Seizures and Status

Neuro Bitesize

What is a seizure

Abnormal uncontrolled activity in the brain cells

Over activity of a neuro transmitter

Improper concentration of salts with in the cell

Certain areas of the brain are more likely to be involved in a seizure

- motor cotex
- temporal lobes
- hippocampus

Causes

Idiopathic epilepsy normal starts in childhood

Seizures in adults are usually a symptom…….

Congenital cerebral lesions

Stroke

Head injury or trauma

Tumours

Avm’s

Infection

- Encephalitis
- Meningitis
- Abscess

Metabolic Imbalances

- Na
- K
- Glucose
- MgSO4
- PO
- Cl

Toxic Damage

- Alcohol
- Drug Overdose

Types of Seizures

Partial Seizures

(or Focal/Petit mal)

- Start in a localised area of the cerebral cortex
- Seizure activity may spread but always remain in one side on the brain
- Almost always symptomatic
- One part or at most one side of the body if effected
- Consciousness is not lost

Types of Seizure

Generalised
(or Grand mal/Tonic Clonic)

Seizure activity starts deep in central brain structures and spreads to both hemispheres

The entire body is effected

Consciousness is lost

Types of Seizure

Status

- Defined as recurring seizures without the return of consciousness in-between
- A medical emergency as respiratory function is compromised
- Patient is at risk of neurological damage

Stages of a Seizure

Prodrome	Aura	Ictus	Post ictal
• Changes in sensation • Hours or days before a seizure	• Visual disturbance • Strange taste • Strange smell	• The Seizure Itself	• Recovery from the seizure

Antiepileptic Drugs

Take time to build up to effective levels in the patient

They do not give immediate control

Aim to reduce the reacurrance of seizures by stabilising neuronal activity

Antiepileptic Drugs

Carbamazepine

- Stabilizes the inactivated voltage gated sodium channels

Barbiturates

Phenobarbitone

- Causes a flux of chloride ions

Levetiracetam (keppra)

- Exact mechanism of action is unknown
- It inhibits presynaptic calcium channels

Phenytoin

- Blocks voltage gated sodium channels and blocks repeated high firing of action potentials

Sodium Valporate

- Mechanism of action unclear, thought to help block voltage dependant sodium channels

Benzodiazepines

(Lorazepam and Diazepam)

- Slows neurotransmission by enhancing gamma-aminobutyric Acid (GABA)

Lamotrigine

Inhibits Sodium by binding to inactive sodium chaanels

Seizure Management and Treatment

Maintain patient safety

- Cot sides
- Pillows
- **DO NOT** put anything in patients mouth
  - Even if tongue is injured

Monitor patient observations and document

Observe seizure and time seizure and Document

Check all Electrolyte (In Particular $mgso_4+$, $Na+$ + $P0_4$ Ca_2+) levels and optimise

Contact Epilepsy Specialist

Seizures: Drugs and Treatment

If seizure not self terminating STOP IT

- Lorazepam

The preferred method is to stop the seizure without sedating the patient

Not always achievable

Keep sedation to a minimum

Post Seizure

Assessment ABC

- Airway most at in post ictal Phase
- Likely the pt will need oxygen
- Recovery Position may be appropriate

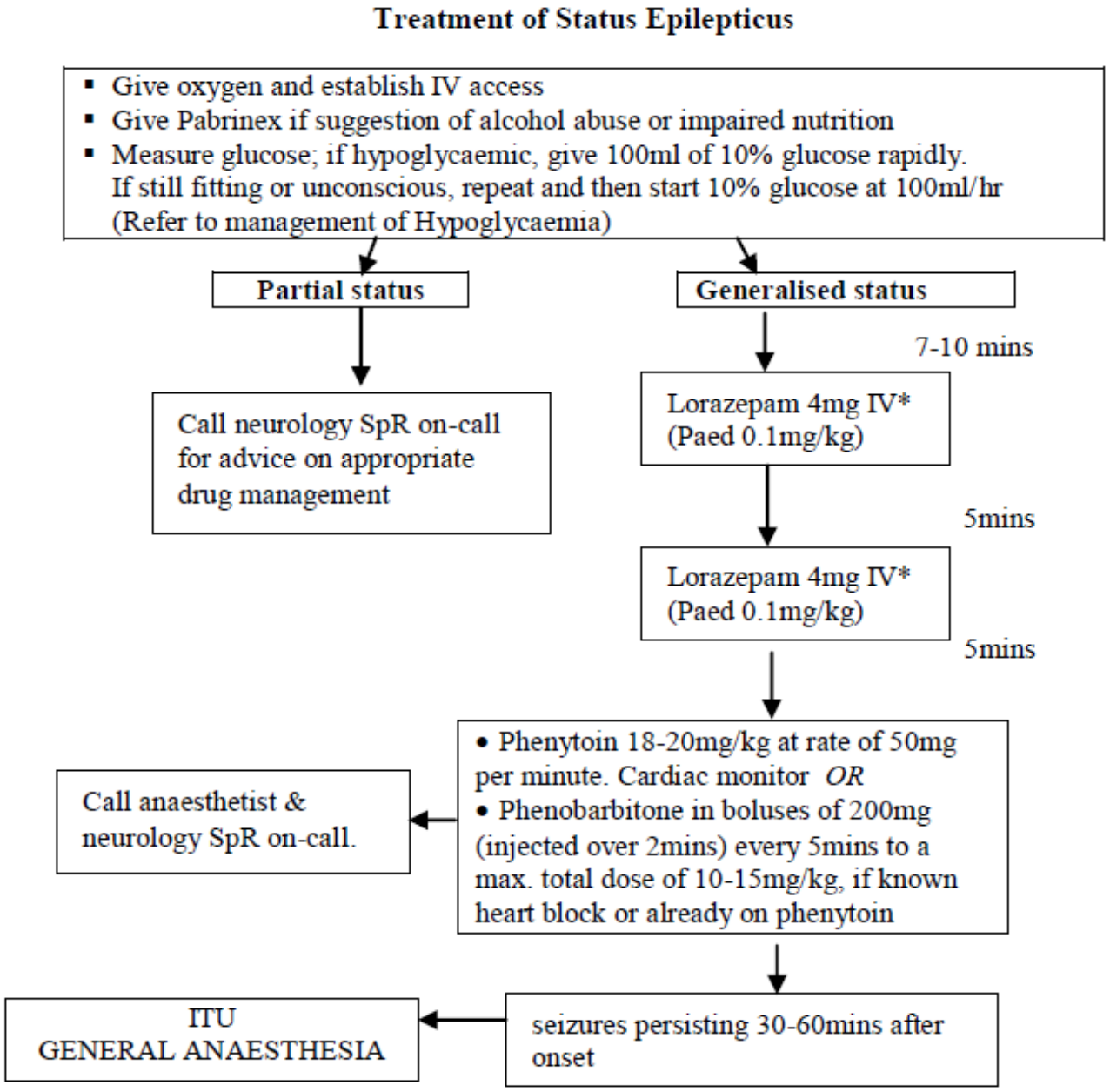
Conscious level

Were their any injuries sustained by the pt during seizure

Description of seizure

Documentation

Management of Status



* If Lorazepam is unavailable, give 10mg Diazepam iv (paed 300-400 micrograms/kg-max.10 mg) **or 10mg Buccal Midazolam (paed 300 micrograms/kg)** – whichever is quickest/ easiest for individual patient. If no iv access, give Buccal Midazolam.

Management of status after 30-60mins

Pt needs to be intubated

Sedated
- propofol
- Fentanyl
- midazolam

Loaded with IV Keppra or Phenytoin

Phenobarbitone if patient still seizing

BIS monitor

Identify Cause of Seizure

Monitor Pt glucose level

Contact Specialist

EEG

If All this fails
- Paralyse if necessary (can be contraindicated)
- Thiopentone ???

Surgical Treatment of Sezures

- Corpus Callostomy
- Focal Resection
- Temporal lobe resection
- Hippocampectomy
- Frontal lobe resection
- Lesionectomy

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CASE STUDY

Simon is a 40 year old man who was admitted to NICU with Status, He is sedated on Propofol, Fentanyl and Midazolam and has a Bis of 40. At 9am he starts having a generalised Seizure.

What are your First Actions?

ⓘ Start presenting to display the poll results on this slide.

Case Study

Escalate! NIC and Registrar

Put The timer on the monitor

Bolus sedation (Observe the Bis Score)

Observe the seizure and document in seizure chart

Monitor Observations Closely

Ensure Cot sides up and Patient is safe

Get Lorazepam

Check what AED's Patient is taking

- When were they last Loaded?
- Reload?
- Load with another AED

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CASE STUDY PART 2

Simon continues to have a generalised Seizure

What are your actions and or priorities?

ⓘ Start presenting to display the poll results on this slide.

Case Study After 5 mins

Give	Give Lorazepam
Monitor	Monitor for effect
Continue	Continue to observe Patients observations and oxygenation

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CASE STUDY PART 3

Simon Stops his Seizure after the Lorazepam is given

What your actions and Priorities?

ⓘ Start presenting to display the poll results on this slide.

Case Study Post Seizure

Full A – E assessment

GCS

Document all seizure activity

Check tongue and mouth

Check for any other injuries

THANK YOU