days

-Give iron supplements as in any other type of anemia

-Blood transfusion incase of cardiac failure and hemoglobin level below 8g/dl

-If spleen is palpable give treatment until is not palpable

Aplstic anemia

-Transfuse the patient

-Give steroids

-Stop drugs that interfere with bone marrow function

Sickle cell anemia

Give

If Hb is very low transfusion is done but in other circumstances its avoided since iron contained in blood adds the danger of iron overload

Give asprin and paracetamol is given for bone pains and any infections are treated vigorously

**Complications**

Heart failure

Hepatomegally and splenomegally

Venous congestion

Low BP

Jaundice

Vessel obstruction

**Prevention and control**

Prevent and treat anemia in pregnancy

Give iron supplements to all children

Start green vegetable from 4th month

Carriers with sickle cell should not marry

Do not give iron in sickle cell anemia because it’s not due to iron deficiency

Early treatment of malaria in children

Give iron supplements to all pregnant mothers

**TONSILLITIS**

Def: It is inflammation of the tonsillitis which occurs in kids between 2-12years

**Causes**

Beta hemolytic streptococcus which secrete toxic substances into the blood stream which cause rheumatic fever

Viruses e.g influenza virus and adenovirus

**Predisposing factors**

Infection of upper respiratory tract

Excessive cold

Overcrowding

Lowered immunity

Ear, nose and throat infection

**Signs and symptoms**

Anorexia, nausea, dry mouth, vomiting, diarrhea following dehydration if untreated

On examination tonsils are found to be red, swollen with white spots- contains pus

Quincy forms in severe cases (inflammation of tonsils with pus)

General body malaise

Headache

Dysphagia

**Diagnosis**

History and physical examination

Throat swab for culture and sensitivity

**Management**

Reassure the child/ mother

Admit child in hospital in severe cases

Isolate to avoid infection

Complete bed rest till temperature subside

Isolate to avoid infection from spreading

Expose the child to control temperature

Give antipyretics e.g paracetamol 5mls tds for three days

Maintain fluid balance charts

When able to eat give a soft balanced diet

Put patient on penicillin

You can give other antibiotics as per culture and sensitivity results

Give warm saline gargle to older children

**Chronic tonsillitis**

It occurs after repeated episodes of tonsil inflammation

When chemotherapy has failed then tonsillectomy

**Indication for surgery**

Several episodes or recurrent tonsillitis occurring in 10-12 months and each episode is confirmed by a positive culture and sensitivity showing there is hemolytic streptococcus etc

In each episode temperature is above 38.50c

Peritonsillar abscess formed

**Complications**

Otitis media

Chronic tonsillitis

Acute nephritis (glomerulanephritis)

Acute rheumatic fever

Quinsy (peritonsillar abcess)

Encephalitis

**Prevention**

Earlier diagnosis and treatment

Isolate the patient

Keep child warm

Nutrition

Immunization

**LARYNGOTRACHIOBRONCHITIS (L.T.B)**

**Def**: It’s an acute inflammation of the lower respiratory passages involving the larynx, trachea and bronchi

**Predisposing factors**

Infection of the throat or pharynx

Children between 2-3 years

Common after attack of measles as a complication

**Causative organisms**

Hemophylus influenzae

Streptococcus pneumonia

Hemolytic strptococca

Staphylococcus aureas

Viruses- para influenza, adenovirus

**Pathophysiology**

Following the infection of trachea, larynx and bronchi there is development of edema and destruction of mucus membrane leading to thick secretion which accumulate in the bronchi resulting to obstruction of the airways

**Clinical features**

The onset is gradual with rhinitis which make the child sick

High temperature

Severe respiratory distress which is characterized with dyspnea, cyanosis

Labored and rapid respiration with stridor

Restlessness and wheezing may be present if further infection involves the lower respiratory tract

A croupy and respiratory strider due to obstruction because during inspiration the air passes through the narrowed area

**Diagnosis**

Physical exam and history of patient from clinical features

Difficulty in breathing and restlessness

Obtain sputum for C/S

Bronchoscopy

**Management**

It’s an emergency case

Put complete bed-rest in a warm bed, support with pillow prop up in bed

Administer antibiotics according to C/S

Ensure airway is clear. Suction patient PRN

If condition worsens, tracheostomy is done to aid in breathing

Nursing care should be provided accordingly

IV infusion should be on till child is able to feed or breastfeed well

If IV infusion is not available NG tube is passed

Gentamycin and ampicillin together to prevent hypersensitivity

Attend the child personal hygiene oral bath etc

As soon as the condition improves discharge and follow up through medical clinic

Health message to the mother on personal hygiene balanced diet and immunization preventing infection

**Prognosis**

Depends on the age and health status of the child generally very poor with young children mortility is high due to DVT or complications such as pneumonia; septicemia and delayed treatment

**Prevention**

Early and adequate treatment of URTI

Immunization against early childhood disease to improve immunity

Avoid overcrowding places especially people with URTI

Keep children warm during cold season

Balanced diet increase body immunity

**Complications**

Septicemia

Atelectasis

Aspiration pneumonia

Acute glomerulonephritis

Rheumatic heart disease

**STREPTOCOCCAL SORE THROAT**

**Def**: This is inflammation of the larynx or phrynx including tonsillitis OR Is inflammation of tonsils which may include the adenoid glands or tissues.

It’s caused by hemolytic streptococcus type A

It affects children between 5-8 years

**Transmission**

Due to droplet infection of direct transmission

Direct contact with people with infection e.g in the family children sharing sweets and kissing people with infected sore throat

**Predisposing factors**

Low body immunity

Overcrowding

Exposure to cold

**Clinical features**

Sudden onset with general malaise accompanied with fever, headache and earache

Dysphagia

There is vomiting and nausea

Abdominal discomfort due to pain in some cases

Anorexia

Rapid pulse

Lymphadenitis

Chills

**Diagnosis**

History and physical examination

Throat examination –tonsils are swollen and red

Throat swab for culture and sensitivity

**Management**

Bed rest

Encourage saline gaggles if child is able to do so

Encourage intake of fluids or juice which should be warm to sooth the inflamed part and prevent dehydration

Give light balanced diet with vitamins especially vitamin

If not severe penicillin can be administered according to the age

Administer antibiotics as per C/S results

Betadine mouthwash gaggles after every meal can be used in older children

**Complications**

Acute glomerular diseases

Rheumatic fever

Heart disease

Encephalitis

Pneumonia

Sinusitis

**Prevention**

Keep child warm during cold weather

Early treatment of URTI

Isolate children with sore throat

Balanced diet to build immunity

Immunization of children

Drug compliance and completion

**RHEUMATIC FEVER**

**Def** : Is an inflammatory disease related to streptococcal infection, affecting mostly the heart and the joints, but other tissues including the brain and skin.

It occurs most commonly in children between 5 and 15 years

**Causes**

Due to autoimmune damaged tissues

Toxins

There is familial tendency

Overcrowding, poor nutrition

Partly due to hereditary factors

**Pathophysiology**

Rheumatic fever usually follows about two weeks after an infection of the throat or skin with beta hemolytic streptococci. This is due to a specific distant reaction of the tissues mainly the heart and joints, to these streptococci. All layers of the heart can be involved so called pancarditis.

**Clinical features**

Fever, sweating, malaise and tarchycardia

Tarchycardia increased due to myocarditis

There is pain, swelling, heat, tenderness and stiffness occurs in one or more larger joints

Subcutaneous rheumatic nodules appear, over the bony prominent such as the elbow, wrist, skin rushes may occur

Erythema- redness of the skin caused by congestion of the capillaries in the lower layer

Oliguria occurs due to inadequate fluid intake and reduced kidney supply

Palpitations are caused by heart inflammation

**Investigations**

History from parents and physical examination

Throat swab to exclude streptococci

Take blood for leukocytes count (there is polymoleukocytosis)

ESR levels will be raised (normal is below 19mm/l)

Antistreptolysin O (A.S.O) is raised (antibody streptolysin is produced by streptococcus which hemolysis RBC in anaerobic condition hence increasing the bacteria virulence)

Electrocardiogram

**Management**

Complete bed rest to prevent cardiac failure for a minimum of six weeks until symptoms are absent

Give bed cradle to avoid pressure of linen on joints

Joints are supported in a position of good alignment

Adequate fluid intake

Keep record of input output

Encourage fluid to compensative sweating

TPR four hourly

Report any abnormality

Ringing pulse is an indication of heart involvement and pericarditis

Prop up child with pillows to aid breathing

Handle child gently and do all procedures gently for good rest

Provide adequate balanced diet

Ensure sleep and give mild sedatives

Change position frequently to prevent pressure sores and encourage general circulation

**Drugs**

Penicillin is a drug of choice 600mg IM daily

Analgesia in divided dose four hourly and predinsolone to suppress inflammation

If heart is involved give phenobarbitone 5mg tds if child has chorea

Give erythromycin 250mg bd in severe cases

Digoxin 0.03-0.06 mg per body weight. Check pulse before you give

Observe side effects on above drugs

Advice on gradual resumption of activity like going to school

Parents are instructed to report further attacks to have treatment given

Give health messages to parents to parents on need of balanced diet, infection prevention, drug compliance and avoidance of overcrowding

Discharge home when the condition improves

Follow up through home visiting

**Prevention**

Give effective treatment of streptococci infection with penicillin

Improve nutrition and living condition

Child who has suffered rheumatic disease should receive antimicrobial antibiotics for ten years e.g penicillin

Give health education in the community on prevention

**Complications**

Chorea

Mitral stenosis

Cardiarc arrest

Osteomylytis

**CHOREO-ATHETOSIS**

It’s a clinical syndrome marked by purposeless irregular spasmodic movement of the body

Some children are handicapped because of continuous extremities as well as sudden jerks movement of the extremities

A queer position of the hands is typical often chore-athetosis is part of cerebral palsy, but isolated forms are also seen mainly after encephalitis and connected with rheumatic fever

**Clinical features**

Onset may be gradual or abrupt

Restlessness, insomnia, involuntary jacking movement

Movement absent during sleep

Child is nervous and clumsy

Childs drops things when carrying

Sensation is normal

Most of them recover 2-3 months of several weeks

Tendency of recurrence and danger of cardiac involvement

**Investigation**

History and physical examination

Plain skull x-ray/ skull scanning

E.E.G (electroencephalogram)

**Management**

Complete bed rest to avoid exertion of the heart to provide quiet environment

Provide bed with side rails to avoid injury

In severe cases lay patient on mattress on the floor and remove any surrounding furniture to prevent injury

NG tube feeding is done due to continuous movement

Reassure parents and the child

**Drugs**

Give diazepam to control convulsion 2-5mg i.m per body wt

Phenobarbitone 15 mg- 30mg tds daily. Give anti inflammatory for joint pains

Give antibiotics to prevent infection

Occupational therapy to assist the child if condition is improving

Discharge on improvement and encourage convalescence to gain strength/ proper coordination

Give health messages on early treatment, balanced diet, personal and environmental hygien, drug and immunization

Follow up in immunological clinic and give return date

**URINARY TRACT INFECTIONS (UTI)**

**Def**: It is the invasion of the urinary bladder, ureters, kidneys and urethra by disease causing organisms

It is more likely to occur in girls than boys because of their short urethras and increasing risk of ascending infection

Also common in any congenital abnormality of the renal tract especially if the abnormality causes obstruction of the flow of urine such as in hydronephrosis where the obstruction may be due to congenital urethra valves, which occur in infant boys or in chronic unrecognized phimosis

May also occur where there is paralysis of bladder as in spinal injury with paraplegia or a congenital meningocele

**Causes**

Escherichia coli

Streptococcal fecalis

Injury to the urethra by inserting foreign body

**Pathophysiology**

The infection may mainly affect the lower urinary tract i.e the urethra and bladder especially in girls when it is usually due to organisms ascending from vulva. A lower urinary tract infection can spread upward into the ureters and kidneys if not treated properly. There is some reflow of urine back into the ureters when the bladder empties. This condition can may be spread by the blood stream to the kidneys and mainly on upper tract infection

**Signs and symptoms**

Painful micturation (dysuria)

Scanty urine that tests acidic

Fever above 390C

Rigors

Colicky abdominal pain

Pulling the stomach inwards

Irritability

Vomiting and diarrhea

Pale

Dehydration

Frequently desire to pass urine

**Diagnosis**

History taking

Urinalysis

Physical examination

Urine for C/S

**Management**

Admit to ensure total bed rest

Rehydrate the patient as you maintain input output chart

Give antibiotics as per C/S results

Ensure daily urinalysis for protenuria

Advice on complications like nephritis and kidney failure

Give antipyretics

**Complications**

Renal failure

Nephritis

Urine incontinence

Urethral strictures

Infertility if prolonged

**Prevention**

Health education on general hygiene

Early diagnosis and treatment of other systemic infections

Avoid sharing basins and towels with children

If they are on catheter it should be well taken care of not to block

Avoid prolonged use of antibiotics

**ACUTE GLOMERULANEPHRITIS**

**Def**: This is a bacterial infection affecting the kideney glomerular causing inflammation and loss of kidney function

**Pathophysiology**

Acute glonulonephritis occurs about two weeks after streptococcal infection of throat or skin. Toxic substances produced by beta-hemolytic streptococci damage the glomeruli and cause an inflammatory reaction.

Glomerular function is affected : little urine is produced (oliguria), mixed with red blood cells (hematuria) and protein from leaking and inflamed glomerular capillaries. Edema results since the child continues with fluid intake with little excretion through urine.

Structural damage of the kidney also results in high blood pressure (renal hypertension). This is due to release of blood pressure increasing substances from the damaged kidney parenchyma and retention of sodium.

**Clinical features**

Edema of the face

Oliguria, flank hematuria looking like smoky red-brown tamarind juice characteristic cellular casts and some protein in the urine

Nausea, vomiting, raised blood urea

Headache, high blood pressure i.e over 140/90mmhg should be treated

**Management**

Give oral penicillin for ten days

Child should be referred to hospital

Ensure bed rest during acute stage

Child should resume normal exercise only after urine is completely normal

If pressure is high, the child should be transferred to hospital immediately with phenobarbitone 5mg/kg/day

Antihypertensive therapy has to be started in the hospital which include: frusemide 1mg/kg 2-3 time daily orally and if not enough reserphine 0.05-0.07 mg/kg 6-12 hourly .

**Complications**

Cardiac failure, related both to hypertension and retention of water

Convulsions, cerebral hemorrhage, related to high blood pressure

Acute renal failure: uremic coma

**Prevention**

Every streptococcal infection of the skin should be treated thoroughly with penicillin.

**NEPHROTIC SYNDROME**

**Def**: it is a condition characterized by edema and protenuria and low plasma protein level OR any condition in which protenuria is severe enough to lower osmotic pressure and sufficient enough to cause edema

It may not be combined with signs and symptoms of chronic glomerulonephritis

When nephritic symptoms are combine with glomerulonephritis in children or pure nephritic syndrome has no blood cells in the urine or high blood pressure

**Signs and symptoms**

Edema (ascitis)

Loss of plasma albumin

High blood cholesterol levels

Severe protenuria which lowers plasma asmotic pressure to cause edema

Muscle wasting

Small volume of urine production

**Predisposing factors**

Infection

Renal vein thrombosis

Cosmetics e.g mercury

In adequate treatment of glomerulonephritis

**Pathophysiology**

The basic defect is leakage of protein through the wall of the glomerular capillaries into the urine. Low plasma- protein levels result. As one of the main functions of plasma proteins is to keep fluid in blood vessels (colloid osmotic pressure), failure to do this results in edema since gammaglobulins also are leaking away in the urine thus increasing susceptibility to infection.

**Investigations**

Plasma levels and albumin

Urinalysis

UECs

Weight monitoring

Blood cell count

**Management**

Admit the patient to ensure bed rest

Give high protein diet

Do steroid therapy to control inflammation 10mg twice for two weeks

Give vitamin K supplements

Ensure proper hygiene to prevent infection

Maintain input output chart

Give low salt diet to counteract heavy protein loss and fluid retension

**Complications**

Protein calorie malnutrition

Acute renal failure

Thrombosis due to blood clotting into the veins

Anemia

Infection due to reduced immunity

**MENINGOCOCCAL MENIGITIS**

**Def**: It is the inflammation of the meninges i.e the three membranes that cover the brain

Dura matter

Arachnoid matter

Pia matter

**Pathophysiology**

The neisseria meningitis enter blood stream and cause inflammatory reactions in the meningitis and underlying cortex. This leads to reduced blood supply. The cerebral tissue is metabolically impaired leading to meningeal exudates and cerebral edema.

The purulent exudates may spread to the base of brain. The same bacteria cause ulceration of the intracranial tissues hence cerebral edema or increased intracranial pressure

**Causes**

Bacteria less commonly by tubercle bacilli

Viruses

Fungi or parasites especially in immunosuppressed children

H influenza in older children

E coli in infants

Neisseria meningitidis

**Signs and symptoms**

Stiff neck and back

Positive kerning sign

Head is retracted backward, bulging fontanel and headache

Slow pulse and convulsions

Lethargy and fever

Fever that can lead to shock

Drowsiness, vomiting and irritability

Increased intracranial pressure

**Investigations**

Lumbar puncture (CSF for C/S)

CSF is purulent/cloudy

Test for protein levels

**Management**

Admit in a warm quiet room

Give medication as prescribed so that they can penetrate the blood brain barrier

Give high dose of CAF and x-pen for 14days

Give phenobarbitone to stop convulsions

Avoid sedation because it suppresses brain activities e.g respiration centre

Observe the vital signs two hourly and then four hourly

Observe for projectile vomiting

If the child is having meningococcal meningitis, the family members should get prophylactic treatment

**Complications**

Brain damage

Epilepsy

Deafness

Blindness

Mental retardation

Hydrocephalus

Subdural effusion

Meningoencephalitis

Paralysis

**Prevention**

Early treatment of URTI

Immunization

Prophylactic treatment of those who ever came into contact with meningitis patient

Isolation of the patient

Avoid overcrowded areas

**NEONATAL TETANUS**

**Def**: Is a neuromascular disease caused by neurotoxins produced by clostridium tetany

A drum stick shaped anaerobic spore forming bacteria

This is acquired during post delivery

Post delivery is during handling the cord

**Pathophysiology**

Tetanus bacteria gain entrance to the newborns through the stump of an umbilical cord that has been cut with an unsterile instrument or treated in an unclean manner. Tetanus bacteria can only grow in anaerobic conditions. These are often present in an unclean crusted period of (3-10 days) ,reaches the nerve cells and gives rise to the typical tetanus spasms.

**Diagnosis**

From clinical features

Take history

Pus swab for C&S

**Clinical features**

Difficulty in breathing due to spasms of jaws

Stiffness is followed by difficulty in opening the mouth

Rigidity of facial muscles/ spasms of facial muscles

Producing a x-tic smile (sadonicus) false smile

Stiffness of the neck muscles, stiffness and rigidity of back i.e opisthotonus

Fever about 400c and above

Severe continuous convulsions and clenching of jaws

Difficulty breathing due to laryngospasm

Cyanosis spasms stimulated by slight noise

Spinal cord may be infected

Painful muscle spasms

**Management**

Bed rest – admit patient in a quiet dark room.

Give valium as sedative 2.5-5mg slowly to control convulsion

Paraldehyde 0.2-0.5 mls/kg body weight IM Qid

Antitetanus serum 10000 units i.m/i.v effective against circulating tetanus toxins

Give procaine penicillin fortified with X-pen 200000 units Qid for seven days

Observe improvement of spasms, convulsions if present. Reduce sedative and maintain clear airway by putting pad spatula to prevent child from biting the tongue and lips

Position in semi prone position to maintain airway

Suction to clear airway, administer O2

Nurse the child in a dark room or no noise at all

Avoid people or visitors who may stimulate spasms

Observe spasms, record duration and efficiency of convulsions

Maintain hydration via NGT and IV infusion

Maintain fluid balance chart

Clean the infected cord/wound with antiseptic solution and dress with sterile gauze daily or twice depending on severity

Maintain hygiene, bath child, change linen and tepid sponge due to fever

Reassure the parents and child

When condition improves discharge them through medical clinic and give health education on immunization/importance of hospital delivery

**Prevention**

Give education to individuals or community

Encourage on hospital delivery

Administer tetanus vaccine to pregnant mother in antenatal clinic

Active immunization with tetanus toxoid as per the schedule

Children are immunized before one year using triple vaccine then wounds contaminated with such should be properly cleaned and necrotic tissue

**MALNUTRITION**

Def: This is deficiency of protein or one or more of the other essential nutrients OR Lack of sufficient amount of nutrients to enable the body grow and function normally

These shortages give rise to a group of diseases called PEM (protein energy malnutrition)

They include:

Underweight

Marasmus

Kwashiorkor

Marasmic kwashiorkor

**Under nutrition**

There is not enough food (calories or joules) thus causing starvation in adults or murusmus in children

Predisposing factors

Inadequate food to eat in families

Severe diseases of digestive tract, preventing absorption of nutrients as in mal-absorption syndrome and cancer of the esophagus

Conditions which prevents normal metabolism of nutrients by the tissue e.g chronic or hepatic failure

**Pathophysiology**

In starving people the injection of unsuitable foods often causes intestinal hurry

Diseases of liver or GIT may interfere with the utilization of the ingested foods

**Clinical features**

Loss of weight

General malaise

Basal metabolism is reduced

Failure to thrive

Muscles are wasted

Patient becomes thin and the skin is thin

The air becomes dull and dry and inflexible

The eyes are dull and sunken due to wasting of orbital tissue may give them unusual prominence

The heart is reduced and bradycardia

Atrophy of the small intestines may be present and severe therefore inability to digest and absorb nutrients hence great care should be given during feeding

In severe cases there is diarrhea and causes disturbances in water and electrolyte balance

Nocturnal polyuria

Chronic anemia

Mental restlessness

Irritability

Postural hypotension

**Management**

Try to uncover the real primary cause

History taking from the mother by encouraging whether the child has been suffering from a certain diseases and if they have been feeding well

Also enquire whether the mother is always busy due to the type of work (occupation). Also enquire whether the breast milk is enough for the child

Do a follow up through MCH

Weigh the child at each visit and observe weight curve slope. If there is no catch up or if weight stays the same or it is lost refer the child for investigation or treatment

Carry out comprehensive immunization

**If in ward**

If in the ward, management should involve a pediatrician and a nutritionist

Start the child on prescribed medicine immediately

Give fluid if there is diarrhea

Put the child on balanced diet as directed by nutritionist

Monitor weight on alternate days

Maintain fluid intake and output chart

Put the child in warm well ventilated room to avoid cyanosis

Reassure the mother and advice on right exercises

Give health messages on nutrition

Treat pressure area

Maintain hygiene

**Complications**

Chronic anemia due to reduction in RBC population

Retarded growth

Infection

Bronchopneumonia

**Preventive measures**

Give balanced diet

Proper immunization

**Obesity**

Def: condition in which there is excessive amount of body fat

Causes

Not yet known but there are associated factors

Overfeeding

Inheritance

Physical inactivities

Drugs e.g steroids and insulin because they increase appetite

Pathophysiology

Excess fat accumulates because there is imbalance between energy intake and expenditure

Signs and symptoms

Body weight is 120% of the recommended for height, age and sex of the child

Skin folds thickness over triceps muscles

Management

Try to uncover the underlying cause by following history if drugs stop them

Put the child on strict diet –stop energy giving foods, give low fat diet

Ensure daily weighing to monitor reduction or gain in weight

Encourage on slight exercise

Complications

Cardiovascular diseases, ischemia heart disease, varicose veins

Hernia

Osteomelitis

DM type two

Prevention

Well balanced diet

Encourage on exercise

**Marasmus**

Nutritional disorder caused by deficiency of both protein and carbohydrates characterized by severe emaciation due to breakdown of muscles and fat

**Causes**

Early weaning

Lack of enough breast milk

When bad feeding is introduced

When inadequate food is given

Infection

**Predisposing factors**

Early and abrupt weaning

Dirty artificial feeding

Natural calamities

Lack of enough food may be due to poverty

Prematurity (GIT not well developed leading to malabsorption)

Repeated infections especially of GIT

Anorexia

Poor feeding

**Pathophysiology**

Due to lack of proteins and carbohydrates in the body the muscles of less active parts are depleted or broken down in order to maintain body functioning.

**Signs and symptoms**

Retardation of growth and reduction of weight

Wasting of subcutaneous muscles and fat therefore giving the infant an old person appearance

Watery diarrhea or semisolid acid stools

Distended abdomen with gas

Dehydration

Skin is thin wrinkled and appears to be too large for the body it covers

Usually very hungry

No edema but has pressure sores

**Management**

Admit the patient

Take social and family history

To find out more real causes particularly more about meals given and appetite

Careful physical examination and should be thorough

Give treatment as prescribed and as advised by nutritionist

Give a strict diet rich in proteins and carbohydrates

Give intravenous fluids and advice the mother to breastfeed the child frequently

Take weight and record

Check for any other infections

Give mother health education

Do follow up

Take urine for urinalysis to check for protein’s in the urine to rule out nephritis

Check HB

Advice mother on FP, proper diet

When stable discharge home the child with hematinics

**Complications**

Growth retardation

Delayed milestones

Severe liver damage

Infection

Mental retardation

**Prevention**

Proper breast feeding

Effective weaning and maintenance of hygiene

Avoid prolonged breastfeeding without supplements

Advice mothers on immunization

Early diagnosis and treatment of warm infestation

**Kwashiorkor**

It is a nutritional disorder caused by protein deficiency. It occurs in infants and children

**Causes**

Lack of protein in the diet during weaning

Prolonged breastfeeding if the child is weaned into a family diet which is low in protein

Taboos

Serious drought and crop failure

Predisposing

Gastro enteritis

Measles

Norms

Customary diet

Early weaning with in adequate protein meals

Ignorance

Poverty

Infection especially GIT

**Pathophysiology**

The insufficient supply of amino acids leads to inadequate protein synthesis which impairs tissue development of organs and reduces synthesis of enzymes and plasma proteins

**Signs and symptoms**

Failure to thrive

Local edema (pitting edema)

Ascitis and pleural effusion

Muscle and fat are wasted

Miserable look

Extra large belly (distended abdomen)

Fine air can be brown, reddish grey

Angular stomatitis and smooth tongue

Ulceration around the anus

Anorexia and vomiting

Diarrhea and anemia

Skin has black pigmented patches

**Management**

Admit patient

Take history

Nutritionist and pediatrician involved in care

Give medications as prescribed

Advice on nutrition as advised by nutritionist (protein and calorie rich diet 3-5g/kg/day and calorie 120-180 kg/day)

Take and record weight

If there is diarrhea treat symptomatically

If the skin is affected give vitamin A

Give the mother health messages

**Complications**

Respiratory infections

Viral infections

Anemia

Severe liver damage

**Prevention**

Educate on nutrition i.e proper diet rich in proteins

Immunization against measles and TB

**CONGENITAL MALGNANCIES**

**Burkitt’s lymphoma**

**Def** : It’s a neoplastic proliferation of B-lymphocytes that give rise to solid tumor

It affects the mandible and maxillar bones

Occurs mostly in children between 4-8 years

**Signs**

Bone deformity

Loosening teeth

Extrution of the yes

Loss of sight

Paraplegia if the spinal cord is involved

Dull abdominal pain

It may spread to the abdomen

Management

Responds to chemotherapy and radiotherapy

Surgery is not indicated because tumor is of blood origin

**Wilms tumor (nephroblastoma)**

It is a malignant tumor of the kidney common in children below seven years but detected at three years

**Signs**

Painless hematuria

Abdominal mass

Anorexia

Hypertension

General body weakness

Pyrexia of unknown origin

Vericocele (renal vein if inflated and blocks the entry of blood)

**Diagnosis**

Clinical manifestations

Abdominal X-ray

CT scan, MRI and IVP

**Management**

Chemotherapy can be used

Radiotherapy

Nephrectomy

Surgery not indicated if there is metastasis

**PEDIATRIC HIV**

**Def**: HIV is an infection caused by the human immunodeficiency virus

**Methods of transmission**

Vertical transmission - mother to child before and around the time of birth or during breastfeeding

Blood transfusion – when a child receives blood from infected person

Sexual intercourse- children can be infected through sexual abuse.

Contaminated needles- can be spread through poor standards in the health facilities

**Signs and symptoms**

General ill health

Poor feeding

Fever

Diarrhea

Weight loss

Persistently enlarged lymph nodes

Oral thrush

Recurrent infection

**Management**

Give NVP as per the body weight

Advice parents on feeding options

This include b/feeding and alternative feeding

Correct dehydration if any

Treat opportunistic infections like oral thrush

Do routine immunization

Ensure proper nutrition

Ensure good hygiene to prevent skin breakdown

Feed via NG tube if oral thrush can’t allow oral feeding in later stages

Do counseling to the family members

**Prevention**

Careful disposal of sharps

Safe disposal of all contaminated waste

Covering up cuts grazes and inflammations on the hands

Proper cleaning of work surfaces

Use gloves when touching body fluids: blood, CSF, wound fluid, vaginal and seminal secretions

**PEDIATRIC EMRGENCIES**

**Poisoning**

**Kerosene (paraffin) poisoning**

**Clinical features**

The main danger lies in aspiration into the lungs causing bronchopneumonia and for this reason, vomiting is dangerous and should never be induced

Kerosene can also cause acute pulmonary edema

Another immediate effect may be due to narcotic effect of kerosene

Bloody diarrhea

**Management**

Do not induce vomiting and do not was out the stomach (gastric lavage).

Give milk or magnesium as laxative to neutralize kerosene acidity

Start pneumonia treatment immediately since is a common complication

Give intravenous fluids and diuretics

Never forget ABCD and monitor vital signs closely

**Insecticide poisoning**

Contact with these poisons causes tremors of the muscles, sweating, copious, secretion of saliva and pinpoint pupils and in later stages convulsions, coma or paralysis

The pinpoint can help you make a diagnosis and guide you in the treatment

This consists of first washing the child with soap and water if there has been skin exposure, then giving very large doses of atropine IM – in children under five years 0.5mg and in older children 1mg atropine sulphate I.M every 15-30 min, until the pupil become wide (atropinized)

NB: These dangerous high doses of atropine are indicated only in a serious case of confirmed insecticide poisoning

**Other common poisons**

Common are accidental ingestion of asprin, iron tablets, chloroquine, antihistamines

As a general rule, vomiting should be induced (except kerosene poisoning and in poisons that born the mouth such as acid and alkaloids by placing a spatula at the back of the child’s throat

A useful drug to make a child vomit is syrup. Give 15mls of syrup in one cup of water.

**Prevention**

All drugs should be kept out of children, preferably in a locked cupboard and clearly labeled

Kerosene should be kept high up the shelf where children cannot reach it or better still locked up

Shops should sale kerosene in bottles that are clearly labeled as containing kerosene

Health education is needed to teach parents of the risks of poisoning

**Alcohol poisoning**

**Signs and symptoms**

Staggering, incoherent speech, judgment and behavior are poor

Smell of alcohol, may be aggressive, may go into stupor and death

Not able to control urine

Hypoglycemia

**Management**

Give sugar solution

Give fluids

Give 50% dextrose (15-20mls)

Give balanced diet

Give vitamin B complex

Normal nursing care, ABC/ reassurance

**Foreign body in cavities**

**Signs and symptoms**

Can be chocked, increased salivation, unable to swallow

Obvious swallowed objects or history

**Management**

Emergency X-ray should be done

Taken to theatre for immediate removal if deeper down

If in the throat you can give a strong blow at the back

Involve ENT specialist

**CONVULSIVE DISORDERS**

**Epilepsy, seizures and convulsions**

**Epilepsy** – is a disorder of brain cells in which their normal function and signals are interrupted by repeated bursts of irregular and abnormal activity often over lifetime

**Seizure** – a sudden attack (or fit) due to such a burst of abnormal activity of brain cells

It may be single and due to some harmful agent acting for a short time on the brain cells or recurrent as part of epileptic disorder

It may occur in different forms depending on the part of brain involved such as:

A period of strange behavior

Sudden absence or loss of consciousness, which may be momentarily as in petit mal

Local generalized jerks with or without loss of consciousness may form the aura or warning of the seizure

**Causes of acute convulsions**

A high fever if :

-Convulsions lasted for less than 10min

-No residual paralysis was detected afterward

-Is in a child 6months to six years

-There is normal CSF

Cerebral malaria test and lumber puncture should be performed in any doubtful cause

Meningitis, encephalitis and brain abscess

Other direct anatomical damage to the brain tissue tumor bleeding head injury

Functional disturbances of the brain can cause convulsions e.g asphyxia and hypoglycemeia

**Clinical features**

**Tonic clonic**

There is abrupt onset

The child loses consciousness and falls on the ground

The eye rolls and appears vacant and staring

All muscles become rigid, stopping normal respiration and so making the child cyanosed

Both urine and faces may be passed

It may last for about half a minute

**Clonic phase**

Next follows a stage of violent, rapid, jerky movements of the limbs and neck

Sometimes only one side of the body is involved

The child begins to breathe again

After a shorter or longer time, often only after treatment, the jerking stops

**Phase of deep sleep**

**Investigations**

X-ray head

CT scan

MRI

EEG

Management

Acute convulsions

Anticonvulsants

Paraldehyde 0.15 ml/kg IM, is necessary, repeated after 15 min or phenorbarbitone loading dose of 10-15 mg/kg IM or IV if not faster than 1mg/kg/min

OR

Diazepam 2mg under one year, 5mg up-to three years, 10 mg in older children, preferably slowly IV, otherwise rectally. Given rectally if available because is the drug of choice

After the seizure has subsided give phenobarbitone 5mg daily in one to two doses for three days

**General management**

During convulsion, the child should be kept on side to prevent a convulsion from aspirating vomitus and to keep the airway clear

Give oxygen if available and artificial respiration if there is prolonged apnea

Convulsive movements should not be restricted to avoid more stimulation of the nerves. A padded spoon or tongue depressor can be placed between to prevent him biting his tongue

Prevent the child from injuring himself if the child has seizure with high fever, he should be exposed

It is very important to make sure that the child does not remain anoxic with the risk of resulting permanent brain damage

Make sure the airway is clear; stop the convulsion as soon as possible and give air or oxygen and artificial respiration

If normal breathing does not start immediately after the convulsion stops

**Management of epilepsy**

Children with epilepsy require continued anticonvulsant drugs usually phenobarbitone 5-8mg/kg/day

The dose is increased by 30mg every month until either the seizures are being controlled and no signs of toxicity

The objective is to control the seizures with only one drug and this is possible in many epileptic children

A few complicated cases especially brain damaged children may need more than one drug.