

# Poliomyelitis



# INTRODUCTION

Poliomyelitis often called Polio or infantile paralysis is an acute, viral, infectious disease spread from person to person, primarily via the fecal -oral route. The term "Poliomyelitis" derives from the ancient Greek word Polio's means "grey" and myelos meaning "marrow" referring to the grey matter of the spinal cord.



# DEFINITION

Poliomyelitis which often called polio or infantile paralysis, is a highly infectious viral disease, which mainly affects young children under 5 years of age



# INCIDENCE

The estimated annual incidence of the disease is thus 18.6 per 100 000 of the general population, or approximately 1088 cases each year, with an estimated 163 deaths.



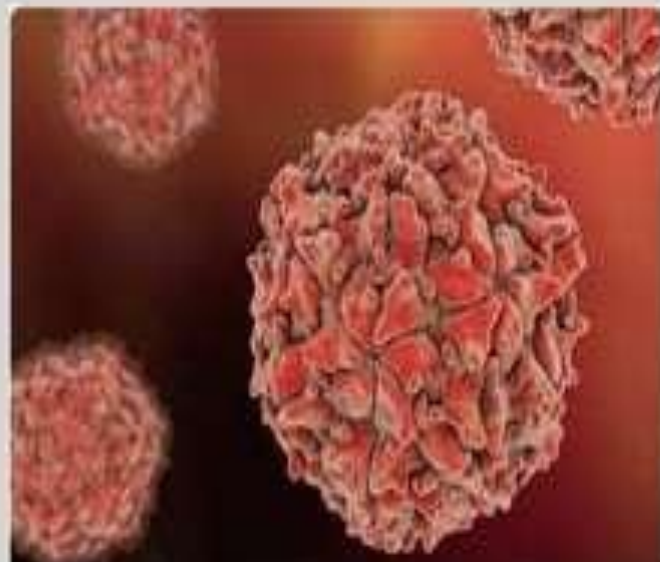
# TYPES OF POLIOMYELITIS

1. Inapparent (sub-clinical) Infection
2. Abortive Polio Or Minor Illness
3. Non paralytic polio
4. Paralytic polio



# TYPES OF POLIOVIRUS

- Three serotypes of polio virus
  1. Type I
  2. Type II
  3. Type III



# ETIOLOGY

- Polioviruses are **entero-viruses** within the **Picornaviridae** family.
- **Direct contact**. Poliovirus can be transmitted through **direct contact** with someone infected with the virus.
- **Ingestion**. Less commonly, it can be transmitted through **contaminated food and water**.

# PATHOPHYSIOLOGY

Virus enters the body through feco-oral route

Reaches digestive tract and attaches to specific receptors

Replicates in the intestinal mucosa



```
graph TD; A[Enters the blood stream] --> B[Virus enters the nervous system through blood]; B --> C[Spread along the axons of peripheral nerves to CNS]; C --> D[Progress along the fibers of motor neuron of];
```

Enters the blood stream

Virus enters the nervous system through blood

Spread along the axons of peripheral nerves to CNS

Progress along the fibers of motor neuron of

```
graph TD; A[Destroys anterior horn cells of spinal cord or nerves within bulbar region] --> B[Nerve cell death results in failure of contraction of muscles]; B --> C[Muscle dysfunction results in respiratory failure and paralysis of legs]; C --> D[Virus is excreted through feces and contributes in further transmission of disease];
```

Destroys anterior horn cells of spinal cord or nerves within bulbar region

Nerve cell death results in failure of contraction of muscles

Muscle dysfunction results in respiratory failure and paralysis of legs

Virus is excreted through feces and contributes in further transmission of disease

# CLINICAL MANIFESTATION

Most patients infected with poliovirus develop in apparent infections and are frequently asymptomatic.

- **Nonspecific symptoms.** Fever, headache, nausea, vomiting, abdominal pain, and oropharyngeal hyperemia are observed in mild cases and usually resolve within a few days.
- **Nonparalytic poliomyelitis.** Non-paralytic poliomyelitis is characterized by the symptoms described above in addition to the following: nuchal rigidity, more severe headache, back, and lower extremity pain, and meningitis with lymphocytic pleocytosis (usually)

# ASSESSMENT

- History collection
- Physical Examination

*(a sample of throat secretions, stool or a colorless fluid that surrounds your brain and spinal cord (cerebrospinal fluid) is checked for poliovirus.)*

# DIAGNOSTIC EVALUATION



- ✓ **Viral cultures.** Obtain specimens from the cerebrospinal fluid (CSF), stool, and throat for viral cultures in patients with suspected poliomyelitis infection.
- ✓ **Serum antibody.** Obtain acute and convalescent serum for antibody concentrations against the 3 polioviruses.
- ✓ **IG titer.** A 4-fold increase in the immunoglobulin G ( IgG ) antibody titers or a positive anti-immunoglobulin M ( IgM ) titer during the acute stage is diagnostic.



**MANAGEMENT**

# MEDICAL MANAGEMENT

## □ PHARMACOLOGICAL MANAGEMENT

No antiviral agents are effective against poliovirus



# Types of polio vaccine

- Inactivated Polio Vaccine
- Salk Polio Vaccine





## NONPHARMACOLOGICAL MANAGEMENT

- **Physical therapy.** Physical therapy is indicated in cases of paralytic disease; in paralytic disease, it provide frequent mobilization to avoid the development of chronic decubitus ulcerations; active and passive motion exercises are indicated during the convalescent stage.
- **Total hip arthroplasty.** Total hip arthroplasty is a surgical therapeutic option for patients with paralytic sequelae of poliomyelitis who develop hip dysplasia and degenerative disease.
- **Diet.** Because patients with poliomyelitis are prone to malnutrition, a diet rich in fiber is usually indicated.



**NURSING**  
**MANAGEMENT..**



# Nursing Assessment

- Nursing assessment in a client with polio include.
- History. Obtain a history of vaccination, travel, and contact with recently returned travellers.
- Physical assessment. Observe the client for possible signs and symptoms of polio as listed above.

# Nursing Diagnosis

1. **Imbalanced nutrition**, less than body requirement related to anorexia, nausea, and vomiting.
2. **Ineffective thermoregulation** related to the infection process.
3. **Ineffective airway clearance** related to muscle paralysis.
4. **Ineffective breathing pattern** related to muscle paralysis.
5. **Acute pain** related to the infection that attacks the nerve.
6. **Impaired physical mobility** related to paralysis.

# Nursing Care Planning and Goals

- 1) The client will be able to improve and maintain a nutritious diet.
- 2) The client will be able to maintain adequate thermoregulation.
- 3) The client will be able to clear the airway and breathe effectively.
- 4) The client will be able to reduce the pain.

# Nursing Interventions

- 1. Nutrition.** Encourage frequent small meals to promote nutritional and fluid intake; maintain nasogastric tube feeding, if ordered; hyperalimentation may be necessary to ensure adequate nutrition, and eliminate unpleasant odors from the environment during meals.
- 2. Thermoregulation.** Reduce or eliminate the sources of heat loss in infants, and monitor the body temperature.
- 3. Airway clearance.** Assess respiratory rate, rhythm, depth, effort, and breath sounds; and elevate the head of the bed to promote the optimum level of activity for best possible lung expansion.
- 4. Pain.** Administer analgesics as prescribed, and educate the patient on diversional activities to reduce the pain.

# Evaluation

- ✓The client was able to improve and maintain a nutritious diet.
- ✓The client was able to maintain adequate thermoregulation.
- ✓The client was able to clear the airway and breathe effectively.
- ✓The client was able to reduce the pain.

# Documentation

- Individual findings, including factors affecting, interactions, nature of social exchanges, specifics of individual behaviour .
- Cultural and religious beliefs, and expectations.
- Plan of care.
- Teaching plan.
- Responses to interventions, teaching, and actions performed.
- Attainment or progress toward the desired outcome.



# CONCLUSION

As the disease polio cannot be cured if once attacked, it is better to follow preventive measures as it is contagious. The vaccination is definite in case of infants and children.





**T**hank  
**YOU**

