A practical approach to the management of the patient with seizures

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Learning objectives

- Quick assessment of patients acutely
- Differentials
- Treatment algorithms and key practice points

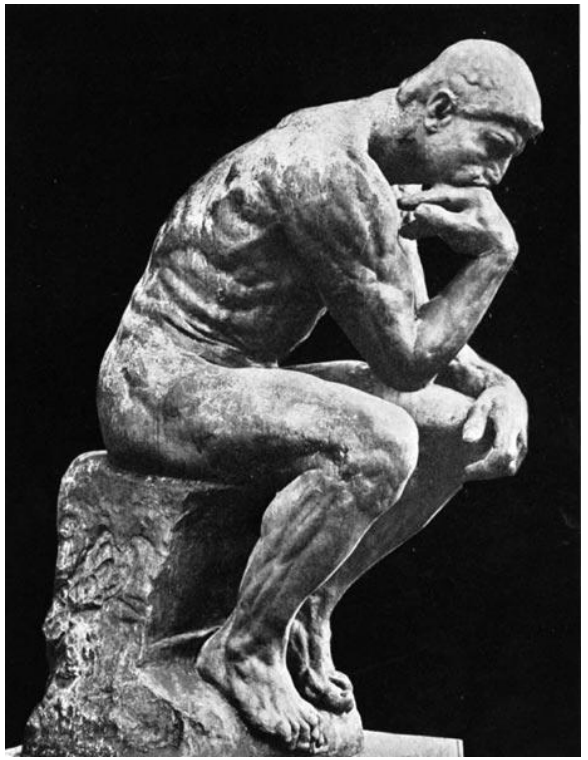
Case

48 year old forklift driver

- Epilepsy since childhood, follow-up at family clinic
- Seizures predominantly at home, once every 1-2 months on average
- On Phenobarbitone 60mg BD
- Admitted after a generalised tonic-clonic seizure, found unconscious beside forklift

0100

Called to see: ‘Patient having a seizure’

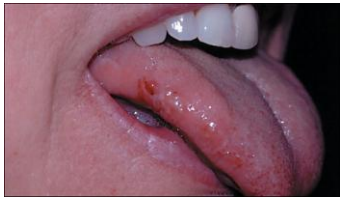


Epilepsy Mimics

- Syncope
- Hyperventilation
- Toxic and metabolic disturbances
- Cardiovascular disorders
- Sleep disorders
- Paroxysmal dyskinesias
- Hemifacial spasms
- Paroxysmal vertigo
- Trigeminal neuralgia
- Migraine
- Transient global amnesia
- Psychogenic seizures
- Episodic dyscontrol

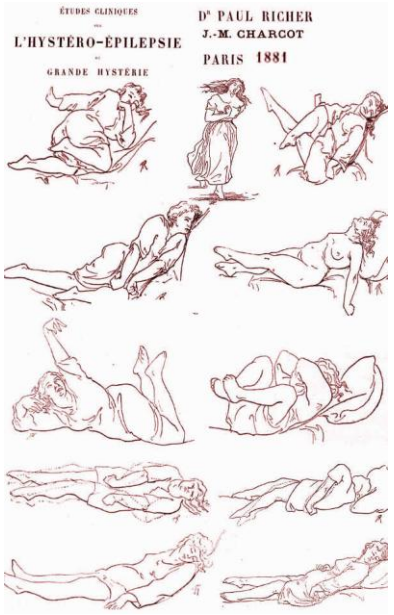
Establish the diagnosis

- **Sequence of events**
  - Aura [+/-] vs prodrome
  - Loss of consciousness
  - Muscle tone
    - Tonic, Clonic, Atonic, Myoclonic
    - Injury
    - Incontinence



•Tongue bite (lateral 100% specific)
•Eye opening

•Post ictal confusion/drowsiness/paralysis



Opisthotonic posturing

Types of seizures

- Localization related seizures
  - Partial or focal
    - Start in one part of brain and may spread
  - Simple or complex
    - Simple = normal awareness
    - Complex = impaired awareness
  - May become secondarily generalised
- Generalized seizures
  - Involve both hemispheres of the brain

0130

Starting to wake up, appears confused

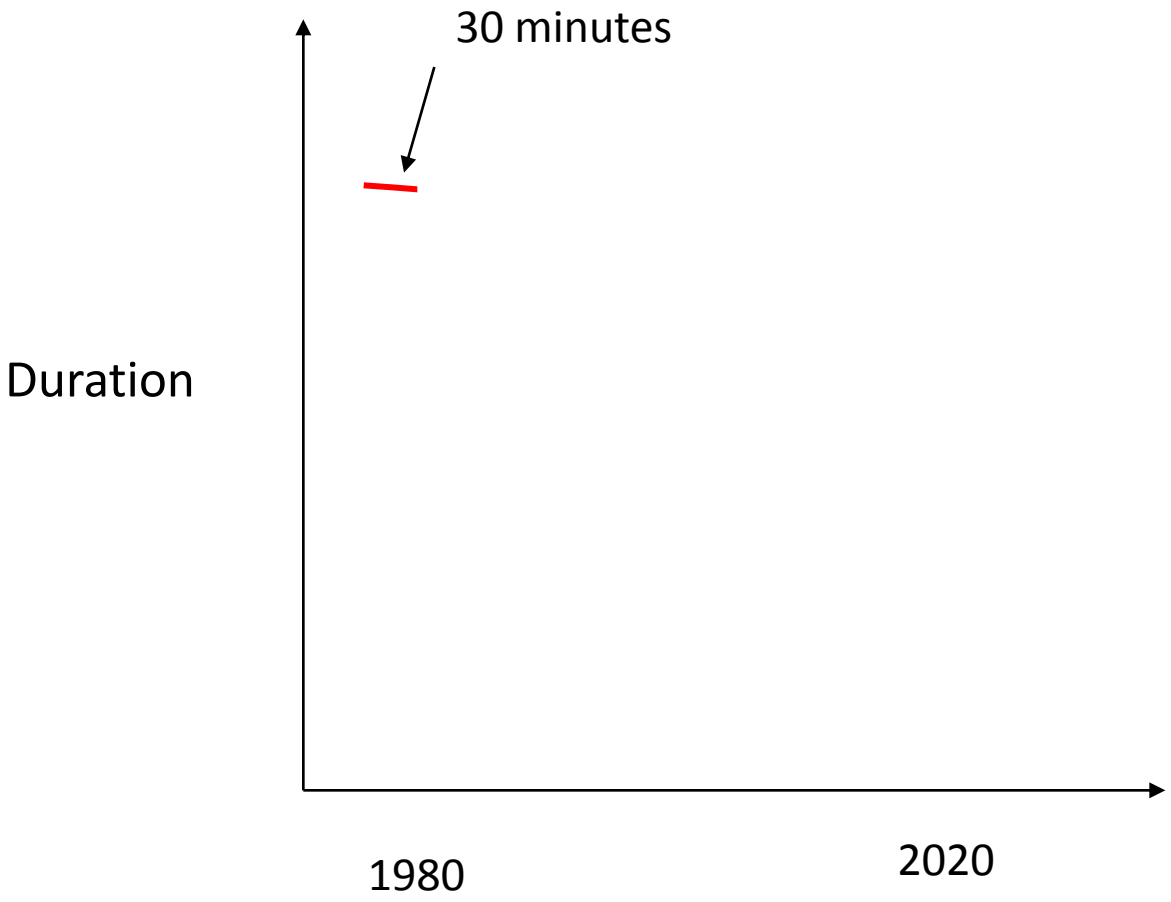
Has a tonic-clonic seizure in front of you, lasting 10 minutes

Acute Management of Seizures

Goals

- Prevent aspiration/trauma
- Terminate seizure
- Prevent future seizures

Definition - Status Epilepticus



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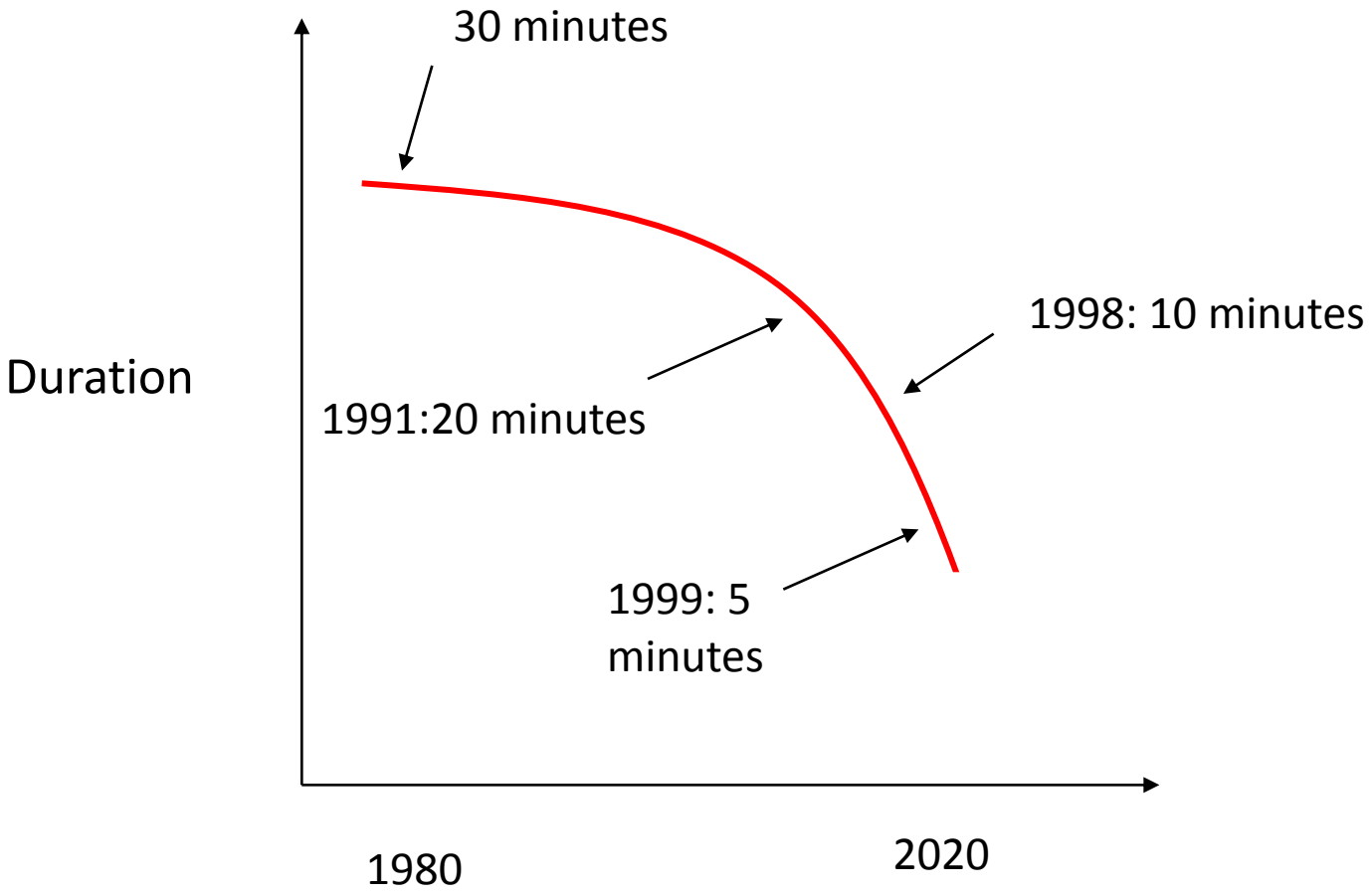

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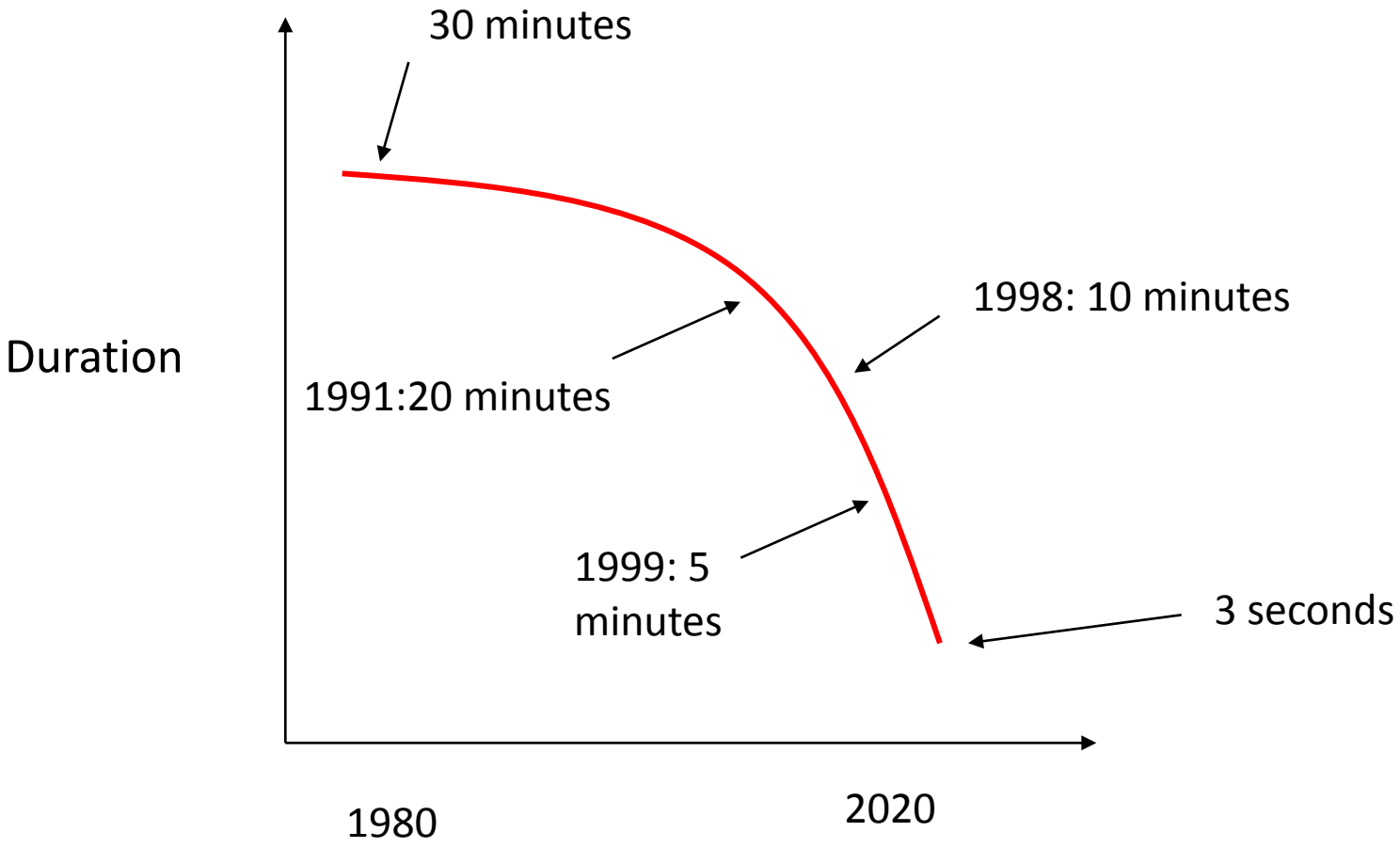


Move fast

- Starting Rx ASAP has been correlated with a better response rate to drug Rx, and lower morbidity
  - *Lowenstein DH, Alldredge BK*
    Neurology 1993 (43): 483-8
    - < 30 min - 80% stopped
    - > 120 min - < 40% stopped

Treatment Algorithm

6-10 minutes

- **Thiamine 100 mg IV; 50 ml of D50 IV unless adequate glucose known.**

Always check h/c!!

Arif and Hirsch, Seminars in Neurology, 2008

Hospital Rx: Status epilepticus

- Immediately benzos IV:
  - **Lorazepam** 4 mg (0.1 mg/kg, rate 2 mg/min),
  - Diazepam 10 mg (0.15-0.25 mg/kg, rate 5 mg/min)
  - Midazolam 5-20 mg (0.1-0.3 mg/kg) over 5 min

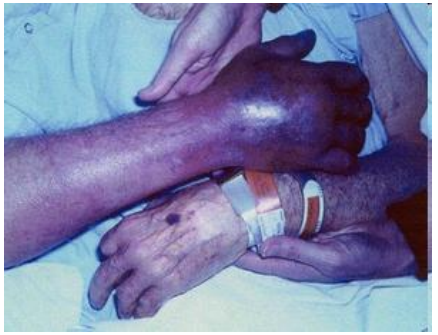
	Lorazepam	Diazepam
Duration of action	*12-24 hr	*< 1 hr
Onset of action	2-3 min	1-3 min
Sedation	+	++

GIVE WHATEVER IS AVAILABLE QUICKLY

- If no rapid IV access give diazepam 20 mg PR or midazolam 10 mg IM (nasal and buccal preparations also available).

Phenytoin

- Load 20 mg/kg IV at 50 mg/min (better than “1 gram”)
- S/E - (most avoided if slower administration)
  - hypotension
  - arrhythmias - (must monitor)
  - venous irritation
  - IV solution is highly alkaline - give in large vein, dilute N/S, flush
  - extravasation -->tissue injury / necrosis



Sodium Valproate

- If worried re arrhythmias, hypotension, sedation, can use valproate.
- Loading dose 25-45mg/kg. Rate 200-500mg/min.
- Continuous infusion rate up to 6mg/min.

Misra et al., Neurology 2006;67:340
Agarwal et al., Seizure 2007;16: 527-32

0215

Patient is still seizing

Refractory SE

- Fails to respond to adequate doses of at least two antiepileptic medications
- Has a higher morbidity and mortality risk than nonrefractory SE.

Drug Rx - *Refractory* SE

- Anesthetic doses of:
  - Midazolam (0.2 mg/kg slow IV bolus) and continuous IV infusion 0.1 – 0.4 mg/kg/hr
  - Propofol (1-2 mg/kg)
  - Barbiturates (Thiopental, Phenobarbital, Pentobarbital)

- Bewared respiratory suppression, the patient should be intubated and ventilated. Vasopressor support is often necessary.


phew.

MCQ 1

A 42 year old man with known epilepsy has a seizure whilst on the ward. He is initially at his baseline neurological status but then develops a generalized seizure that has lasted 5 minutes. Which of the following is the most appropriate next step in the management?

A.IV Diazepam

B.IV Phenytoin

C.PO Diazepam

D.IV Lorazepam

E.Observe if the seizures terminate

MCQ 2

You are asked to see a patient who is having a seizure. The presence of which of the following characteristics would be more suggestive of epileptic seizures as opposed to a non-epileptic attack (peudoseizure)?

A. Ictal eye closure
B. Opisthotonic posturing
C. Side-to-side head movements
D. Stuttering speech
E. Tongue biting

MCQ 3

You are the senior resident in EMD when a patient in convulsive status epilepticus is brought in. Whilst others are stabilizing the patient and administering medication to abort the seizure, what is the first diagnostic test would you ask for:

A. CT brain
B. Send off blood for electrolytes
C. Check blood sugar level
D. Send to NDL for urgent EEG
E. ECG

Summary

- Act in a timely manner
- Move down the treatment algorithm
- Re-evaluate the patient