CONGENITAL AND ACQUIRED HEART DISEASES.

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CONGENITAL HEART DISEASES.

Factors responsible for congenital heart diseases are:
1. Prenatal factors:
   - Mothers suffering from infectious diseases: rubella.
   - Mother’s alcoholism.
   - Maternal age over 40 years.
   - Mothers suffering from diabetes mellitus who require insulin.
   - Mothers taking oxidative drugs or herbs.
2. Genetic factors:
   - Children born before suffering from CHD.
   - Father / mother suffering from CHD.
   - Chromosomal abnormalities eg Down syndrome.
   - Born with other congenital abnormalities.

CONGENITAL HEART DISEASES.

2 Types.
1. Acyanotic heart diseases.
2. Cyanotic heart diseases.

Acyanotic heart diseases.
- VSD.
- ASD.
- PDA.
- Coarctation of aorta.

Cyanotic heart diseases.
- TOF.
- TGA.
- Complex heart diseases.
Ways of presentation.

- Detection of murmur.
  - Neonatal examination.
  - SMI.
  - When visit for other illnesses.
- Heart failure.
- Cyanosis.
  - Neonatal.
  - Later

Failure to thrive.
- Recurrent respiratory tract infections.
- SABE.

Nursing Diagnosis for Congenital Heart Disease

- Risk for decreased cardiac output
- Altered Growth and Development due to inadequate oxygen and nutrients to the tissues.
- Risk for infection
- Poor physical status.
- Altered family processes due to children with heart disease.
- Risk for injury (complications) due to the heart condition and therapy.

Nursing interventions

- Deliver oxygen and prevent hypoxia
- Give afterload lowering medications as instructed.
- Give diuretic as instructed.
- Provide frequent rest periods and periods of uninterrupted sleep.
- Encourage quiet activities.
- Give a balanced diet high in nutrients, to achieve adequate growth.
- Monitor height and weight.
- Encourage the family to participate in the care process.
- Teach families to recognize the signs of complications.

Acquired heart diseases

Rheumatic heart disease

Pathophysiology: Autoimmune condition
- Triggered by Group A beta haemolytic streptococcus infection
- Auto antibodies act against heart (Pancarditis)

Diagnosis: Modified Jones criteria.

Symptoms: Fever
  - Arthralgiarditis:
  - Carditis
  - Polyarthritis
Investigation:
- Prolonged PR interval on ECG
- Increased erythrocyte sedimentation rate (ESR)
- Presence of C-reactive protein
- Leukocytosis

Complications: SABE
- Heart failure

Management:
- Short term: Eliminate streptococcal infection (oral Penicillin for 10 days)
  - High dose Aspirin to reduce inflammation
  - Bed rest
- Long term: Prophylaxis against SABE (monthly IM Benzathine penicillin)
  - Surgical correction of damaged valves
- Prevention: Reduce overcrowding.
  - Prompt treatment with antibiotics in Pharyngitis

Kawasaki disease
- Vasculitis affecting the coronary arteries
- Diagnosed by using clinical criteria:
  - a. Fever >5 days
  - b. Skin rash
  - c. Red lips and red tongue
  - d. Pedal oedema
  - e. Conjunctivitis

Complications
- Coronary artery aneurysm

Management
- IV immunoglobulin
- Asprin (initially - high dose - later low dose)

Infective endocarditis
- Infection of the endocardium
- Risk factors:
  - Neonates
  - Congenital heart lesions
  - Acquired heart lesions (valve)
  - Cardiac prostheses

Clinical features
- Persistent fever
- Changing murmurs
- Pallor
- Spleen enlargement
- Clubbing
- Arthritis

Diagnosis
- 2D echo
- Blood culture
Management

1. IV antibiotics - 6 weeks
2. Manage any complications develop
3. Prevention - when there are risk factors start on prophylaxis

Medical and Surgical problems of the Gastrointestinal tract

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Medical problems.

- Vomiting.
- Loose stool.
- GORD.
- Constipation.
- Gastritis.
- Hepatitis
- IBD

Vomiting.

Forceful ejection of stomach content through mouth is known as vomiting.

CAUSES -
- Infants: GORD
  Feeding problems.
  Infections.
  Intestinal obstruction.
  Inborn errors of metabolism.

- Pre school children: Infection.
  Appendicitis.
  Intestinal obstruction.
  Testicular torsion.
- School age and adolescents: Gastroenteritis.
  Systemic infections.
  PUD.
  Testicular torsion.

- Hx: Find out the cause
- Ex: Assess the level of dehydration
- Mx: Treat the underlying cause
  Symptomatic treatment with antiemetics and proper rehydration
  (depending on the level of dehydration, water, ORS, 0.9% NaCl)
Loose stools

**Watery diarrhoea**
- Acute gastroenteritis.
- Food poisoning.
- Systemic infections.
- IBS
- Toddlers diarrhoea.
- Acute gastroenteritis
  - Commonest cause
  - Viral - Rota virus
  - Bacterial
  - E. Coli
  - Mainly presents with severe watery diarrhoea

**Blood and mucus diarrhoea**
- Dysentery. (Shigella, e-coli)
- IBD.
- Intussusception.

**Hx:** Assess frequency, severity, associated features, complications (hydration level, electrolyte imbalance), look for a possible cause.

**Ex:** level of dehydration.

**Ix:** Serum electrolytes.
  - Stool full report.

**Mx:** Rehydration (ORS, IV fluid)
  - Antibiotics (if needed)
  - Avoid anti motility drugs.
Rehydration
Depending on the degree of dehydration
No dehydration - maintenance+ on going losses
Some dehydration - maintenance + on going deficit
Severe dehydration - maintenance + on going + deficit

GORD
- Is the involuntary passage of gastric content into the oesophagus.

CAUSES:
- Functional immaturity of LOS.
- Hiatus hernias.

Hx: Recurrent regurgitation, Vomiting.
- Heart burn.
- Recurrent chest infections.
- Neuro developmental disorders.

Ex: Adequate growth except in very severe cases.

Ix: 24 hour oesophageal pH monitoring (gold standard)
Mx: Uncomplicated - Reassurance and positioning after feeds.
Significant - Acid suppression with PPI or H2 receptor blockers.
Surgical management.

Constipation.
- Less frequent bowel opening with hard consistency.
CAUSES: Functional
- Hirschprung disease.
- Hypothyroidism.
- Anorectal abnormalities.
Precipitated by: low fluid and fiber intake.

Hx: Frequency, consistency, features of underlying cause.
Involuntary soiling, toilet habits.
Ex: Anal fissures.
Mx: life style modifications. (toilet training)
dietary advices (high fluid and fiber intake)
Laxatives.
**Gastritis.**

**CAUSES:**
- Autoimmune.
- H-pylori infection.
- Drugs (NSAID, Steroids)

▶ **Hx:** Regurgitation.
- Heart burn.
- Epigastric pain.
- Nausea, Vomitting.
- Drug history.

▶ **Ex:** Nothing significant
- look for associated factors.

▶ **Ix:** UGIE and biopsy.

▶ **Mx:**
- PPI
- H-pylori eradication therapy.

**Diaphragmatic hernia.**

▶ **Hx:** Difficulty in breathing.

▶ **Ex:**
- Respiratory distress.
- Scaphoid abdomen.
- Mediastinal shift.
- Audible bowel sounds in chest.

▶ **Ix:** Chest and abdominal x ray.

▶ **Mx:**
- Large NG tube insertion and suction to prevent distension of intrathoracic bowel.
- Surgical repair.

**Hirschsprung disease.**

▶ **Hx:** Constipation.
- Abdominal distention.
- Delayed passage of meconium.
- Bile stained vomiting (later).

▶ **Ex:** Distended abdomen.
- DRE (narrowed segment)

▶ **Ix:**
- Suction rectal biopsy.

▶ **Mx:** Surgical management.
Acquired.
Intussusception.

- Hx: Insolvable crying.
- Severe colicky pain.
- Red current jelly stool.
- Refused feeding.
- Vomiting.
- Ex: Sausage-shaped mass palpable in the abdomen.
- Abdominal distention and shock.
- Ix: USS abdomen.
- Mx: Rectal air/hydro insufflation.
  Surgical management.

Hypertrophic pyloric stenosis

Hypertrophy of the pylorus cause gastric outlet obstruction.

- **Clinical features**
  - Present during 2-7 weeks of life
  - Projectile vomiting
  - Poor weight gain
  - Visible peristalsis

- **Diagnosis**
  - US Scan of the abdomen

Management
- Stabilize the baby
- Correct hydration
- Correct electrolyte imbalances
- Surgical correction

Appendicitis.

- Hx: Abdominal pain (umbilical area RIF)
  - Vomiting
  - Fever
  - Anorexia
- Ex: Febrile
  - RIF rebound tenderness and guarding.

- Ix: USS abdomen.
  - FBC, CRP
- Mx: Appendicectomy
  - Conservative management
Intestinal obstruction.

- Ex: Distended abdomen. Exaggerated bowel sounds.
- Ix: Supine abdominal x ray. Serum Electrolytes.
- Mx: Nil by mouth. NG tube decompression. Hydration and electrolyte correction. Surgical or conservative management.

Viral hepatitis
Occur due to Hepatitis virus A, B, C, or E
Clinical features
Nausea
Vomiting
Abdominal pain
Jaundice
Dark colour urine

- Hepatitis A
  - Fecal oral route
  - Self-limiting
  Management
  - Isolate
  - Symptomatic management
  - Notification
  - Health education

Musculoskeletal system abnormalities in children
- Congenital
  - Club foot
  - Developmental dysplasia of the hip
  - Myopathies
- Acquired
  - Fractures
  - Transient synovitis
  - Septic arthritis
  - Osteomyelitis

Musculoskeletal abnormalities
- Club foot
- Developmental dysplasia of the hip
- Myopathies
- Fractures
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- Osteomyelitis
Club foot

- 2 types
  - Positional talipes
    - can be corrected to neutral position with passive manipulation
  - Talipes equinovarus
    - A complex deformity. Entire foot is inverted, supinated
    - Forefoot is adducted
    - Heel rotated inwards and plantar flexion

Diagnosis is by clinical examination
Exclude any associated hip anomalies
Examine spine to see any associated anomaly

Management:
- if positional
  - Reassurance
  - Physiotherapy
- if severe
  - POP cast
  - Surgical correction

During management
Relieve maternal anxiety is very important
If baby has a POP cast
  - Look after the cast and look after the limb with the cast is very important

Developmental dysplasia of the hip

- Spectrum of disorders of the hip joint
- Ranging from dysplasia to subluxation to frank dislocation of the hip from acetabulum

Diagnosis
Early detection is important.
Neonatal screening is performed by
  - Barlow’s manoeuvre - to check whether hip is dislocatable
  - Otolani manoeuvre - to relocate the dislocated hip into acetabulum
Confirmed by USS

Management:
- Respond to conservative management
  - Harness, Splinting to keep hip flexed and adducted
  - If not responding - corrective surgery

Fractures

- Complete or incomplete break on a bone resulting from the application of excessive force
- Commonest sites:
  - Clavicle
  - Humerus
  - Femur
  - Supracondylar fracture of the humerus
  - Forearm fractures of radius, ulna
Causes for fractures
- Birth trauma
- Shoulder dystocia
- Fallen on outstretched hand
- Direct blow on bone
- Inherited diseases of bones - osteogenesis imperfecta
- Tumours of bones

Clinical features of fractures
- Pain and swelling at the fracture site
- Tenderness close to the site
- Deformity of the affected limb
- Bleeding and bruising at the site
- Loss of pulse distal to the fracture
- Numbness, tingling or paralysis distal to the fracture site

Diagnosis
- Clinical examination
- X-ray

Management
- Pain relief
- Immobilization
- Splints
- POP casts
- Reduction
- Traction reduction
- Manipulation under anaesthesia
- Rehabilitation

Transient synovitis (irritable hip)
- Most common cause of acute hip pain
- Commonest between 2-12 years
- Follows/accompanies by a viral infection
- Sudden onset pain in hip or limp
- Limited internal rotation and reduced range of movements
- Diagnosis
- USS
- Management
- Rest
- Pain relief

Septic arthritis
- Serious infection of the joint space
- Can lead to bone destruction if not treated
- Early diagnosis is important
- Can give rise to infection of the underlying bone = Osteomyelitis
- Joint is, erythematous, warm, tender joint, reduced movements

Diagnosis
- WBC
- CRP
- BLOOD Culture
- USS
- Xrays

Management
- Pain relief
- Antibiotics - should give a prolonged course
Genito-urinary disorders in children

Ways of presentation...
- Oedema
- Reduced urine output.
- Haematuria
- Polyuria
- Hypertension
- Other urinary symptoms

Ways of assessment of urinary system
- Urine analysis
- Urine culture and ABST
- Blood investigations
  - Serum Electrolytes
  - Blood urea
  - Serum creatinine
- Blood gas
- Imaging studies
  - US Scan
  - X-Ray
  - DTPA
  - MUG
  - DMSA

Common problems seen among children
1. UTI
2. Nephrotic syndrome
3. Nephritic syndrome
4. Haematuria

UTI
- It is an infection of the urinary tract.
- Why important???
- Kidneys are growing
  - If damaged
    - CRF
    - Scarring
  - HTN
### Ways of presentation

- Depending on the age, presentation will vary
  - **Neonate/Infant**
    - Fever
    - FTT
    - Jaundice
    - Vomitting
  - **Older children**
    - Fever
    - Urinary symptoms
    - Irritability
    - Vomiting
    - Abdominal pain

### How to diagnose?

- UFR - Supportive
- Urine culture - Gold standard

**How to collect U.Culture is very important**

### Treatment

**Acute**
- Do investigations
- Short course of antibiotics - 7 to 10 days
- Post treatment culture ABST
- Long term plan will be discussed, depending on
  - Age
  - Way of presentation
  - Underlying other problems

### Nursing interventions

- Assessment
- Support investigations
- Administer medication as prescribed
- Health education (Very important)
Nephritic Syndrome

**Features**
- Oliguria
- Hypertension
- Haematuria

Following Streptococcal infection.

Ix
- UFR
- Urine culture
- Renal functions
- US scan KUB

Complications
- Acute renal failure
- Hypertensive encephalopathy
- Heart failure

Mx
- Input/Output chart
- Daily weight
- Daily urine protein test
- BP chart
- Oral Penicillin - 10 days
- Antihypertensive (if BP high)

Nursing intervention
1. Assessment - Oedema
   - BP
   - UOP
2. Supportive treatment
3. Administer medications prescribed
4. Input/Output
5. Urine ward test daily
6. Health education/Psychological support

Nephrotic syndrome
- Features
  - Gross oedema
  - Proteinuria
  - Reduced serum Albumin
  - Increased serum Cholesterol
Presentation

- Oedema
- Frothy urine

Ix

- UFR
- Serum protein
- Serum Cholesterol
- Renal functions
- Urine culture & ABST

Complications

- Hypovolemic shock
- Renal vein thrombosis
- Peritonitis
- Increased risk of other infections

Mx

**General**
- Isolate
- Input / Output
- Daily weight
- U. ward test
- BP chart

**Specific**
- O.Prednisolone
- O. Penicillin

If ascitis present

Nursing interventions

- Assessments
  - Volume status
  - Complications
- Oedema
- Odema
- Health education

- Supportive treatment
- Medications on prescribe
- Monitor the vitals/ other parameters
Acute renal failure

Pre renal

Renal

Post renal

Pre renal causes
- Hypovolaemia
  - Gastroenteritis
  - Burns
  - Sepsis
  - Haemorrhage
  - Nephrotic syndrome
- Circulatory failure

Renal causes
- Vascular
  - HUS
  - Vasculitis
  - Embolism
- Tubular
  - Acute tubular necrosis
  - Toxic
  - Obstruction
- Glomerular - Glomerulonephritis
- Interstitial nephritis

Post renal causes
- Obstruction
  - Congenital (PUV)
  - Acquired (Blocked urinary catheter)

Associated problems
- Increased Blood urea
- Increased Potassium
- Acidosis
- Dialysis
- NaHCO3

CKD
- When GFR is <15ml/min per 1.73m2
- Causes
  - Structural malformations
  - Glomerular nephritis
  - Unknown
Mx

- Nutrition
- Treat acidosis
- Treat anaemia
- Dialysis
- Transplantation

ANY QUESTIONS?

Thank you!