**COMMUNTY MEDICINE**

**EPIDEMIOLOGY OF MENINGOCOCCAL MENINGITIS**

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**MENINGOCOCCALMENINGITIS (Cerebrospinal fever)**

**1. Identification;**

* **An acute bacterial disease, characterized by sudden onset of fever, intense headache, nausea and often vomiting, stiff neck and photophobia.**
* **A petechial rash with pink macules or occasionally vesicles may be observed .**
* **Case fatality rates formerly exceeded 50%.**
* **Sequelae including mental retardation, hearing loss and paraplegia.**
* **The gold standard for diagnosis is recovery of meningococci from a sterile site, primarily cerebrospinal fluid (CSF) or blood; however, the sensitivity of culture, especially in patients who have received antibiotics, is low.**
* **In culture-negative cases, identification of group-specific meningococcal polysaccharides in CSF by latex agglutination is of help but false-negative results are common, especially for serogroup B.**
* **Polymerase chain reaction offers the advantage of detecting meningococcal DNA in CSF or plasma and not requiring live organisms; it is not yet widely available in many countries.**
* **Microscopic examination of Gram-stained smears from petechiae may show *Neisseria*.**

**2. Infectious agent;**

* ***Neisseria meningitidis*, the meningococcus, is a Gram-negative, aerobic diplococcus.**
* **Group A, B, and C organisms account for at least 90% of cases,although the proportion of groups Y and W135 is increasing in severalregions.**
* **Serogroup A causes the majority of disease in Africa and Asia.**
* **Serogroups A, B, C, Y, W-135 and X**

**are all capable of causing outbreaks, most characteristically serogroup A,which is responsible for major epidemics.**

**3. Occurrence;**

* **In Europe and North America the incidence of meningococcal disease is higher during winter and spring;**
* **In Sub-Saharan Africa the disease classically peaks during the dry season.**
* **Infants have the highest risk of meningococcal disease.**
* **Rates of disease decrease after infancy and then increase in adolescence and young adulthood.**
* **Individual risk factors for meningococcal disease include:**

1. **underlying immune deficiencies, such as asplenia, properdin deficiency, and a deficiency of terminal complement components.**
2. **Crowding, low socioeconomic status,**
3. **Active or passive exposure to tobacco smoke and concurrent upper respiratory track tract infections**
4. **In some countries males are at higher risk than females.**

**4. Reservoir; Humans.**

**5. Mode of transmission;**

* **Direct contact, including respiratory droplets from nose and throat of infected people;**
* **Up to 5%–10% of people may be asymptomatic carriers with nasopharyngeal colonization by *N. meningitidis*.**
* **Less than 1% of those colonized will progress to invasive disease.**
* **Carrier rates of 25% have been documented in some populations.**

**6. Incubation period;**

**2 to 10 days, commonly 3–4 days.**

**7. Period of communicability;**

* **Until live meningococci are no longer present in discharges from nose and mouth.**
* **Meningococci usually disappear from the nasopharynx within 24 hours after institution of antimicrobial treatment**

**8. Susceptibility;Susceptibility to the clinical disease is low and decreases with age.**

**9. Methods of control;**

***A. Preventive measures:***

**1) Educate the public on the need to reduce direct contact and exposure to droplet infection.**

**2) Reduce overcrowding in living quarters and workplaces,**

**such as barracks, schools, camps.**

**3) Vaccines containing groups A, C, Y and W-135 meningococcal polysaccharides are been available; two polysaccharide vaccines are currently available on the market although in most countries only one is available (quadrivalent ACYW-135vaccine, and bivalent AC).**

***B. Control of patient, contacts and the immediate environment:***

**1) Report to local health authority.**

**2) Isolation: Respiratory isolation for 24 hours after start of**

**chemotreatment.**

**3) Concurrent disinfection: Of discharges from the nose and**

**throat and articles.**

**4) Quarantine: Not applicable.**

**5) Protection of contacts.**

* **prophylactic administration of an effective chemotherapeutic agent to intimate contacts**
* **the equally effective prophylactic agents:**

**1- Rifampicin**

**Twice daily for 2 days: adults 600 mg per dose; children over 1month old, 10 mg/kg**

**2- Ceftriaxone**

**For adults, 250 mg IM, given in a single dose, 125 mg IM for children under 15.**

**3- Ciprofloxacin**

**500 mg PO, a single dose to adults.**

**6) Investigation of contacts and source of infection.**

**7) Specific treatment: Penicillin given parenterally in adequate doses is the drug of choice for proven meningococcal disease; ampicillin and chloramphenicol are also effective.**

***C. Epidemic measures:***

* **Outbreak definition:**

1. 3 or more confirmed or probable primary cases
2. Period <3 months
3. Primary attack rate >10 cases per 100,000 population
4. **When an outbreak occurs, major emphasis must be placed on careful surveillance, early diagnosis and immediate treatment of suspected cases.**