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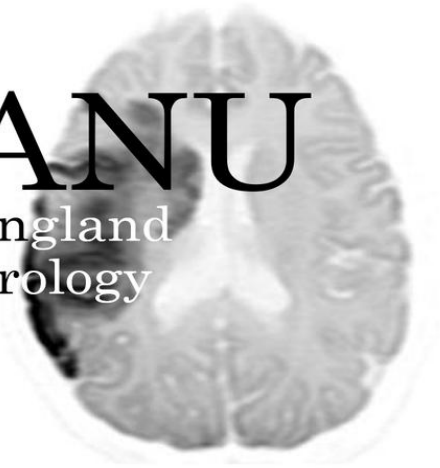

Epilepsy and its management

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Disclosures

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Nil

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Aims

Epilepsy definition

Seizure types and epilepsy classification

Epilepsy Management

Epilepsy definition

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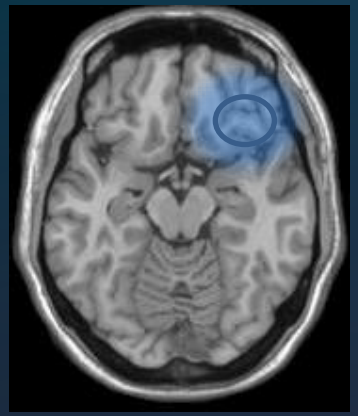
"Disorder of the brain characterised by an **enduring predisposition** to generate epileptic seizures and by the cognitive, psychological and social consequences of this condition"

International League Against Epilepsy, 2005

1.At least two unprovoked seizures occurring greater than 24 hours apart

2. One unprovoked seizure and a probability of further seizures of least 60% over the next 10 years

ILAE seizure classification 2025



Focal

Consciousness[1,2]
- Preserved
- Impaired

Focal to bilateral tonic-clonic seizure

Unknown
whether focal or generalized

Consciousness[1,3]
- Preserved
- Impaired

Bilateral tonic-clonic seizure

Generalized

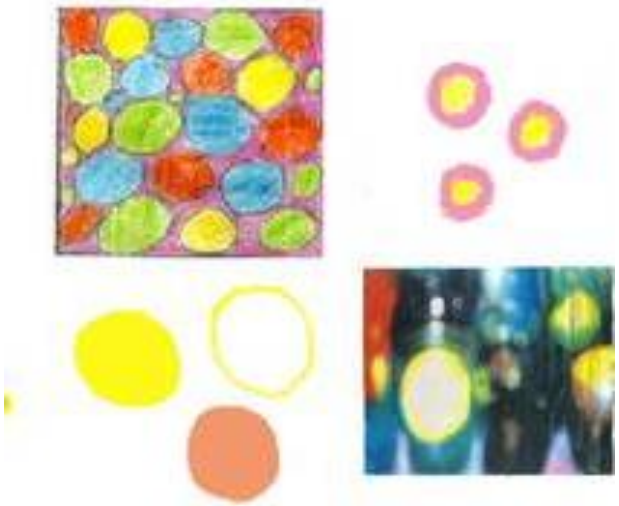
- Typical absence
- Atypical absence
- Myoclonic absence
- Eyelid myoclonia with / without absence
- Myoclonic[5]
- Negative myoclonic[5]
- Clonic[5]
- Epileptic spasms[5]
- Tonic[5]
- Myoclonic-atonic
- Atonic[5]

Generalized tonic-clonic seizure
- Myoclonic-tonic-clonic seizure
- Absence-to-tonic-clonic seizure

Expanded descriptors:
Semiology descriptors in chronological sequence[4], including focal epileptic spasms, myoclonus, tonic & clonic[4]

Unclassified

Focal seizures



- Temporal lobe onset- aura, behavioural arrest, automatisms, dystonia, impaired awareness
- Frontal lobe onset- hyperkinetic movements e.g. leg cycling, preserved consciousness
- Parietal lobe onset – sensory features, language impairment
- Occipital lobe onset – visual phenomena e.g. multicoloured shapes

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Investigation and management of epilepsy

Case 1

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- 70-year-old patient
- PMH TIAs, hypertension, otherwise fit and well
- DH statin, clopidogrel, amlodipine
- Lives with wife

- On MAU with "confusion ". Had a 4-hour history of confusion which has now improved. Recalls "feeling a bit strange" at onset unable to recall anything about further about the event. Now has a non-specific headache and feels tired

- Collateral history- Said he "felt funny" then stared for a few seconds, then wasn't "making sense and was rambling". On direct questioning, 3 similar previous episodes in the past 2 months lasting for 30 mins. Diagnosed as TIAs

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Diagnosing epilepsy in older adults

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- Typically motionless staring followed by a period of confusion
- Often no aura or automatisms
- Post-ictal period can be very prolonged (~1 week)
- Eye-witness accounts may be difficult to obtain
- **B**roader differential diagnosis

Management plan

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- Bloods
- ECG
- CT acutely (if first presentation)
- MRI brain

- Start ASM
- Refer neurology clinic
- Safety and lifestyle advice
- Driving advice

- Routine EEG not helpful

Which antiseizure medication?

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Lamotrigine

- **Better efficacy and better tolerated in focal seizures (SANAD 2 trial)**
- Usually cognitively neutral
- Mood stabiliser
- Few drug interactions
- Risk of rash / SJS
- Must be titrated very slowly (start at 25mg OD and increase by 25mg every 2/52. Initial target dose 50mg BD).
- Not useful for frequent seizures in the acute setting

Levetiracetam

-Usually cognitively neutral

- Few drug interactions

-Mood side effects not infrequent and can be serious

- Can be titrated rapidly in acute setting for frequent seizures. (Otherwise start at 250mg OD or BD)

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Case 2

- 40 years, known focal epilepsy. 1-2 focal–to-bilateral seizures / year
- PC- cluster of seizures, fever and vomiting
- DH- Carbamazepine 600mg BD, levetiracetam 1500mg BD

‘Breakthrough’ seizures

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- Look for seizure triggers
- Sleep deprivation / alcohol / intercurrent illness / missed medication
- For reasons other than missed medication- likely to need ASM increase
- Safety advice
- Copy patient’s neurologist into discharge letter

Management of ASM if NBM

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#1 Oral to IV conversion of same medication

Levetiracetam, lacosamide, valproate, phenobarbital, phenytoin

All dose-equivalent (exception of extended-release oral formulations of valproate)

#2 Rectal route for Carbamazepine

#3 Replacement with an alternative IV – contact neurology on-call

Case 3

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- 70-year-old patient
- PMH epilepsy, hypertension, otherwise fit and well.

- On MAU with “confusion ” for past 8 hours. Alert but disorientated and inattentive.

- Wife reports that he said he “felt funny” then stared for a few seconds, then wasn’t “making sense and was “rambling”. Similar onset to the episodes that had been diagnosed as seizures.

Differential diagnosis

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- Postictal state
- NCSE
- Toxic/metabolic encephalopathy

Diagnostic clues for NCSE: known epilepsy, previous stroke/ brain insult, recent BDZ/ASM withdrawal, abrupt onset, rapid fluctuation, subtle motor signs, unexplained autonomic instability

Non-Convulsive Status Epilepticus

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- Incidence difficult to estimate
- One study reported 16% incidence in older adults with new onset confusion, after normal 'standard' investigations[1]

Absence status epilepticus

(known IGE)

Focal status epilepticus
• +/- impairment of consciousness

Acute confusional state / other focal seizure

Coma
• Evolved from generalised TCS (subtle NCSE)

1 Veran O, et al Epilepsia 2010;51(6):1030–5.

1. Confirm diagnosis of NCSE with EEG
This is particularly important in the 'confused older adult' and 'encephalopathy ?cause' where the diagnostic certainty is low

ongoing seizure

	Absence status epilepticus (known IGE)	**Focal status epilepticus** **• +/- impairment of consciousness** Acute confusional state / other focal seizure	**Coma** **• Evolved from generalised TCS (subtle NCSE)**
45 mins 60 mins	1.Oral or IV low dose BDZ 2. IV VPA	1. Oral BDZ / IV LEV / IV VPA 2. Oral or IV BDZ / IV LEV / IV VPA (depending on 1st line)	This is a medical emergency and should be managed with anaesthesia and concomitant IV ASMs as per convulsive status protocol

Where possible, avoid IV BDZ in older adults.
In general, risks of general anaesthesia outweigh risks of potential neuronal damage in focal and absence SE

Treat underlying cause

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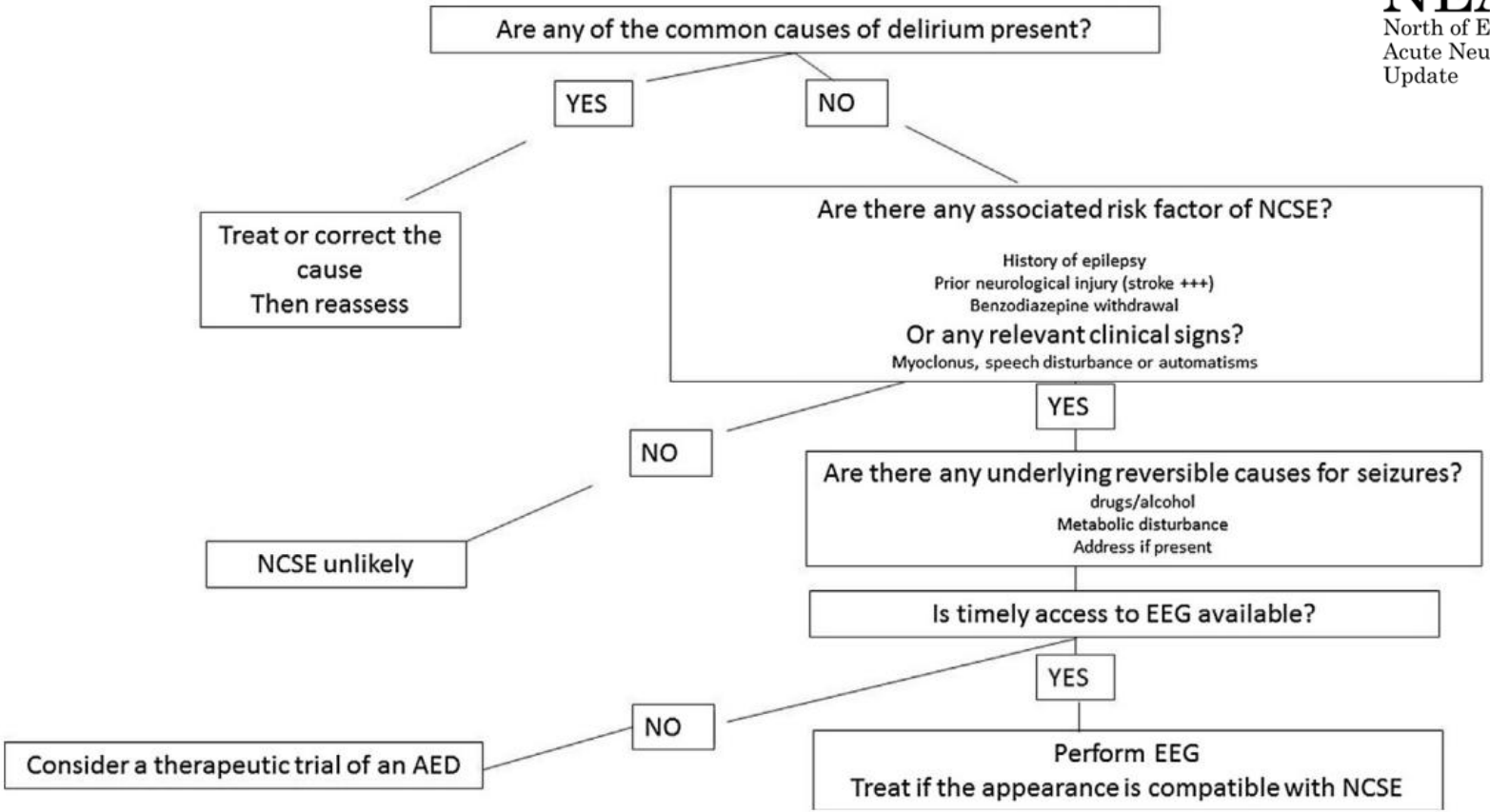
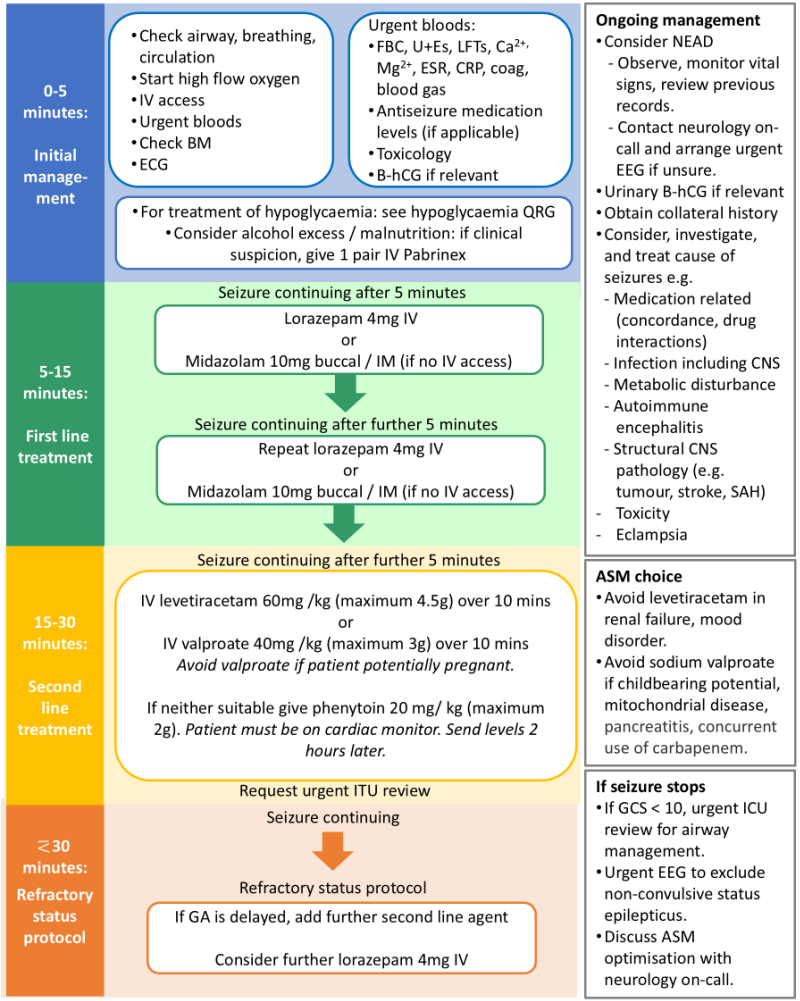


Dupont S, Kinugawa K. Nonconvulsive status epilepticus in the elderly. Rev Neurol. 2020

5.5 Management algorithm for generalised convulsive seizures



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ESETT showed that benzodiazepines are often underdosed:

-Most guidelines advise 4mg lorazepam (or equivalent)

-Dose was less than 4mg in 9%

-Typically multiple small doses were given with 70% receiving less than guideline as initial dose

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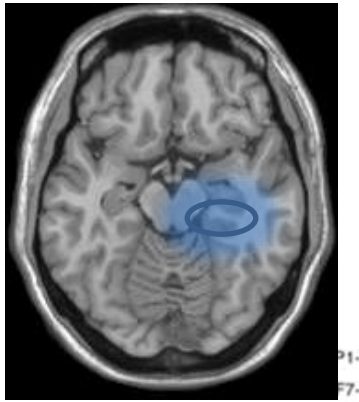
Questions?

Focal seizures



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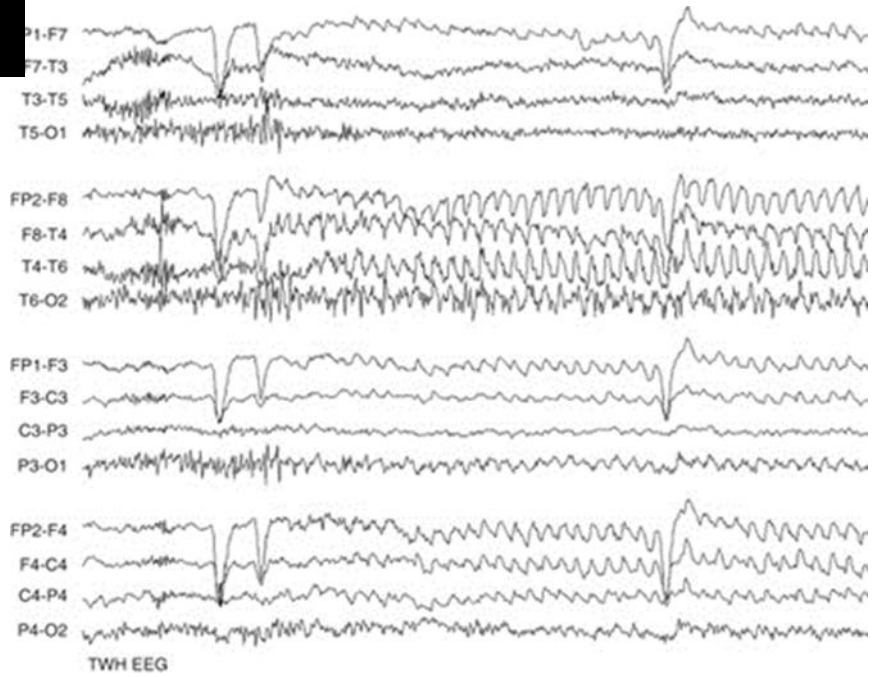

Generalised seizures

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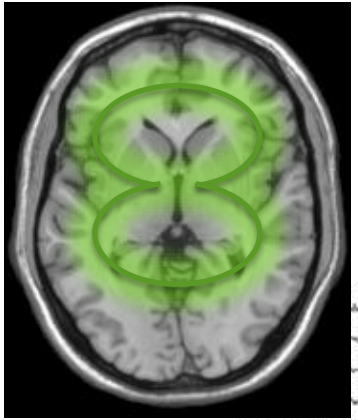

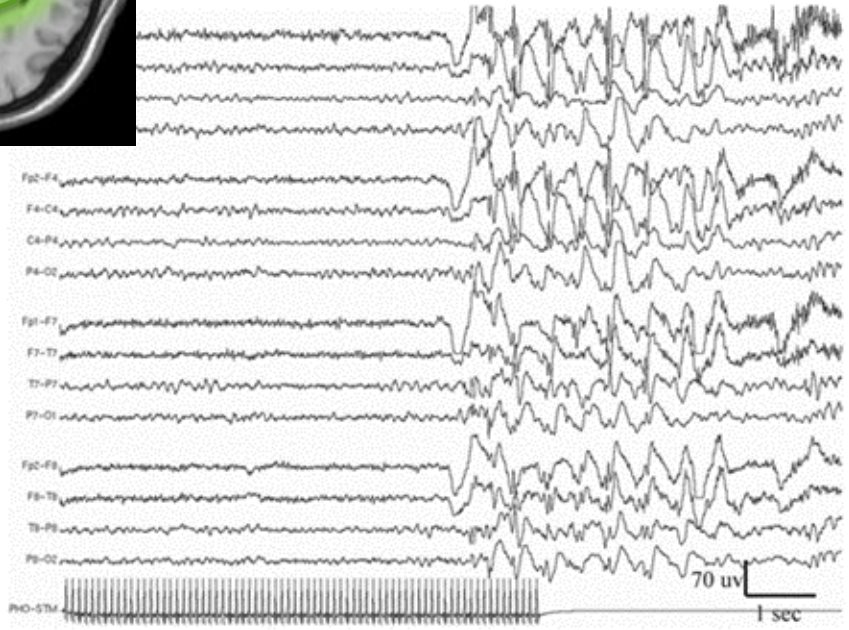

Cases 2 & 3

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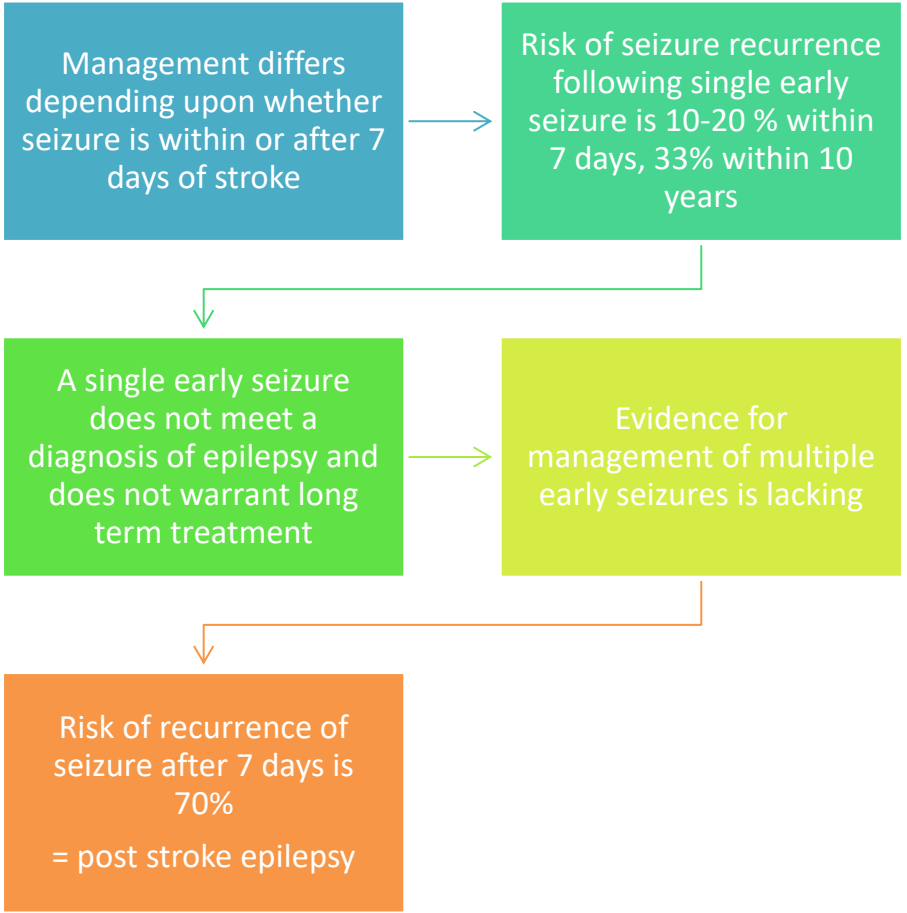
- 73-year-old patient
- Presents to ED following a self-terminating generalised tonic clonic seizure. Single event, no suggestion of previous seizures.
- Bloods normal, no alcohol withdrawal, ECG normal
- PMH ischaemic stroke 2022 –residual left hemiparesis

Q- should this patient be started on antiseizure medication?

- 86-year-old patient
- Has a self terminating GTC seizure, 5 days after admission for ICH. No prior history of seizures

Q- should this patient be started on antiseizure medication?

Management principles of stroke related seizures



Management of stroke related seizures

Early seizures (within 7 days of stroke):

- Single seizure: Initiation of ASM is not recommended (ESO)
- Multiple early seizures: reasonable to px an ASM for around 6 months
- Levetiracetam 500 mg BD (PO or IV if NBM) is a suitable choice for multiple early seizures (IV "loading dose" not necessary!)

Late seizures (after 7 days of stroke):

- An ASM should be started
- Lamotrigine is the preferred 1st line option. Levetiracetam suitable alterative.

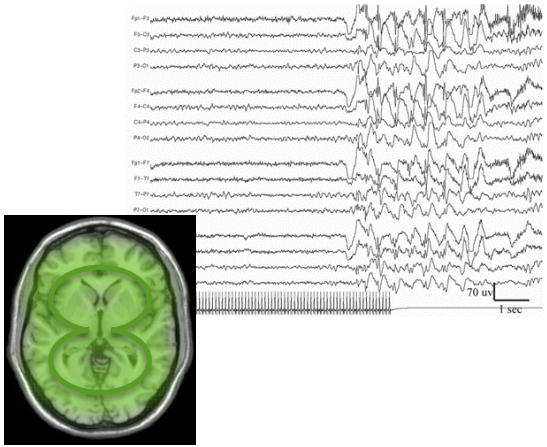
Driving:

- Patient must be advised to inform the DVLA and not to drive: usually 6 months following early post stroke seizure or 12 months for late post stroke seizures.

Absence seizure v focal consciousness impaired seizures

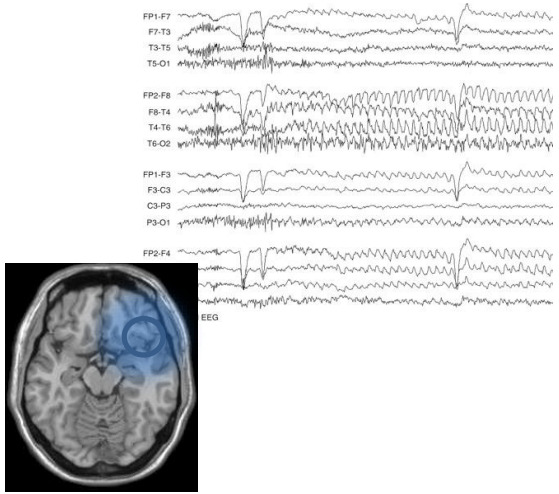
Absence seizure

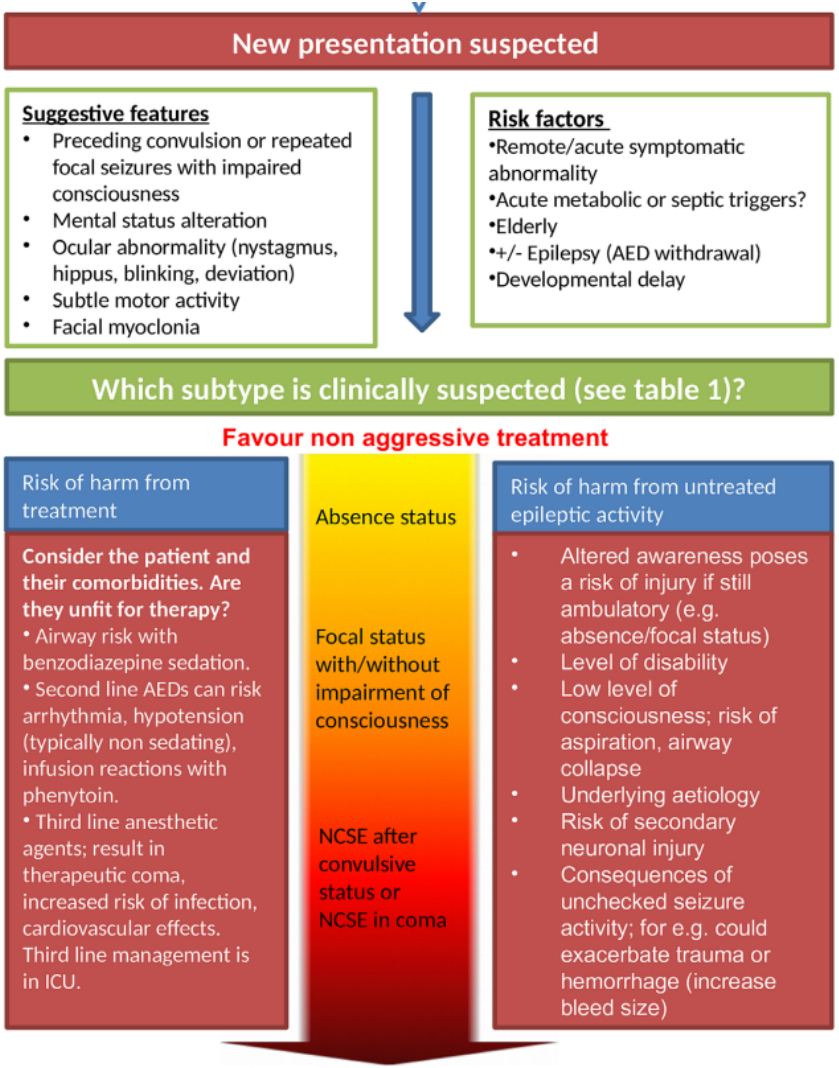
- Generalised seizure
- Occur in Idiopathic Generalised Epilepsy (onset 4yrs- early adulthood) and other childhood syndromes
- Typically last < 30 seconds with abrupt return to normal



Focal consciousness impaired seizure

- Can occur at any age
- Often assd structural abnormality
- Classic (mesial) temporal lobe seizure: de ja vu, automatisms, pallor, and ictal phase +/- limb dystonia, head/ eye version.
- Usually minutes, with post ictal phase




New presentation suspected
Suggestive features
• Preceding convulsion or repeated focal seizures with impaired consciousness
• Mental status alteration
• Ocular abnormality (nystagmus, hippus, blinking, deviation)
• Subtle motor activity
• Facial myoclonia
Risk factors
•Remote/acute symptomatic abnormality
•Acute metabolic or septic triggers?
•Elderly
•+/- Epilepsy (AED withdrawal)
•Developmental delay
Which subtype is clinically suspected (see table 1)?
Favour non aggressive treatment
Risk of harm from treatment
Consider the patient and their comorbidities. Are they unfit for therapy?
• Airway risk with benzodiazepine sedation.
• Second line AEDs can risk arrhythmia, hypotension (typically non sedating), infusion reactions with phenytoin.
• Third line anesthetic agents; result in therapeutic coma, increased risk of infection, cardiovascular effects. Third line management is in ICU.
Absence status
Focal status with/without impairment of consciousness
NCSE after convulsive status or NCSE in coma
Risk of harm from untreated epileptic activity
• Altered awareness poses a risk of injury if still ambulatory (e.g. absence/focal status)
• Level of disability
• Low level of consciousness; risk of aspiration, airway collapse
• Underlying aetiology
• Risk of secondary neuronal injury
• Consequences of unchecked seizure activity; for e.g. could exacerbate trauma or hemorrhage (increase bleed size)