

Neonatal Scenario

Post-natal Seizures with hypoglycaemia

Set Up:

Mannequin /Confederate	Moulage	Equipment available	Drugs available
SimNewB	Infant fitting	Bag & mask/neopuff	Intubation drugs
Confederate-mother	IV with drain in situ + maintenance running at full IV fluids	Intubation equipment	Benyl Penicillin & gentamicin
Confederate- neonatal nurse	ECG & O2 saturation on	IV equipment	Phenobarb, midazolam, phenytoin
	2 nd IV + drain available if needed	Neonatal stethoscope	NSaline for bolus
		LP needle 22g	10% dextrose for bolus
			Glucagon
			NSaline +10% dextrose for maintenance

Monitor: Basic oxygen saturation, HR, ECG

Paperwork Required: Observational Chart
Drug Chart
Blood gas – mild metabolic/lactic acidosis, hypoglycaemia
Blood glucose- low

Learning Objectives:

(1) Medical

- Management of post-natal seizures
- Management of neonatal meningitis

(2) CRM

- Teamwork
- Leadership & role delegation
- Communication with mother

Synopsis of Scenario

40+ female neonate, discharged at 20 hours of age from birth unit. Presented to your emergency department at 40 hours of age with poor feeding and irritability. Transferred to the ward for observation. Started on Benzyl penicillin and gentamicin in emergency. Two hours after arrival on the ward, infant commences fitting. On investigation, is hypoglycaemic, with raised CRP. Team need to manage seizures and hypoglycaemia, and consider diagnosis of meningitis.

Patient Demographics

Patient Name:	Simone Brown	DOB/Age:	48 hours old		
Medical Record#:	7000011	Weight:	4kg		
Allergies:		Male	<input type="checkbox"/>	Female	<input checked="" type="checkbox"/>
Relevant History	Early discharge in first 24 hours of life, normal pregnancy and delivery				

Introductory information given to participating and observing team

- 40 week female neonate, admitted through emergency at 40 hours of age to the paediatric ward
- 12 hour history of poor feeding and irritability
- Bloods, urine, sent in emergency
- Commenced on IV penicillin and gentamicin in emergency

Mode of bringing in the participants:

- Mother is sitting next to the baby on the ward
- Neonatal bedside nurse calls for a nurse and doctor from outside sim centre to come in and help
- If more help called for, confederate brings rest of team from outside Sim Centre (confederate should suggest to ask for more help if the team do not)

Handover given by Confederate nurse

I Simone Brown,
S Came up from emergency a couple of hours ago with poor feeding and irritability, and I now think she is fitting
B Born 2 days ago at 40 weeks gestation, discharged around 24 hours of age
A Saturation not picking up when fitting, HR to 180, temp 38°C
R I think he needs urgent review

Initial Observations:

	↑, N, ↓, absent	Description
Appearance		Slight mottling, CR 4 sec
HR	↑188	Starts dropping when apneic and fitting continuously
RR	Apneic when fitting	Intermittently Apneic after midaz & phenobarb, if given close together
Temp – peripheral	Normal	38.8
Saturation	↓	Dec when fitting as not picking up, normal when not fitting
Non- invasive BP – upper limb	Normal	60/42 when asked for, 80/45 if checked during a seizure
Pupils	↓	Small bilaterally

Ideal Management first 5 minutes:

Examination:

DRS ABCD
Feels fontanelle- confederate to cue-elevated, tense

Management:

Recognise seizures & apnea
Apply oxygen/IPPV when apneic
Assess Capillary refill
Ask for blood results taken in ED
Check blood pressure
Checks the IV fluids that are up, reduces to half-2/3 maintenance
Call for help
Give anticonvulsants (phenobarb or midaz)
Consider respiratory support
Treat glucose
Check antibiotics have been given, add cefotaxime

Progression Good:

CUES:**Ideal Management:****Prompt if not recognised after 3 minutes:**

Infant apneic during seizures
Check bloods from emerg

As above
Consider volume 10ml/kg NSaline, for poor refill
Call for help
Re-checks Bloods-glucose/gas
Communicate with family
Considers cefotaxime
Discusses NOT to do a lumbar puncture

If management appropriate, continue fitting. If given further anticonvulsant, becomes apneic- (RR 0) HR decreasing to 80 if IPPV not commenced, drops to 50 if IPPV not commenced after this. should intubate

Progression Poor:**CUES:****Ideal Management:**

HR dropping if apneic and IPPV not commenced
Remains Apneic RR 0

PROMPT:

Looks like she is not breathing
IPPV-consider intubation
"IV fluid rate seems quite high"

Call for help
As above
Calls for help
intubation
Commence CPR if HR < 60
Consider cefotaxime
Discuss NOT to do a lumbar puncture

Scenario ceases after 10-15 minutes or after effective management of seizures, and hypoglycaemia, and communicates with family

Clinical Resources:

NETS Neonatal Handbook- Treatment of Neonatal Seizures