

The Child with a Sensory or Neurological Condition

Chapter 23

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The Ears

Newborn

- Tympanic membrane almost horizontal
- More vascular
- Inconsistent light reflex
- Eustachian tube is shorter and straighter than in adult

Eustachian tube functions

- Ventilation
- Protection
- Drainage



Otitis Externa

An acute infection of the external canal

Often referred to as *swimmer's ear*

Pain and tenderness on manipulating the pinna or tragus

Signs

Tympanic membrane is normal

Rule out the presence of a foreign body, cellulitis, diabetes mellitus, or herpes zoster

Treatment

Irrigation and topical antibiotics or antivirals



Otitis Media (Inner ear infection)

Usually occurs after URI in young children

Factors that increase risk

- Shorter, straighter, wider Eustachian tubes
- Immature immune systems
- Larger adenoids
- Exposure to second hand smoke
- Cared for in a group setting
- Lying down with bottle



Signs and Symptoms of an Ear Infection in Babies

- Tugging or pulling at an ear
- Fussiness, irritability, and crying
- Trouble sleeping
- Fever
- Fluid drainage from the ear
- Clumsiness or balance problems
- Trouble hearing or non-responsiveness to quiet sounds



Otitis Media

Surgery

Myringotomy

TM button or PE “tubes”

Can fall out spontaneously within 6-12 months

Care no longer needs to be taken to avoid getting water in the ears while tubes are in place

Evaluation of hearing and speech

Hearing Impairment

- Hearing loss can result from
 - Defects in the transmission of sound to the middle ear
 - Damage to the auditory nerve or ear structures
 - A mixed loss involving both a defect in nerve pathways and interference with sound transmission
- Behavior problems may arise because these children do not understand verbal directions.

Signs and Symptoms

- Infants
 - Lack of startle reflex
 - Failure to respond to noise
 - Absence of vocalization
 - Delayed verbal development
- Older Children
 - Speaking in monotone
 - Need for repeated conversation
 - Speaking loudly for situation

Hearing Impairment

Hearing loss can affect:

- Speech/language
- Social and emotional development
- Behavior
- Academic achievement

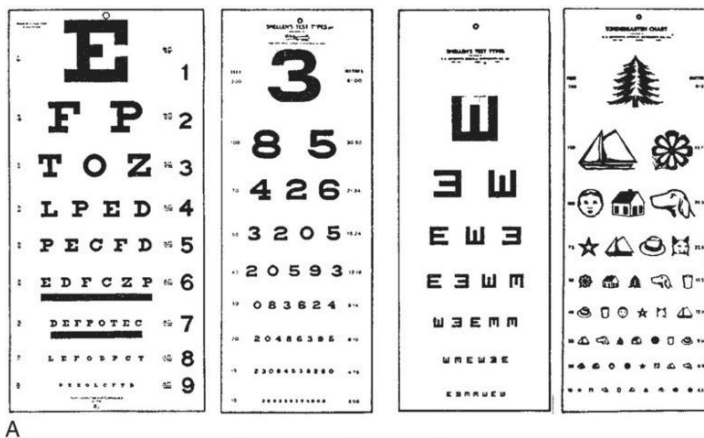


Hearing Impairment

Interventions

- Face child and speak clearly in short sentence
- Sign language
- Visual aids
- Hearing aids
- Speech therapy
- Telecommunication devices for the deaf
- Closed captioning
- Special schools/programs

Visual Acuity Tests



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Amblyopia ("lazy eye")



Reduction or loss of vision that usually occurs in children who strongly favor one eye

Treatment

Glasses, opaque contact lens, or patching the good eye

Forces the weaker eye to be used

Strabismus (cross eye)

Signs/symptoms

Squinting
Reaching and missing objects
Covering of one eye
Tilting head
dizziness

Esotropia



Exotropia



Treatment

- Patching: good eye
- Glasses
- Surgery

Conjunctivitis (pink eye)

- Signs/Symptoms
 - Itchy eye
 - Crusting of eyelids
 - Swollen
 - Pink conjunctiva
 - Drainage
- **Very Contagious**
- Treatment
 - Warm compresses
 - Topical antibiotics (drops/ointment)
 - Instruct to wipe secretions from the inner canthus downward and away from the opposite eye



Hyphema

Presence of blood in the anterior chamber of the eye

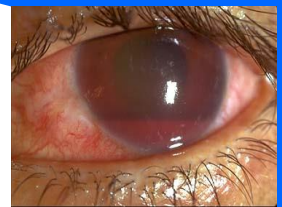
One of the most common ocular injuries

Appears as a bright-red or dark-red spot in front of the lower portion of the iris

Treatment

Bedrest with HOB elevated 30 to 45 degrees decreases intraocular pressure and intracranial pressure if there is an associated head injury.

Topical medications may also be prescribed.



Retinoblastoma

A malignant tumor of the retina

Manifestations

- Yellowish white reflex is seen in the pupil because of a tumor behind the lens
- Called the cat's eye reflex
- May be accompanied by loss of vision, strabismus, hyphema, and in advanced tumors, pain

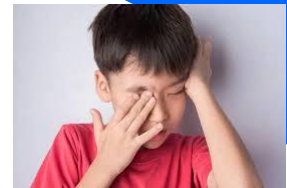
Treatment

- Enucleation
- Laser photocoagulation
- Chemotherapy
- Radiation



Reye Syndrome

- Primary affects the liver and brain
- Cause is not understood
- Potential association between aspirin (salicylate) products for treating fever caused by viral infections (influenza or varicella) and Reye syndrome



Reye's Syndrome

Signs/symptoms

Toxic levels of ammonia in the blood

Altered behavior

Bleeding

LOC

ICP

Seizures

Coma

• Treatment

- Prevention**
- Vital signs
- Neuro checks
- Monitor of s/s bleeding

Avoid all Aspirin products during any viral illness

Sepsis

Systemic response to infection with bacteria; also results from viral or fungal infections

Signs/symptoms

Fever

Chills

Tachypnea

Tachycardia/initial increase in BP

Neurological changes

Ominous Sign - Hypotension

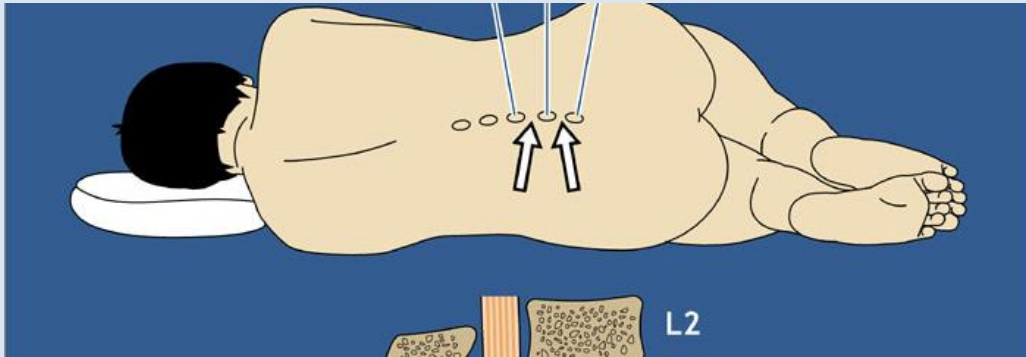


Meningitis

- Inflammation of the meninges or the lining that covers the brain and spinal cord
- Caused by a bacteria, virus, or fungal infection
- Rare in the immune competent person
- Hib is the most common cause

Meningitis

- Signs/symptoms
 - HA/Photophobia
 - LOC
 - Fever/vomiting
 - Nuchal rigidity
 - Convulsions
 - High-pitched cry
- Treatment
 - Diagnosed – LP
 - Isolation-Droplet
 - IV Fluids
 - VS/neuro checks
 - Monitor ICP
 - Prevent seizures
 - Seizure precautions
 - Antibiotics
 - Dimly lit room
 - Assess for petechiae
 - Notify MD



Encephalitis

Inflammation of the brain

Also known as *encephalomyelitis* when the spinal cord is also infected

Symptoms result from the CNS's response to irritation

Headache followed by drowsiness

May proceed to coma

Convulsions are seen, especially in infants

Fever, cramps, abdominal pain, vomiting, nuchal rigidity, delirium, muscle twitching, abnormal eye movements

Treatment

Sedation

Antipyretics

IV Fluids

Seizure precautions

Neuro checks



Brain Tumors



- Second most common type of neoplasm in children
- Most occur in lower part of the brain and commonly in school-age children
- Signs and symptoms directly related to location and size of tumor
 - ICP
 - HA/vomiting
 - Drowsiness/LOC
 - Seizures
 - Nystagmus
 - Papilledema
- Diagnosis is made by clinical presentation, laboratory tests, head CT or MRI, EEG
- Surgical intervention in some cases; chemotherapy and/or radiation therapy in others

Seizure Disorders

A sudden, intermittent episodes of altered consciousness that lasts seconds to minutes

- Febrile
- Epilepsy

Classified as

Generalized

Tonic-clonic or grand mal

- Three distinct phases

Partial

Simple or Jacksonian

Complex

Types of Epilepsy

Generalized

Loss of consciousness

Two Types

Grand mal – tonic-clonic

3 distinct phases

- Aura: cry and then a fall
- Tonic-clonic: muscle jerking, irregular breathing, possible incontinence
- Postictal lethargy: short period of sleep then returns to full consciousness

Petit mal or Absence

- Temporary loss of awareness
- Blank stare

Partial

Consciousness intact or slightly impaired

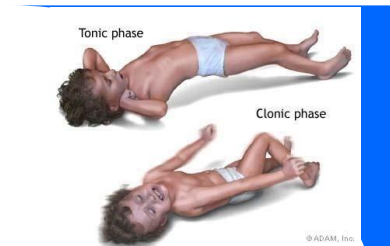
Two Types

Simple

- Jerking or tics may begin in one area of the body
- May proceed to another area of the body

Complex

- Involves motor, sensory, and behavioral activity
- Usually starts with a blank stare followed by chewing then random activity



25

Epilepsy

- Determine type, site, or cause
- Multiple diagnostic techniques can be used
 - CT/MRI, EEG
 - Laboratory tests to rule out poisoning or electrolyte abnormalities
- Drug of choice depends on the type of seizure.
- Treatment
 - Anticonvulsant medications-Must be given the same time each day
- Diet changes may be needed for patients who do not respond well to anticonvulsants.
 - Ketogenic diet
- Surgery

Epilepsy

Nursing care

- Record activity
- Body movement
- Change in color
- Respiratory status
- Muscle tone
- Incontinence
- Move objects out of child's immediate area
- Never stick objects in child's mouth

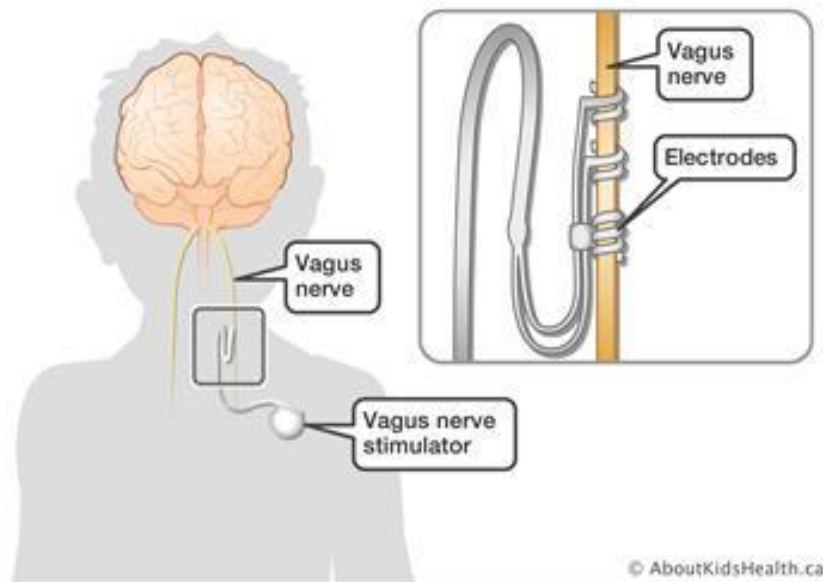
Post Seizure Care

- Maintain side-lying position
- Check VS
- Check for injuries
- Perform neurologic checks
- Reorient and calm child
- Institute seizure precautions
- Question the child about any symptoms before, during, or after
- Document findings

Status Epilepticus

Prolonged seizure occurring over a 30 minute time frame. This can cause decreased oxygen levels, inability of the brain to return to normal functioning, and continued assault of neuronal tissue.

- Nursing Action
 - Call for assistance
 - Maintain an airway, provide O2, and monitor SPO2
 - Assist with emergency care as appropriate



[VNS](#)

Cerebral Palsy

- Group of motor disorders
- Non-progressive
- Causes – multiple
- Diagnostic testing
- Four types
 - Most common
 - Spastic: Movement of voluntary muscles result in jerky motions
 - Athetoid: Involuntary purposeless movements that interfere with normal motions

Cerebral Palsy

Signs/Symptoms

- Mild to severe
- MR
- Feeding difficulties
- Convulsions
- Developmental delays

Goal is to maximize the capabilities of the child

Treatment

- Early intervention
- Medications
- Prevention of contractures
- Speech therapy
- Promote skin integrity
- Appropriate mobility devices
- Surgery



Cognitive/Intellectual Impairment (Mental Retardation)

Cognitive

Elements involved in mental functioning

- Level of consciousness
- Thought processes
- Expressive language

Causes

- Perinatal/Neonatal period
 - PKU
 - Fetal alcohol syndrome
 - Down's syndrome
 - Maternal infections
 - Birth injuries
 - Hereditary
- After delivery
 - Meningitis
 - Lead poisoning
 - Neoplasms
 - Environment

Intellectual

Limitations in at least two of the following

- Communication
- Self-care
- Home living
- Social skills
- Community use
- Self-direction
- Health and safety
- Functional academics
- Leisure
- Work

Approach to the Intellectually Impaired Child

- Teach parents to provide experiences that the child can be successful in.
- Concentrate on strengths, not weaknesses.
- Constant failure can cause child to become angry, which can cloud the problem and interfere with successful therapy.
- Play should be adjusted to mental age rather than chronological age.



Head Injuries

- Concussion
 - LOC
 - Memory loss
- Type of injury
 - Mild
 - Severe



- Nursing Care
 - Establish baseline assessment
 - Neuro checks
 - Glasgow Coma Scale
 - Vital signs
 - Monitoring of ICP – incr BP, decr pulse, respirations, temperature
 - Motor activity
 - Posturing – Decorticate & Decerebrate
 - Presence of asymmetrical pupils is a medical emergency