#EM3
East Midlands Emergency Medicine Educational Media

Scenario: Post Ictal

Setting: ED Resus
Clinical Focus: Management of patient with reduced conscious level
Situational Factors: limited history

Learning Objectives:

- A-E assessment
- Use of simple airway adjuncts
- Management of Seizures

Stage/ Design/ Props/ Technical Setup

SimMan, Resus Kit, ?Medical alert bracelet (epilepsy), Phenytoin prescribing tool and guideline for seizure management

Briefing to Participants: Scene

Red Call - 2 minutes. 26 year old known epileptic has had a witnessed seizure. Now post ictal GCS E2 V3 M4 (9)

Presentation	Expected Response	Actors Notes
		Patient will moan and snore
Examination: **A:** Snoring/ obstructing airway **B:** Bilat air ent Sats 93 (air) **C:** HR 92 Bp 115/86 **D:** GCS e2 v3 m4 (9), Pearl **E:** Incontinent of urine, no rashes or fever	A-E assessment Basic airway maneuvers and adjuncts with O2 Checks BM IV access and bloods	
Progress Improves: Sats improve Has further seizure	Terminates with diazepam	Will need to prompt is fitting by faculty - give verbal prompt rather than making SimMan move
Progress Deteriorates: Sats deterioriate Further seizures - not terminating with benzos	Senior Input +/- ITU Phenytoin	Will need to prompt is fitting by faculty - give verbal prompt rather than making SimMan move
Debrief	**Clinical**	**CRM**
	Management of seizures Basic Airway management	When to call for help.

EMERGENCY DEPT ATTENDANCE RECORD

Printed Copy No. 1

University Hospitals Of LEICESTER NHS Trust
Leicester Royal Infirmary UHL Trust
LEICESTER

NHS Barcode:

PATIENT IDENTIFIER

Hospital No NHS No
Last Name Malcolm
Forename Grand
Date Of Birth 25/12/1990 Age: 26
Sex M
Ethnic Category
Address

(Home)
(Work)
(Mobile)
Occ/School

Interpreter Required No
Language HOME - OWN

NEXT OF KIN/EMERGENCY CONTACT

Name Arnold Barry Sense
Relationship Partner
Address

(Home)
(Work)
Emergency Contact

REGISTERED GP

Name Dr J. Dorian
Surgery Sacred Heart Medical Practice

TRIAGE

ED Arrival
Triage Assessment
Complaint
Triage Nurse
Nurse Assessment

Triage Category

CLINICAL ALERTS/ALLERGIES

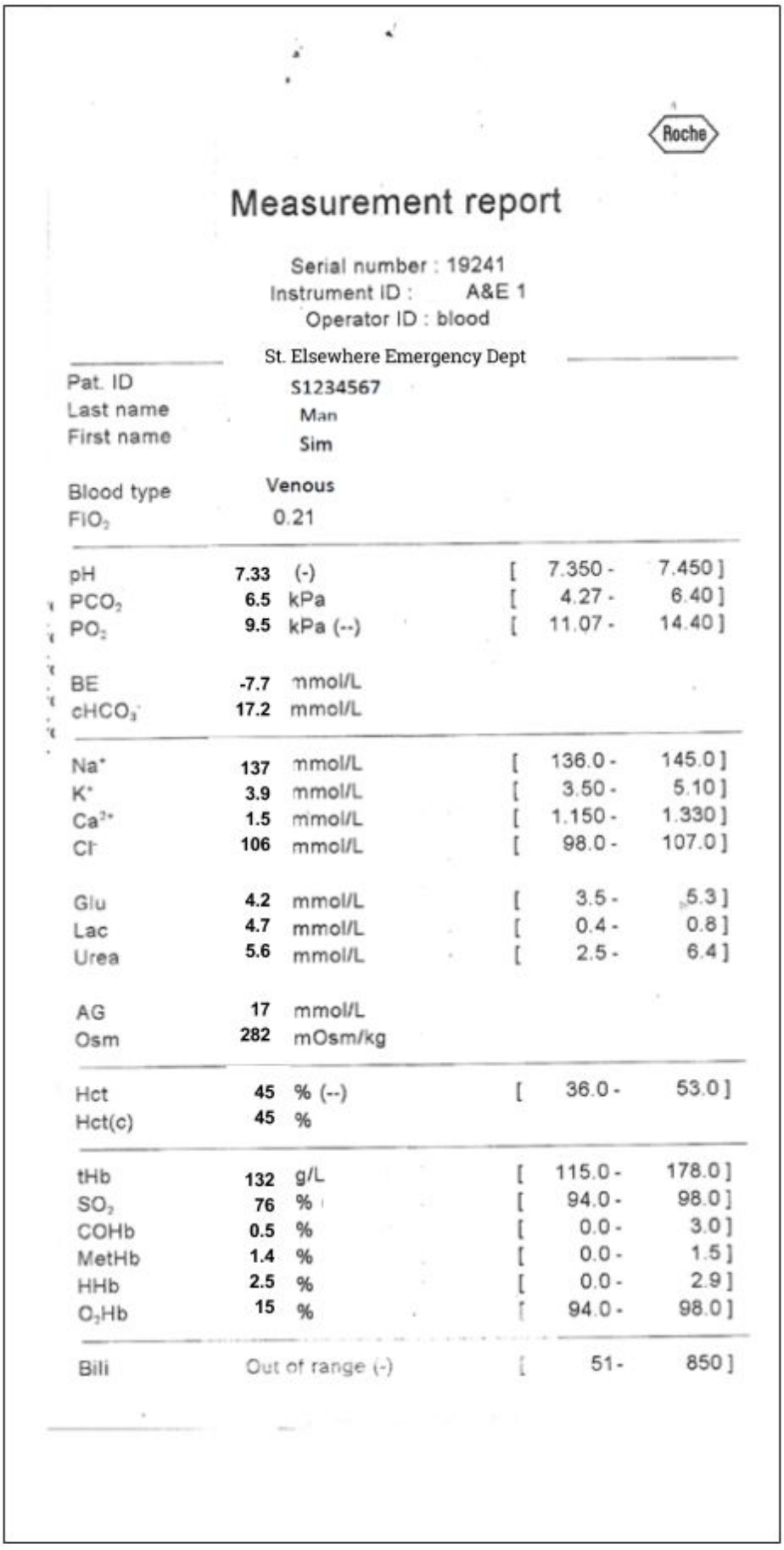
Allergies

Clinical Alert

ATTENDANCE HISTORY

Date	Discharge Diagnosis
15/8/2015	- Seizure
07/3/2015	- Seizure
14/5/2014	- Seizure
27/7/2013	- Seizure

VBG



Roche

Measurement report

Serial number : 19241
Instrument ID : A&E 1
Operator ID : blood

St. Elsewhere Emergency Dept

Pat. ID	S1234567			
Last name	Man			
First name	Sim			
Blood type	Venous			
FIO_2	0.21			
pH	7.33	(-)	[7.350 -	7.450]
PCO_2	6.5	kPa	[4.27 -	6.40]
PO_2	9.5	kPa (--)	[11.07 -	14.40]
BE	-7.7	mmol/L		
$cHCO_3^-$	17.2	mmol/L		
Na^+	137	mmol/L	[136.0 -	145.0]
K^+	3.9	mmol/L	[3.50 -	5.10]
Ca^{2+}	1.5	mmol/L	[1.150 -	1.330]
Cl^-	106	mmol/L	[98.0 -	107.0]
Glu	4.2	mmol/L	[3.5 -	5.3]
Lac	4.7	mmol/L	[0.4 -	0.8]
Urea	5.6	mmol/L	[2.5 -	6.4]
AG	17	mmol/L		
Osm	282	mOsm/kg		
Hct	45	% (--)	[36.0 -	53.0]
Hct(c)	45	%		
tHb	132	g/L	[115.0 -	178.0]
SO_2	76	%	[94.0 -	98.0]
COHb	0.5	%	[0.0 -	3.0]
MetHb	1.4	%	[0.0 -	1.5]
HHb	2.5	%	[0.0 -	2.9]
O_2Hb	15	%	[94.0 -	98.0]
Bili	Out of range (-)		[51 -	850]

Sample No.: S1234567
Patient ID:
Name:
Comments:

Rack:
Ward:

Tube: 12:34:35
Dr.:
Birth: Sex:
Inst.ID:XS-800i^65614

WBC	**12.7**	[10^9/L]	
RBC	2.08	[10^12/L]	
HGB	**132**	[g/L]	
HCT	0.184	[Ratio]	
MCV	88.0	[fL]	
MCH	29.8	[pg]	
MCHC	339	[g/L]	
PLT	**250**	[10^9/L]	
RDW-SD	42.4	[fL]	
RDW-CV	14.0	[%]	
PDW	11.3	[fL]	
MPV	10.5	[fL]	
P-LCR	27.7	[%]	
PCT	0.18	[%]	
NEUT	5.2	[10^9/L]	65.5
LYMPH	2.75	[10^9/L]	15.6 *
MONO	1.58	[10^9/L]	9.0 *
EO	0.04	[10^9/L]	0.2 *
BASO	0.03	[10^9/L]	0.2

Actions required

☐ Normal
☐ Abnormal but no immediate danger

☐ Significantly abnormal results –
patient in imminent danger

document STAT actions taken

NPT samples processed by

NPT results

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LRI ED IV Phenytoin Preparation Aid: Patients >49kg

- This chart is intended for use in the Emergency Department (ED) as an adjunct to the following trust documents
  - IV monograph for phenytoin administration in adults (on Medusa)
  - Management of status epilepticus in adults
- Total loading dose when using tables below will be 17 - 18mg/kg (**NB**: Do not use this document if patient is already on Phenytoin and give Phenobarbitone 20 mg/kg or Phenytoin 9mg/kg instead)
- Importantly, patients weighing 112 kg or more should just receive the 112kg dose (i.e. never exceed 2000mg total dose)
- Drug is infused **NEAT** (dilution carries a risk of precipitation and is therefore not recommended by manufacturer)
- An in-line filter is not required using this method
- Run infusion via syringe driver; flush IV line generously with 0.9% saline before and afterwards (**NB**: Do not use glucose)
- Continuous cardiac monitoring must be in place and NIBP must be measured frequently
- Standard infusion rate (independent of patient weight or total dose) is **60mL/h** (i.e. giving 50mg/min)
- Stop infusion if low BP or bradycardia observed; once resolved restart at **30mL/h** (i.e. giving 25mg/min)

50 - 112 kg **(NB: patients weighing > 112kg should just receive the 112kg dose)**

Find required volume of **NEAT** Phenytoin in table below.

Do not dilute.

Each vial contains 250mg in 5mL (i.e. **1mg = 0.02mL**).
Draw up the exact amount in a 60mL syringe.

Weight	Phenytoin dose (17 – 18 mg/kg)		Infusion rate	
			Standard - 60mL/h (delivers 50mg/min)	Slow - 30mL/h (delivers 25mg/min)
kg	Drug mg	Volume mL	Time infusion will take to complete (NB: this is just for your information)	
50 - 52	900	18	18	36
53 - 55	950	19	19	38
56 - 58	1000	20	20	40
59 - 61	1050	21	21	42
62 - 63	1100	22	22	44
64 - 66	1150	23	23	46
67 - 69	1200	24	24	48
70 - 72	1250	25	25	50
73 - 74	1300	26	26	52
75 - 77	1350	27	27	54
78 - 80	1400	28	28	56
81 - 83	1450	29	29	58
84 - 86	1500	30	30	60
87 - 88	1550	31	31	62
89 - 91	1600	32	32	64
92 - 94	1650	33	33	66
95 - 97	1700	34	34	68
98 - 99	1750	35	35	70
100 - 102	1800	36	36	72
103 - 105	1850	37	37	74
106 - 108	1900	38	38	76
109 - 111	1950	39	39	78
112 and over	2000	40	40	80

Example prescription for 76kg patient

PARENTERAL INFUSIONS											
	Infusion Fluid		Additions to Infusion							Signatures	
Date	Type/Strength	Vol.	Medicine	Dose	Route	Time to run or ml/hr	Prescriber	Fluid Batch No.	Start Time	Given by	Checked by
28/12/09	50mg/mL	27mL	Phenytoin (neat)	1350mg	IV	60mL/h	Your Name				

Status Epilepticus

University Hospitals of Leicester NHS Trust
Guidelines for Management of
Acute Medical Emergencies

Status epilepticus is defined as more than 30 minutes of continuous seizure activity or two or more seizures without full recovery of consciousness between seizures.

Immediate management

- Secure the airway, administer oxygen and support respiration if necessary
- Assess cardiovascular status
- Obtain intravenous access
- Check and record blood glucose - administer IV 50 ml of 50% glucose if hypoglycaemic (use large vein – very irritant)
- Administer IV Pabrinex if there is evidence of alcoholism or malnutrition [1] (one pair of ampoules in 100mls of either sodium chloride 0.9% or glucose 5% over 20 minutes – see Procedures for Intravenous Administration of Pabrinex)
- Take blood for FBC, U&E, LFTs, calcium, glucose, pretreatment antiepileptic drug levels and toxicological analysis if appropriate
- Administer bolus of IV lorazepam 4mg [2,3] – can be repeated after 10 min if necessary
- Administer IV phenytoin 18 mg/kg by slow IV infusion at a maximum rate of 50 mg/min with ECG monitoring [4,5] IV phenytoin may be infused over 1 hour in 100 mls normal saline but must not be mixed with IV dextrose (see Procedure for Administration of Intravenous Phenytoin).
- Assess cause – is there evidence of meningism, raised intracranial pressure, focal neurological signs, evidence of drug abuse, recent head injury, alcoholism or hepatic failure? Try to obtain an accurate recent drug history. Early neurological referral is usually appropriate.

If seizures cease

Admit to ward – close observation should be maintained for 24 hours with regular medical reassessment

If seizures persist > 30 min after initiation of treatment

Contact ITU anaesthetist in order to proceed to anaesthesia with IV thiopentone and ventilation

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Notes:

[1] When IV glucose is given there is a risk of precipitating Wernicke's encephalopathy unless IV thiamine (as Pabrinex) is also given to thiamine-deficient patients.

[2] If there is delay in securing IV access give IM midazolam 10 mg

[3] IV Diazemuls 10 mg is an acceptable alternative but has a much shorter duration of action – lorazepam is preferred

[4] Do not administer phenytoin if there is a known past history of hypersensitivity to phenytoin or there is a definite history of myoclonic epilepsy– IV sodium valproate is an alternative (loading dose 20 mg/kg)

[5] If the patient is known to be taking phenytoin at presentation, give an initial loading dose of 9 mg/kg