

Management of Meningococcal Disease in Children and Young People

Incorporates NICE Bacterial Meningitis and Meningococcal Septicaemia Guideline CG102. Distributed in partnership with NICE 7th Edition

MD1 Estimate of child's weight (1–10 years)
Weight (kg) = 2 x (age in years + 4)

MD2 Observe HR, RR, BP, perfusion, conscious level
Cardiac monitor & pulse oximetry.

Conscious Level	Normal Values		
	Age	Heart Rate/min	Resp Rate/min
Alert			
Responds to Voice			
Responds to Pain	<1	110-160	30-40
Unresponsive	1-2	100-150	25-35
	2-5	95-140	25-30
	5-12	80-120	20-25
	Over 12	60-100	15-20

Normal systolic blood pressure = 80 + (age in years x 2)
N.B. Low BP is a pre-terminal sign in children

MD3 Take bloods for Glucose, FBC, CRP, Clotting, U&E, Ca++, Mg++, PO₄, Lactate, Blood cultures, Whole blood (EDTA) for PCR, Blood gas (bicarb, base deficit), X-match.

MD4 Intubation (call anaesthetist and consult PICU) see **BM5**
Consider using: Atropine 20 mcg/kg (max 600 mcg) AND Ketamine 1-2 mg/kg in shock or Thiopental (thiopentone) 3-5 mg/kg in RICP AND Suxamethonium 2 mg/kg (caution, high potassium). ETT size = age/4 + 4, ETT length (oral) = age/2 + 12 (use cuffed ET tube if possible). Then: Morphine (100 mcg/kg) and Midazolam (100 mcg/kg) every 30 min. Do not use Ketamine in children with raised ICP.

MD5 Inotropes
Dopamine at 10-20 mcg/kg/min. Make up 3 x weight (kg) mg in 50 ml 5% dextrose and run at 10 ml/hr = 10 mcg/kg/min. (These dilute solutions can be used via a peripheral vein).
Start Adrenaline via a central or IO line only at 0.1 mcg/kg/min.
Start Noradrenaline via a central or IO line only at 0.1 mcg/kg/min. for 'warm shock'.
Adrenaline & Noradrenaline: Make up 300 mcg/kg in 50 ml of normal saline at 1 ml/hour = 0.1 mcg/kg/min.

MD6 Hypoglycaemia (glucose < 3 mmol/l) 5ml/kg 10% Dextrose bolus i.v.

MD7 Correction of metabolic acidosis pH < 7.2
Give half correction NaHCO₃ i.v.
Volume (ml) to give = (0.3 x weight in kg x base deficit ±2) of 8.4%NaHCO₃ over 20 mins, or in neonates, volume (ml) to give = (0.3 x weight in kg x base deficit) of 4.2% NaHCO₃.

MD8 If K⁺ < 3.5 mmol/l
Give 0.25 mmol/kg over 30 mins i.v. with ECG monitoring.
Central line preferable. Caution if anuric.

MD9 If total Calcium < 2 mmol/l or ionized Ca⁺⁺ < 1.0
Give 0.1 ml/kg 10% CaCl₂ (0.7 mmol/ml) over 30 mins i.v. (max 10 ml) or 0.3 ml/kg 10% Ca gluconate (0.22 mmol/ml) over 30 mins (max 20 ml). Central line preferable.

MD10 If Mg⁺⁺ < 0.75 mmol/l
Give 0.2 ml/kg of 50% MgSO₄ over 30 mins i.v. (max 10 ml).

MD11 Urgently notify public health of any suspected case of meningitis or meningococcal disease
Prophylaxis of household contacts of MD
http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947389261
■ Rifampicin bd for 2 days: < 1yr 5 mg/kg; 1-12yrs 10 mg/kg; > 12yrs 600 mg or
■ Ceftriaxone single im dose: < 12yrs 125 mg; > 12yrs 250 mg or
■ Ciprofloxacin single dose (not in children <2 or in pregnancy/breast-feeding) 2-4yrs 125mg; 5-12 yrs 250 mg; > 12yrs 500 mg
For index case not treated with Ceftriaxone, prophylaxis when well enough.
Hib: prophylaxis may be indicated – consult public health

MD12 Antibiotics for confirmed and unconfirmed (but clinically suspected) meningococcal disease: i.v. Ceftriaxone for 7 days unless contraindicated
BM3 (see bacterial meningitis algorithm for antibiotics against other pathogens)

Based on Early Management algorithm, Dept Paediatrics, Imperial College at St Mary's Hospital as described in Arch Dis Child 1999;80:290 & 2007;92:283 & on NICE CG102 <http://guidance.nice.org.uk/CG102/Guidance> <http://guidance.nice.org.uk/CG102/QuickRefGuide/pdf/English>
Authors AJ Pollard (GDG chair), A Cloke, L Glennie, SN Faust, C Haines, PT Heath, JS Kroll, M Levin, I Maconochie, S McQueen, P Monk, S Nadel, N Ninis, MP Richardson, MJ Thomson, AP Thomson, D Turner.
Further copies from www.meningitis.org or 01454 281811.
© Meningitis Research Foundation 10/10

