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Acute Flaccid Myelitis Awareness
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AFM Introduction

Acute Flaccid Myelitis (AFM) awareness is expanding in pediatric intensive care units (PICUs) around the world. The underlying etiology and protocols of management remain uncertain to many medical professionals today.

As of 2024, a correlation to the disease is associated with an enterovirus pathology. Unfortunately, its presentation can be easily masked and lead to detrimental outcomes. The paralysis seen in patients infected with Enterovirus-D68 is clinically defined as AFM, acute onset of paralysis with MRI scans showing neuron damage throughout the myelin (Casale, Podlaski, Kroeter, Van Leer-Bouter, & Niesters, 2018).

As new research continues to develop, the healthcare system and the Center for Disease Control (CDC) require a sustained pursuit to cure and prevent this devastating illness from affecting the lives of innocent children.

Clinical Presentation

3 Phases of disease process

1) Proximal weakness
   - Feb-Mar (1-4 weeks post viral symptoms)
   - Mainly respiratory/illnesses
   - Cough
   - Congestion
   - Myalgias
   - Nausea/vomiting
   - Diaphoresis

2) Acute neurologic injury
   - Rapid or prolonged – radii 4 days
   - Severity ranging from mild weakness to paralysis
   - Flaccid limb weakness with lower motor neuron disease
     - Recurrent fever
     - Myalgias
     - Flaccid paralysis or weakness of at least one limb
     - Lung weakness
     - Variable cranial nerve involvement

(Fatemi & Chairalberty, 2019)

4) Concomitant Phase
   - Can range months-years
   - Residual made
   - Weakness/atrophy
   - Undetermined complete recovery

(About acute flaccid myelitis, 2019)

AFM Pathophysiology

AFM is a rare, paralytic-like disease affecting the spinal cord gray matter; resulting in acute flaccid paralysis and weakness. Pathophysiology is unclear without the known cause.

- Systemic inflammation is prevalent with spinal cord lesions starting at T2.
- The first report of the disease in 2012 with a positive test of EV-D68. In the subsequent years, many new cases have been reported in the late summer and fall (Jublet, 2019)
- In most patients the etiology of AFM has not been verified, despite prominent lab research
- Whether the disease is a direct consequence of enterovirus D68 or other non-polio bacterial diseases or parainfectious immune responses remains uncertain (Aliabadi et al., 2016)

The convalescence/significance per Up to Date (Jublet, 2019):

- Enterovirus D68 was the most common virus detected in respiratory samples from children with AFM.
- AFM cases clustered during periods of enterovirus D68 circulation in 2014.
- Enterovirus D68 was the most common virus detected in respiratory specimens from children with AFM.
- Enterovirus D68 was detected in the blood of one child with AFM.
- Metagenomic next generation sequencing of cerebrospinal fluid from 14 children with AFM did not find evidence of an alternative infectious cause.
- Experimentally, contemporary enterovirus D68 strain causes paralytic myelitis in a mouse model.

Acute Flaccid Myelitis Pathophysiology

Diagnosis

Diagnosis is difficult due to similar symptoms and presentation of other neurological illnesses

- Acute onset of flaccid limb weakness
- MRI findings of brain and spinal cord with grey matter involvement
- Anterior horn cell involvement with spinal cord lesions at T2
- Lumber puncture CSF analysis
  - WBC>100
  - Symptomatic lumbar
  - No pleocytosis
- Respiratory PCR panel may detect enterovirus (Hopkins, 2019, and Wang & Greenberg, 2019)

(CDC Vital Signs, 2010)

Treatment and Nursing Implications

- Supportive and symptomatic management of AFM
- Management of cardiovascular, respiratory, and autonomic dysfunction depending on severity of disease
- Recommended supportive medicine includes
  - IV corticosteroid therapy to reduce systemic inflammation
  - IV Immunoglobulin (IVIG)
- Early initiation of physical and occupational therapy to prevent further weakness or contractures
- Long term treatment involves rehabilitation and physical therapy

Nursing

- Must be an advocate for the patient looking for signs of AFM
- Involvement with therapy
- Help collect specimens and diagnostic procedures
- Monitor for worsening symptoms (Hopkins, 2019, and Wang & Greenberg, 2019)

Key Points

AFM is a more rare and acknowledged cause of paralysis that occurs mainly in kids

- No definite cause of AFM
- Enteroviruses are the most common viral association
- Presentation is unclear
- Early recognition, screening, and diagnosis needed for rapid treatment
- 5 phases of disease process: Prodromal illness, acute neurological injury, convalescent phase

- Confirmed AFM is consistent with flaccid weakness, MRI findings, and CSF samples
- Treatment is mainly supportive and symptomatic management
- Early therapies help prevent further weakness or deterioration
- Nurses must monitor and advocate for patient
- Specialists are actively seeking the cause and the means of preventing and treating AFM
- The CDC is actively trying to prevent and treat AFM
- Reporting suspected or confirmed cases of AFM to the CDC is one way we can help stop the reoccurrence of the rare, but devastating disease

References Cited


References cont.


Additional Reading Resources


