Declaration for Dr Lucy Kinton

I have no financial interests or relationships to disclose with regard to the subject matter of this presentation.

Seizures in the patient with “known” epilepsy

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Aims

- Review of the context
- Assessment of patients presenting with recurrent seizures

What investigations should be done?

How can we prevent recurrent admissions?

What is the context?

2-3% of all people presenting as an emergency

NASH audits (all seizures): 2012, 2015, 2020

- Gaps in care, assessment and treatment

NCEPOD report 2022 (seizures with diagnosis of epilepsy)

- Deficit in communication, assessment, documentation of medication and counselling re risk

Why is it Important?

Numbers of attendances are a high burden on emergency services

Seizures are risky: injury and death

Psychosocial consequences of uncontrolled seizures are huge

What did those reports show?

NASH Audits:

18%
Patients with epilepsy on no ASMs

63%
No contact with specialist in previous year

50%
Referred onto neurology

NCEPOD: Disordered Activity

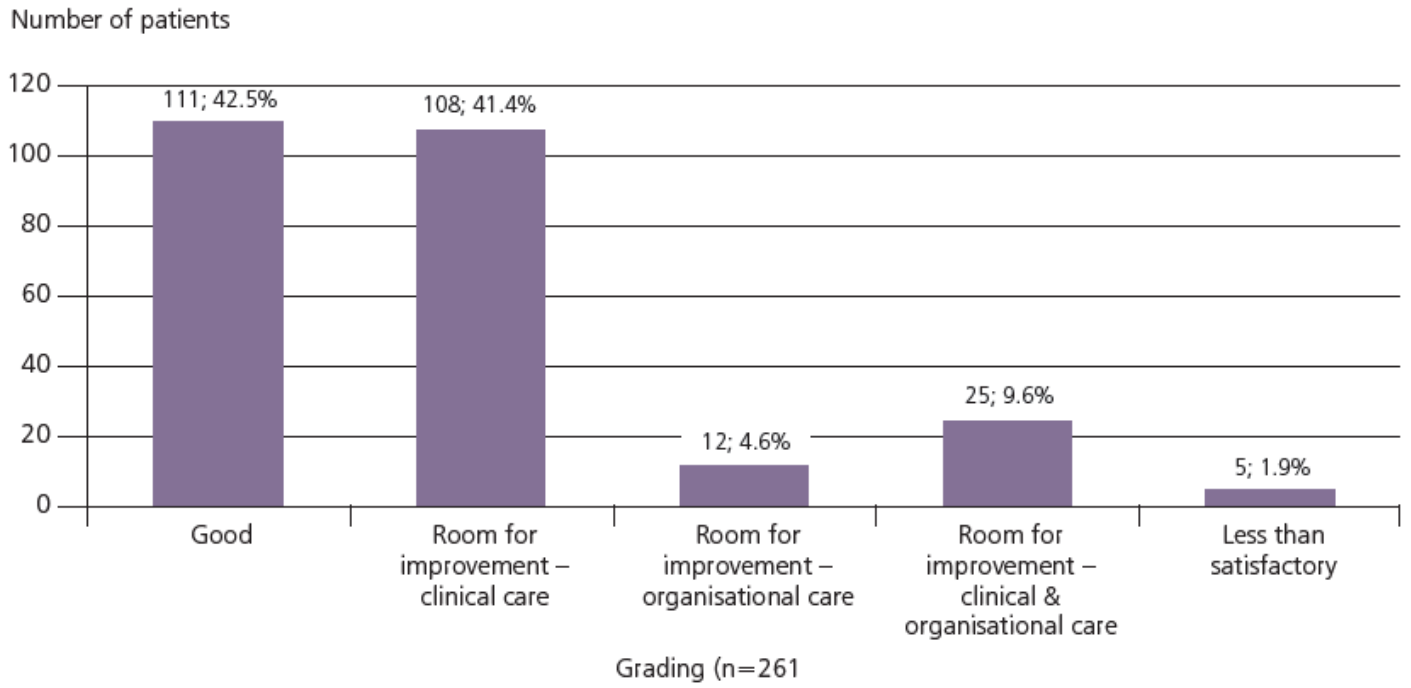

Figure 8.1 Overall quality of care

Assessment of patients presenting acutely

What is their baseline?

How is the current presentation different from their baseline?

What investigations are useful?

What is the baseline?

Seizure type

Seizure frequency

Seizure pattern and triggers

Medication

How is current presentation different to the baseline?

What investigations are useful?

- BM
- Urinalysis
- 12-lead ECG
- Pregnancy test (if indicated)
- Blood tests: FBC, U&E, LFTs, Glu, CRP
- Medication levels

Seizure Medication Levels

Assess compliance with ASMs

Beware adjusting dose based on levels: “phone a friend”

Some levels take months to come back: they are still useful

Imaging

"Do not carry out a CT scan for people with established epilepsy presenting at an emergency department after a typical seizure, unless there are other concerns" (NICE)

NCEPOD: 50% presenting at ED received a CT scan

Imaging: who to scan

- New focal neurological deficit
- Persistent altered mental state beyond what is usual for the patient in the post-ictal phase
- Prolonged headache or fever
- Recent significant head trauma
- History of immunosuppression, cancer, HIV or suspected HIV, anticoagulants should lower the threshold for imaging

Management

Every case will be different: enlist help if not straightforward

Treat seizures with benzodiazepines and possibly second line agents if needed

Try and identify a trigger for admission

Establish a seizure chart to monitor progress

Prescribe and make sure they get their regular medication

Cases

Case 1: diagnostic trouble

36 year old lady- little English- Punjabi speaker

Presented to ED twice in 2010 (age 23) with seizures

Found to be pregnant- on medication from India- analysed and found to be phenytoin

Had hidden epilepsy from husband and medical professionals in UK

Diagnosed with epilepsy age 18

MRI normal; EEG spike and wave activity

Adjustment to phenytoin dose brought seizures under control for about 2-3 years

Case 1 continued

Seizures then escalated despite multiple trials of ASMs (9 tried)

2016: admission for psychosis- multiple seizures prior – ran out of phenytoin

Generally phenytoin levels therapeutic, toxic later in 2016

Difficult to get a description or video

Refused admission for VT: didn't want to leave her daughters with her nephew (carer)

Home VT (Poole)- no attacks except possible single absence, very abnormal EEG

2018: description, 2019 finally saw some videos: looked like dissociative attacks

2021: Home VT (UHS)- dissociative attacks x3 recorded.

Case 1 continued

2022: admitted with multiple seizures- Dissociative attacks and epilepsy in records

AMU WR and referral- unclear whether epileptic or not

Review: had GTCS, phenytoin levels <1

Epilepsy nurse 2023:

- domestic abuse from husband when found out she had epilepsy, separated
- Nephew (carer allowance) also then physical abuse, threatened sexual abuse, EtOH xs, didn't collect medication in 2022. Previous safeguarding worries confirmed

Case 1 lessons: video attacks

Patients with epilepsy develop dissociative attacks frequently: up to 36% have both

Development of dissociative attacks (NEAD) can result in both over and under treatment

Get witness accounts (often unreliable)

Use the iPADs on your wards to video attacks

Case 2: the importance of ASM levels

17 year old presented with GTCS

Abnormal EEG with spike and wave activity suggestive of generalised epilepsy

Seen by neurology and started on Levetiracetam

Re-presented with further seizures to ED

Levetiracetam level was checked: available at next OPD: undetectable levels

Admitted to side effects on LEV, hadn't taken: switched to lamotrigine

Unfortunately ongoing seizures, died of SUDEP age 19

Case 3: check the drug chart

43 year old with drug refractory epilepsy: on 3 ASMs

Presented to the emergency department with pneumonia

Admitted and treated with IV antibiotics

3 days into her admission, had 4 focal seizures evolving to GTCS

Reviewed:

Medication had been prescribed accurately

Some of the medication had been unavailable on the ward for 48 hours, not given

Case 4: acute use of investigations

64 year old lady with drug refractory focal epilepsy

Tried every licensed (and a couple of unlicensed) anti-seizure meds

Currently on phenytoin, clobazam and carbamazepine (SR)

Lives with her husband who also has severe focal onset seizures

Habitual seizure types: blank spells “absences” and GTCS

Frequent hospital admissions over the years

Often presents with multiple seizures and reduced conscious level/confusion

Diagnostic issue: why is there reduced GCS?

Multiple seizures: Prolonged post-ictal state

Non-convulsive (focal) status

Delirium exacerbated by seizures

Medication toxicity

How to distinguish?

Admission 1: 5/6/2014

Usual seizure frequency 2/week.

Previous 48 hours multiple attacks (GTCS), no recovery between

Taking CBZ, ZON, Clobazam

Treated with lorazepam, loaded with phenytoin- OK for 2 days

Then dropped GCS

Reviewed – intermittently partly responsive to voice

EEG

The EEG suggests that the patient is in non-convulsive status epilepticus. Eight electrographic seizures are captured, consisting of widespread fast activity perhaps slightly more prominent on the left. This then evolves into widespread slow activity. These are accompanied by subtle clinical changes - the patient's breathing becomes shallow and the mouth and eyes open slightly.

The phenytoin levels had dropped after loading from 15 to 2

How to Distinguish?

Admission 2: 23/2/15

Admitted with increase in seizures in the previous 24 hours

Fluctuating confusion during inpatient stay

No TCS seizures seen in hospital

Taking Phenytoin, Perampanel, Zonisamide, Clobazam, Carbamazepine

CRP 33

Phenytoin level 7 (albumin 32)

EEG

The background activity is slowed and there are frequent bilateral epileptiform spike and wave and polyspike discharges of a generalised or frontotemporal distribution, sometimes in short runs. Independent spike discharges also occur. No diagnostic electrographic seizure discharges (such as seen in EEGs during admission in June 2014) and no clear clinical change noted with the spike and wave runs or the polyspike bursts.

Urine MC&S grew coliforms

How to distinguish?

Admission 3: 6/4/2016

Increasingly frequent seizures in previous 24 hours

Taking Phenytoin, CBZ, Clob, Perampanel

Diarrhoea and vomiting previous 48 hours

On admission GCS 14

Couple of seizures in ED- self terminating

Phenytoin level 2- reloaded

Still drowsy but consistently responsive to voice, not speaking

EEG

The background activity at times appears normal. There are several spike and wave discharges and there are short bursts of irregular slow wave activity but there is no ongoing seizure activity seen in this recording.

Diagnosis: Prolonged post-ictal period

What can we do to help?

Give advice on management, medication changes

Where possible take over patient if staying in

Follow-up for patients who are discharged from emergency presentations

Guidance on out of hospital emergency care plans

Summary

Let the epilepsy team looking after the patient know that they have attended

Establish the baseline for that patient (and what medication they take)

Why have they attended on this occasion?

If off baseline:

Check bloods to look for a cause and ASM levels to check compliance

Video ongoing seizures for diagnostic purposes

CT is rarely useful

EEGs can be useful for seizures which are not clinically obvious

References

https://www.ncepod.org.uk/2022epilepsy/Disordered%20Activity_full%20report.pdf

https://bmjopen.bmj.com/content/bmjopen/5/3/e007325.full.pdf

https://pn.bmj.com/content/practneurol/13/1/2.full.pdf

https://www.nice.org.uk/guidance/ng217

Status Epilepticus: a medical emergency

Patients presenting in convulsive status

2nd line agents:

Phenytoin: 20 mg/kg

Long infusion, cardiovascular SEs, extravasation injuries, pharmacology tricky

Sodium Valproate: 40 mg/kg

High teratogenicity, quick and effective

Levetiracetam: 60 mg/kg (maximum 4.5 g)

Medium quick, beware using inadequate doses, mental health issues

Lacosamide 5 mg/kg (usual dose 400 mg)

Less readily available

What to do with patients on ASMs already

Use an alternative while wait for phenytoin/valproate/CBZ levels

Don't not treat

If any history of non-compliance could choose to reload with regular meds

If usually well controlled – what other reason could there be?

Video some attacks

Look at clinic letters if you can

Look at GP records- have they picked up enough medication?

Patients presenting in non-convulsive status

Aim: prevent ICU admission if possible

Less urgent treatment required as metabolically less harmful than convulsive SE

Diagnosis is hard, even with EEG

Benzodiazepines

2nd line agents