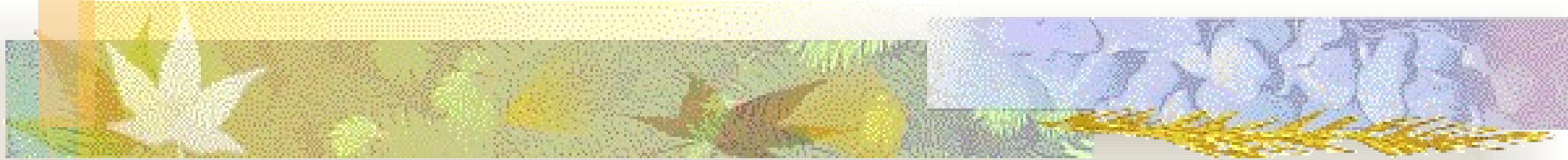


Diseases of the Nervous System





Meningitis

- Haemophilus influenzae meningitis:
 - leading cause of bacterial meningitis in children under 5 years of age. It occurs most frequently in children from 1 month up to 4 years with a peak at 6 to 9 months.
 - The infection usually spreads from somewhere in the respiratory tract to the bloodstream and then to the meninges (the membranes that cover the brain). At the meninges, the bacteria produce infection and inflammation causing serious illness and sometimes death



■ Symptoms

- Irritability, poor feeding in infants
- Fever (in young infants the temperature may actually be below normal)
- Severe headache (older children)
- Nausea and vomiting
- Stiff neck or pain in neck when flexed
- Pain in back when neck is flexed forward and chin brought toward chest (older children)
- Unusual body posturing
- Photophobia



■ **Complications**

- Roughly 20% of patients may experience some hearing loss.
- Some patients will have brain damage, which can include seizures, mental retardation, hydrocephalus ("water on the brain"), learning disorders, abnormalities in speech and language development, and behavioral problems

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- Meningococcal Meningitis:
 - infection caused by the bacterium *Neisseria meningitidis* that causes inflammation of the membranes covering the brain and spinal cord.
 - The death rate ranges from 5% to 15%, with young children and adults over 50 having the highest risk of death.

■ Symptoms:

- Rash, pinpoint red spots (petechiae)

■ Complications :

- Brain damage
- Shock
- Increased spinal fluid pressure
- Myocarditis (inflammation of the heart)
- Hydrocephalitis (blockage of spinal fluid in brain)
- Deafness
- Paralysis of various muscles
- Mental retardation





Polio

■ Symptoms

- There are three basic patterns of polio infection: subclinical infections, nonparalytic, and paralytic.
- Most (95%) are subclinical infections, which may go unnoticed.
- Clinical poliomyelitis affects the central nervous system (brain and spinal cord) and is divided into nonparalytic and paralytic forms.
- It may occur after recovery from a subclinical infection.

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- **SUBCLINICAL INFECTION:** no symptoms, or symptoms lasting 72 hours or less
 - Slight fever
 - headache
 - general discomfort or uneasiness (malaise)
 - Sore throat
 - red throat
 - vomiting

■ NONPARALYTIC POLIOMYELITIS

- symptoms last 1 to 2 weeks
- Moderate fever
- headache
- Stiff neck
- vomiting
- diarrhea
- Excessive tiredness, fatigue
- irritability
- pain or stiffness of the back, arms, legs, abdomen
- muscle tenderness and spasm in any area of the body
- Neck pain
- pain front part of neck
- Neck stiffness
- Back pain or backache
- Leg pain (calf muscles)
- Skin rash or lesion with pain
- muscle stiffness



■ PARALYTIC POLIOMYELITIS

- fever, occurring 5 to 7 days before other symptoms
- headache
- stiff neck and back
- Muscle weakness, asymmetrical
- Abnormal sensations (but not loss of sensation) of an area
- sensitivity to touch, mild touch may be painful
- Difficulty beginning to urinate
- constipation
- Bloated feeling of abdomen
- Swallowing difficulty
- Muscle pain
- Muscle contractions or muscle spasms, particularly in the calf, neck, or back
- drooling
- Breathing difficulty
- irritability or poor temper control
- positive Babinski's reflex

■ Treatment

- The goal of treatment is to control symptoms while the infection runs its course.





Rabies: fatal encephalitis

- Caused by rabies virus
- Contracted through bite of infected animal
 - Bats, dogs, cats, rabbits, raccoons,
- Once virus enters nerves it is not accessible to immune system until destroys CNS cells



■ Symptoms:

- Preliminary symp. Are mild and varied
 - Resemble many other infections
- When CNS becomes involved person alternates between agitation and calm
- Muscle spasms of mouth and pharynx

■ 2 forms of rabies:

- **Furious rabies:** restless, then become excitable and snap at anything
 - Humans will sometimes bite too
- Paralysis sets in and flow of saliva increases
- Nervous control is progressively lost
- **Paralytic rabies:** only minimal excitability
- Animal or person remains relatively quiet and unaware of surroundings
- A form of paralysis that is transient but sometimes fatal

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- Treatment: injections or immunoglobulin and antirabies vaccine

■ Cryptococcus Meningitis:

- A rare fungal infection caused by inhaling the fungus, *Cryptococcus neoformans*





■ Symptoms

- Chest pain
- Dry cough
- Headache
- nausea
- confusion
- Blurred vision or double vision (diplopia)
- Fatigue
- Fever
- Unusual and excessive sweating at night
- Glands, swollen WITHOUT nearby areas appearing infected (e.g., red, painful, swollen)
- Prolonged bleeding, bruising easily

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- Skin rash may be present
 - Skin rash or lesion pinpointed rash (petechiae)
 - Bleeding into the skin
 - Bruises
 - Unintentional weight loss
 - Appetite, loss
 - Abdominal fullness prematurely after meals
 - Abdominal pain
 - Abdomen, swollen
 - Weakness
 - Bone pain or tenderness of the breastbone (sternum)
 - Numbness and tingling
 - Nerve pain or pain along the path of a specific nerve
 - Pain along a nerve root (major pathway from the spinal cord)



■ Treatment

- Some infections require no treatment. However, medical observation should continue for a year to detect any progression of the disease. If pulmonary lesions are present or the disease spreads, antifungal medications are prescribed, and treatment with these agents may be prolonged.

Medications include:

- Amphotericin B
- Flucytosine
- Fluconazole