

Management of Bacterial Meningitis

Suspected Meningitis

Antibiotics should be given within 1 hour of arrival

ABCDE approach
Symptoms and signs of meningitis vary with age
Look for evidence of raised ICP
Treat sepsis and shock as per [SORT guideline](#)

Discuss with Consultant /Registrar

STEP 1 – Investigations

Blood – [Blood culture](#), FBC, U&E, LFT, Bone profile, CRP, Clotting, Glucose*, Blood gas

[Lumbar Puncture](#) – See contraindications
*Blood glucose should be done at the time of LP

Additional Investigations

All ages – consider bacterial throat swab

Infants < 1 month – consider viral sepsis screen (blood PCR, eye, throat, rectal swab/stool for HSV, entero & adenovirus)

Infants > 1 month – consider stool/throat swab for enterovirus

Neuroimaging

Consider if reduced GCS, symptoms/signs of raised ICP or focal neurology

STEP 2 – Treatment

IV antibiotics as per Meningitis Guideline/ MicroGuide App

Consider Aciclovir in unwell/haemodynamically unstable infants < 6 weeks

Consider Dexamethasone in infants > 3 months

STEP 3 – Further Management

Discuss duration of treatment with microbiologist/paediatric consultant
Inform [HPA](#) to arrange contact prophylaxis of confirmed or strongly suspected meningococcal meningitis

Audiology screen within 4 weeks

Contraindications to LP - ↑ICP

Reduced LOC
(GCS <13 or fall in GCS of >2)

Focal neurological signs

Dilated or poorly responsive pupils

Abnormal posture or posturing

Papilloedema

Seizures

Relative bradycardia with hypertension

Loss of 'doll's eye' movements

Contraindications to LP - Other

Immunocompromised

Shock

Pre-existing Haematological abnormalities

Abnormal coagulation screen
Platelet <100 X 10 /L
Anti coagulant therapy

Local infection at LP site

Suspected meningococcal septicaemia (spreading or extensive purpura)

Give Dexamethasone within 12 hours of starting antibiotics if..

Purulent CSF

CSF WCC >1,000

CSF WCC elevated & Protein >1,000mg/L

Bacteria seen on Gram stain

If LP contraindicated and strong clinical suspicion of meningitis (unless meningococcal disease suspected or < 3months old)



DETERIORATION

Immediate senior review
Discuss with PICU team
<http://www.sort.nhs.uk>

Table 1
Blood culture volumes

Age	Blood culture volume
< 1 months	0.5 ml
1 month – 3 years	1 ml
>3 years	4 mls

Table 2
LP volumes

Age	LP volume
< 5 years	2 mls
> 5 years	4 mls

Table 3
CSF samples to be obtained during lumbar puncture

Bottle	Lab	Test
Number 1	Virol	Virology sample (1ml minimum) – saved sample can be sent initially and PCRs (HSV and enterovirus) or meningococcal PCR requested on basis of CSF white cell count.
Number 2	Chem	Protein (0.4ml = 8 drops)
Number 3	Micro	M, C & S (0.5ml = 10 drops)
Yellow / Grey (Fluoride)	Chem	Glucose (0.1ml = 2 drops)

Table 4
Interpretation of CSF findings

Investigation	Normal (>1 month)	Bacterial	Viral	Tuberculosis	Fungal
Opening pressure	10-20cm	High	Normal/High	High	High/ very high
Colour	Clear	Cloudy	Clear	Cloudy yellow	Clear/ cloudy
Cells	< 5	↑↑↑	↑	↑↑	↑
Differential	Lymphocytes	Neutrophils	Lymphocytes	Lymphocytes	Lymphocytes
CSF glucose	50-65%	↓↓	Normal or ↓	↓	↓
Protein (g/L)	< 0.45	↑↑↑	Normal or ↑	↑↑↑	↑↑