MENINGOCOCCAL INVASIVE DISEASE

EPI DEMIOLOGY & TRANSMISSION

Source:
--Human only
--Upper Respiratory tract secretions

Transmission:
- Fulminant cases (Waterhouse-Friderichsen) purpura, disseminated intravascular coagulation, shock, coma.
- Close contact: Oral secretions exchange
- Source: Human only
- Upper Respiratory tract secretions
- Transmission: Large droplets from upper respiratory tract
- Not by droplet nuclei
- Not fomites
- Attack rate: 0.1%

Confined group Close contact Oral secretions exchange

Carrier 5% population Long term carriage is protective
7 days before onset Communicability

Acquire new carriage 2-5 days Incubation (max 14) High risk * 800 disease

Invasive Disease
Meningitis, BSI, Pneumonia

Fulminant cases (Waterhouse-Friderichsen) purpura, disseminated intravascular coagulation, shock, coma.

Incidence rate 1 to 2 /100,000 /year

DIAGNOSIS / TREATMENT

Clinical Dx
Meningitis, Sepsis, Pneumonia
Petechial or Purpuric rash.

Laboratory Dx
Gram stain CSF: Gram negative diplococcus
Culture of Blood / CSF: Neisseria meningitidis (Meningococcus)
Meningococci in upper respiratory tract site is not diagnostic (5% carriers)
Bacterial antigen detection in CSF. False-negative common
Positive antigen in serum and urine unreliable
PCR in serum or CSF (expe)
Follow up with Serogroup & PFGE

SeroGroups
A, B, C, W125, Y

Treatment of Meningococcal Invasive Disease
Ceftriaxone, in children 25 mg/kg every 12 hours up to 1 g.
Adult dose, 1 g IV every 12 hours
Penicillin G, 50,000 U/kg every 4 hours IV,
up to 4 million U q 4 hours
Penicillin /cephalosporin allergic, chloramphenicol,
25 mg/kg every 6 hours IV up to 1 g 6 hours
Supportive Care
Common complications of meningococcal disease are vascular collapse and shock, primarily caused by the effects of meningococcal lipooligosaccharide, which is a potent toxin.

PREVENTION / CHEMOPROPHYLAXIS

Chemoprophylaxis
- eliminate nasopharyngeal carriage of close contacts
- reduce their risk of developing invasive disease
- does NOT prevent contacts from subsequently acquiring the infection
- does NOT treat infection in those incubating disease.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Age group</th>
<th>Dosage</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rifampin</td>
<td>Children &lt;1 mo</td>
<td>5mg/kg q12hr</td>
<td>2 days</td>
</tr>
<tr>
<td>Rifampin</td>
<td>Children ≥1 mo</td>
<td>10mg/kg q12hr</td>
<td>2 days</td>
</tr>
<tr>
<td>Rifampin</td>
<td>Adults</td>
<td>600mg q12hrs</td>
<td>2 days</td>
</tr>
<tr>
<td>Cipro</td>
<td>Adults</td>
<td>600mg q12hrs</td>
<td>Stat</td>
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<tr>
<td>Ceftriaxone</td>
<td>Children &lt;15 yr</td>
<td>125mg</td>
<td>Stat IM</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>Adults</td>
<td>250mg</td>
<td>Stat IM</td>
</tr>
</tbody>
</table>

Chemoprophylaxis: Send culture to State Lab

Droplet Precaution

- Household contacts and persons sharing the same living quarters,
- ++ young children
- Daycare center or child care contacts, frequent playmates of young children
- HCW who resuscitated, intubated, or suctioned the patient before antibiotics were begun
- Close social contacts who were exposed to oral secretions in week prior to onset, such as by kissing, sharing eating utensils or toothbrushes
- NO casual contacts: classroom (other than child care center), elementary or secondary school class mates, school bus, office co-worker, HCW with casual contact (for example, entering the patient room, taking vital signs)

Infected people not considered contagious after 24 hours of preventive Tx
After discharge from hospital, no risk to classmates, return to school OK
Chemoprophylaxis >14 days after index illness onset not useful
Oropharyngeal or nasopharyngeal cultures not helpful

An outbreak is defined by the occurrence of 3 or more confirmed or probable cases of identical serogroup during a period of ≤ 3 months, with a primary attack rate ≥10 /100,000 population.

MASS IMMUNIZATION

Majority: asymptomatic carriers

Laboratory send culture to State Lab