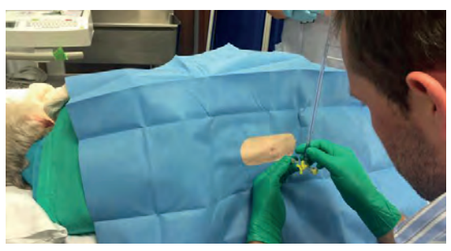
Early Management of Suspected Meningitis and Meningococcal Sepsis in Immunocompetent Adults

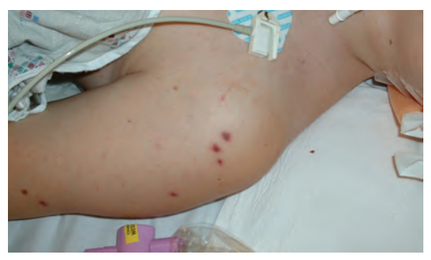
3rd Edition
Jan 2016

Early recognition is crucial

Consider meningitis or meningococcal sepsis if ANY of the following are present:



- Headache
- Fever
- Altered Consciousness
- Neck Stiffness
- Rash
- Seizures
- Shock



Immediate Action

- **A**irway
- **B**reathing - Respiratory rate & O_2 saturation
- **C**irculation - Pulse; capillary refill time; urine output; blood pressure (hypotension occurs late)
- **D**isability - Glasgow coma scale; focal neurological signs; seizures; papilloedema; capillary glucose
- **S**enior review +/- Critical Care review if any Warning Signs are present

Suspected Meningitis

(meningitis without signs of shock, severe sepsis or signs suggesting brain shift)

- Blood cultures
- Lumbar puncture
- Dexamethasone 10mg IV
- Ceftriaxone OR Cefotaxime 2g IV immediately following LP* (see also alternative initial antibiotics)
- CT scan normally not indicated
- Careful fluid resuscitation (avoid fluid overload)

*If LP cannot be done in the first hour, antibiotics must be given immediately after blood cultures have been taken

Suspected meningitis with signs suggestive of shift of brain compartments secondary to raised intracranial pressure

- Get Critical Care input
- Secure airway, high flow oxygen
- Take bloods including Blood Cultures
- Give Dexamethasone 10mg IV
- Give Ceftriaxone OR Cefotaxime 2g IV immediately after blood cultures taken
- Delay LP
- Arrange neurological imaging (once patient is stabilised)

Signs of severe sepsis or a rapidly evolving rash

(with or without symptoms and signs of meningitis)

- Get Critical Care input
- Secure airway and give high flow oxygen
- Fluid resuscitation
- Blood Cultures
- Ceftriaxone OR Cefotaxime 2g IV immediately after blood cultures taken
- Delay LP

Follow Surviving Sepsis Guidelines at: http://www.survivingsepsis.org/guidelines

Careful Monitoring and Repeated Review is essential

Additional Investigations

Blood

- FBC, renal function, glucose, lactate, clotting profile**
- Meningococcal and Pneumococcal PCR (EDTA)
- Blood gases

**unless a clotting defect is suspected, do LP without waiting for results

CSF (if LP performed)

- Glucose (with concurrent blood glucose), protein, microscopy and culture
- Lactate
- Meningococcal and Pneumococcal PCR
- Enteroviral, Herpes Simplex and Varicella Zoster PCR
- Consider investigations for TB meningitis

Other

- Throat swab - for meningococcal culture

Infection Control

Source isolate all patients until Meningococcal Disease is excluded or Ceftriaxone has been given for 24 hours (or a single dose of Ciprofloxacin)

Notify microbiology

Public Health

Notify all cases to the relevant public health authority for contact tracing, give antimicrobial prophylaxis and vaccination where necessary

Warning Signs

The following signs require urgent senior review +/- Critical Care input:

- Rapidly progressive rash
- Poor peripheral perfusion
  - Capillary refill time > 4 secs, oliguria or systolic BP < 90mmHg
- Respiratory rate < 8 or >30 / min
- Pulse rate < 40 or >140 / min
- Acidosis pH < 7.3 or Base excess worse than -5
- White blood cell count < 4×10^9/L
- Lactate > 4 mmol/L
- Glasgow coma scale <12 or a drop of 2 points
- Poor response to initial fluid resuscitation

Delay LP

if any of the following are present:

- Signs of severe sepsis or rapidly evolving rash
- SEVERE respiratory/ cardiac compromise
- Significant bleeding risk
- Signs suggesting **shift of brain compartments** (CT scan before LP is warranted, as long as patient is stable)
  - Focal neurological signs
  - Presence of papilloedema
  - Continuous or uncontrolled seizures
  - GCS ≤12

Alternative initial antibiotics

Penicillin/Cephalosporin anaphylaxis
Chloramphenicol 25mg/kg IV

≥60 years old (not allergic) **OR immunocompromised (including alcohol dependency and diabetes),**
Ceftriaxone OR Cefotaxime 2g IV PLUS Amoxicillin 2g IV

Penicillin/Cephalosporin anaphylaxis and ≥60 years old OR immunocompromised (including alcohol dependency and diabetes),
Chloramphenicol 25mg/kg AND Co-trimoxazole 10-20mg/kg (of the trimethoprim component) in four divided doses

Recent travel/risk of penicillin resistant pneumococci
Ceftriaxone/Cefotaxime 2g IV PLUS Vancomycin 15-20mg/kg IV OR Rifampicin 600mg PO/IV

The UK Joint Specialist Societies Guideline on the Diagnosis and Management of Acute Meningitis and Meningococcal Sepsis in Immunocompetent Adults.

Further copies from www.meningitis.org or Meningitis Research Foundation 0333 4056262. A charity registered in England and Wales no 1091105, in Scotland no SC037586 and in Ireland 20034368.

McGill F, Heyderman R, Michael B, Defres S, Beeching N, Borrow R, Glennie L, Gaillemin O, Wyncoll D, Kaczmarski E, Nadel S, Thwaites G, Cohen J, Davies N, Miller A, Rhodes A, Read R, Solomon T;
The UK Joint Specialist Societies Guideline on the Diagnosis and Management of Acute Meningitis and Meningococcal Sepsis in Immunocompetent Adults, Journal of Infection (2016), doi: 10.1016/j.jinf.2016.01.007.