Meningitis

Site Applicability

All PHC Acute and Long Term Care Sites.

Practice Level

Basic: Physicians, NPs, Nursing, Clinical Nurse Leader, Clinical Site Coordinator, Bed Placement Coordinator

Standards

In addition to Routine Practices, Droplet Precautions must be initiated on all patients/residents suspected or confirmed to have meningitis until they have received 24 hours of antibiotic therapy effective against *Neisseria meningitidis*.

If a pathogen is identified as the causative agent for meningitis, follow the disease-specific guidelines for that organism.

Description of the Disease

Meningitis refers to the inflammation of the meninges covering the brain. It may be caused by infectious agents such as:

- **Bacteria** including *Neisseria meningitidis* (a type of Meningococcal Disease), *Haemophilus influenzae* type B (Hib), *Streptococcus pneumoniae*, and *Mycobacterium tuberculosis*
- **Viruses** (called aseptic meningitis) including enteroviruses, arboviruses (e.g., West Nile virus), herpes simplex viruses, varicella-zoster virus, mumps virus, and measles virus
- **Fungi** including *Cryptococcus* and *Histoplasma*

Bacterial meningitis can be treated with antibiotics, while viral meningitis usually requires no treatment (although antivirals may be used in some cases). Many infectious causes of meningitis can be prevented through routine vaccinations (e.g., meningococcal vaccine, pneumococcal vaccine, Hib vaccine, measles-mumps-rubella vaccine).

Noninfectious causes of meningitis are also possible (e.g., cancers, inflammatory conditions, medications/toxins, or trauma).

Signs & Symptoms

The signs and symptoms of meningitis include:

- Fever
- Intense headache
- Nausea and often vomiting
- Stiff neck
- Photophobia
- Altered mental status

Incubation Period

Variable depending on the infectious agent. *N. meningitidis* can have an incubation period between 2 to 10 days.

Period of Communicability

The period of communicability varies with the infectious agent:

- Bacterial meningitis is considered infectious until 24 hours after initiation of effective antibiotic therapy.
- Viral meningitis varies by virus.
- Fungal meningitis generally does not spread from person-to-person.

Routes of Transmission:

- Bacterial meningitis is transmitted by direct contact with secretions and droplets from the nose and throat of infected individuals.
- Viral meningitis is transmitted by direct or indirect contact with respiratory secretions or feces of infected individuals.
- Fungal meningitis is not infectious and is generally found in patients who are immunosuppressed.

Populations at Risk

Individuals with chronic medical conditions, who are immunocompromised, who are very young or elderly, or following travel to certain regions may be at increased risk of infectious meningitis.

Assessment and Intervention

Infection Control Precautions

- **Additional Precautions:** In addition to Routine Practices, Droplet Precautions will be initiated for patients with known or suspected meningitis until 24 hours of effective antibiotic therapy for *N. meningitidis* is complete.

  The most responsible nurse will ensure Droplet Precautions are ordered in Cerner and post the appropriate sign on the door (i.e., Droplet).

  Additional Precautions may be indicated if a causative pathogen is identified, in which case the disease-specific guidelines should be followed. For tuberculosis meningitis, only Routine Practices are required provided that pulmonary tuberculosis has been ruled out.

- **Hand Hygiene:** Hands should be cleaned before and after every patient contact, as well as after touching potentially contaminated items in the environment. Using an alcohol based hand rub solution is preferred if hands are not visibly soiled. Encourage and assist the patient to perform hand hygiene.
- **Patient Placement:** Preferred accommodation in acute care for patients with meningitis is a single room. The door may remain open. If patients with meningitis must be placed in shared rooms, ensure a two metre separation is maintained between patients and privacy curtains are drawn around the bed. After 24 hours of effective antibiotic therapy is complete and as long as Additional Precautions are not being maintained for an identified causative pathogen, patients can be placed in any available bed.
- **Equipment:** Dedicate equipment whenever possible. Clean and disinfect shared patient equipment routinely and between different patients.
- **Environment:** All high-touch surfaces in the patient's room must be cleaned and disinfected at least daily. Following discharge of the patient, the room should have a terminal clean carried out prior to the next patient being admitted.
- **Visitors:** Education should be provided regarding hand hygiene, and visitors must perform hand hygiene before entry and on leaving the room. Assist visitors to wear PPE.
- **Patient Transport:** When the patient is required to leave the room for diagnostic or rehabilitative purposes:
    - Notify receiving department prior to transport of the precautions in place.
    - Encourage and/or assist patient to clean their hands.
    - If the patient's condition allows for it, assist the patient to wear a medical mask.
- **Management of Close Contacts:** For patients with laboratory confirmed *N. meningitidis*, close contacts who had potential exposure to the patient during the seven days prior to the patient's onset of symptoms to 24 hours after initiation of antibiotics may be offered antibiotic prophylaxis.

  Close contacts include:
    - Household contacts or those who've shared sleeping arrangements with the case
    - Persons who have had direct contamination of their nose or mouth with oral/nasal secretions of a case (i.e., kissing on the mouth; sharing toothbrushes, joints, cigarettes, eating utensils, mouth-guards, water bottles, or musical instrument mouthpieces)
    - Children and staff in child care and preschool facilities
    - Health care workers who have had intensive unprotected contact (without wearing a mask) with infected patients (e.g., intubating, resuscitating, or closely examining the oropharynx of patients)
    - Airline passengers sitting immediately on either side of the case (but not across the aisle) when the total time spent aboard the aircraft was at least 8 hours

VCH Public Health will identify close contacts in the community and arrange prophylaxis. IPAC will identify patient contacts needing follow up and work with Occupational Health and Safety/Workplace Health Call Centre to identify staff meeting the close contact criteria.

Lab Testing

- Infectious organisms that may cause meningitis are most often confirmed through culture or PCR testing of cerebrospinal fluid (CSF). CSF specimens are collected by physicians.

Treatment

- Appropriate antibiotic therapy will be ordered and managed by the most responsible physician (consult the Infectious Disease service as necessary).
- Additional therapies including critical care may be indicated for severe illness.

Transfer/Discharge Planning

- Notify the receiving facility, hospital, nursing home or community agency involved in the patient's care of their status.

Documentation

- Ensure order for Droplet Precautions is in patient's Cerner chart, and discontinue order once 24 hours of effective antibiotic therapy is complete as long as Additional Precautions are not required for an identified causative pathogen.

Patient and Family Education

- CDC - Meningitis

Related Documents

- B-00-07-13030 - Droplet Precautions - Infection Control
- Occupational Health and Safety guide for staff infected with or exposed to *Neisseria meningitidis*

References

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