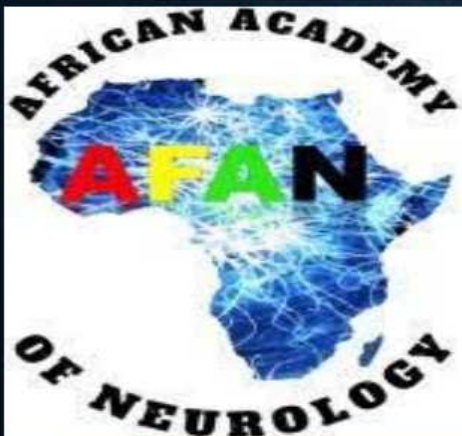


A first seizure

Marieke Dekker MD PhD
Kilimanjaro Christian Medical Centre, Moshi Tanzania



14TH NEUROLOGY REGIONAL TEACHING COURSE IN SUB- SAHARAN AFRICA



EPILEPSY

- Treatment gap: up to 90%
- Loss to follow up about 50%



All pictures with (parental) consent

*Neurology in Africa. Howlett 2012
Walker et al., Lancet Neurology 2011*

Complications



Photos Prof Howlett, KCMC

The first seizure (“S1”)

2 questions to answer:

Q1. Seizure? Or **no** seizure (PNEA)?

Q2. **Acute** symptomatic seizures or possible epilepsy?

S1 symptoms

Q1. Seizure? Or **no** seizure (PNEA)?

- Really the first seizure ever? (early childhood, FS)
- Eye witness
- Precipitants (lack of sleep, stress, fever, light, substance abuse etc.)
- Chronology (frequency, time of day/night, stereotypical)
- Associated (mental/somatic) symptoms

Smartphone video? Combined with exam and history:
95% sensitive.

“Am I seeing what I am seeing?”

“Am I seeing what I am seeing?”

Top 3 Most Helpful

Seizure:

Abrupt onset,
eyes open/pupils dilated,
postictal confusion/sedation.

Psychogenic Non Epileptic Attack (PNEA):

Preserved consciousness (no amnesia),
eyelid flutter,
influencable from the outside.

S1 can present as status epilepticus

Often (plm 50%): history of epilepsy,
often unknown at time of presentation
(when patient brought in)

Think of: sudden withdrawal ASM
(phenobarbital).

Or the many other causes

“Atypical symptoms”

**Seizure mimic: pale, sweating, nauseous, dizzy:
(pre)syncopal (cardiac, vasovagal, hypoglycaemia?)**

Or: PNEA?

-Eyes closed, eyelid flutter

-Motionless posture from onset of attack

-Duration (the longer the less typical)

-Never any incontinence/tongue bite/injury

-Onset long enough 'to seek comfy position'

-Quick postictal recovery (possible in eg FLE)

-Emotional (during and afterwards)

-Thrashing; groaning; weeping; pelvic thrusting

-Never eye witnessed; solely patient's own account

-'Secondary benefit' (teenagers, boarders, soldiers etc.)

-No response on adequately dosed ASM

-'Coincidence' factor...*some of the fits in the waiting room*

S1 additional investigations

Vitals, neuro examination

Neuroimaging: abnorm CT 17%, MRI 23%

EEG: 72h capture chance IED 95%

Laboratory tests (CK better than Prolactin)

LP: CSF

Do S1 additional investigations suggest “acute symptomatic seizure”?

By

- CNS infection
- TBI
- hypoxia
- intoxication (medication/substance)
- eclampsia/HTN/PRES
- ICH etc.

Often: post stroke,-trauma,-HIE,metabolic, HTN, CNS infections

SMITH, A B; VAN HOVING, D J and WALLIS, L.A. Emergency centre investigation of first-onset seizures in adults in the Western Cape, South Africa. *SAMJ, S. Afr. med. j.*

Common Etiologies	Adults	Children
Stroke, including hemorrhagic	20%	10%
Low antiepileptic drug levels	35%	20%
Alcohol withdrawal	15%	—
Drug intoxication (theophylline, imipenem, isoniazid, beta-lactams, clozapine, bupropion, 4-aminopyridine, cocaine, etc) or withdrawal (benzodiazepine, barbiturate, baclofen)	5%	5%
Anoxic brain injury	15%	5%
Metabolic disturbances (low glucose, calcium, magnesium, or sodium level; high glucose level; renal failure; liver failure)	15%	5%
Infection (meningitis, encephalitis, brain abscess, sepsis)	5%	5%
Traumatic brain injury	2.5%	15%
Brain neoplasm	5%	0%
Febrile seizures	—	50%
Remote brain injury/congenital malformations	20%	40%
Idiopathic	5%	5%

^a Modified with permission from DeLorenzo RJ, et al, *Neurology*.⁵ © 1996, American Academy of neurology. www.neurology.org/content/46/4/1029.short?sid=e0855659-4863-46e8-b0c8-0d49dfd06f97.

S1 management: 'One seizure is no seizure'?

Usually **no** to **ASM** after S1:

Neurological examination normal

Neuroimaging, EEG normal

Specific trigger eliminated

Seizure during sleep

No family history of epilepsy

(Q2:Acute symptomatic seizure: depends)

S1 management: Medication?

Occasionally **yes** to **ASM** after S1 if:

- Only 1 seizure, but raised risk
(eg TC seizure: recurrence risk 16%-61%)
- Seizures with impaired awareness

(Q2:Acute symptomatic seizure: depends)

If ASM after S1:

Then rational choices, eg.:

Uninsured and/or rural setting: phenobarbital, phenytoin, carbamazepine (TZ)

Focal onset by history, nocturnal: carbamazepine (levetiracetam)

Post stroke seizure: phenytoin (see considerations above), valproate

Childbearing age: lamotrigine, levetiracetam.
(often 2nd-3rd trimester presentation: dose matters!)

S1 management: Life style rules after S1

Poll:

Raise your hand if your country's road law has legislation regarding seizures and driving

Life style rules after S1

Fire

Water

Traffic -18% car accidents: driver S1!

Dependants: infants/elderly in their care

Heights

But most activities **are possible** > prevent stigma + attention to mental health.

Easily overlooked/ignored cause of S1: Alcohol

.....ask!

Consider withdrawal (10% of alcoholics: 7-48h post interrupted intake), intoxication or compounded vascular or metabolic -liver-complications.

SESA entity: 'Subacute encephalopathy with seizures in alcoholics'.

Uncommon in WKS unless there are cortical lesions.

Missed head injury: cSDH series KCMC: 25% alcohol use

Hence:

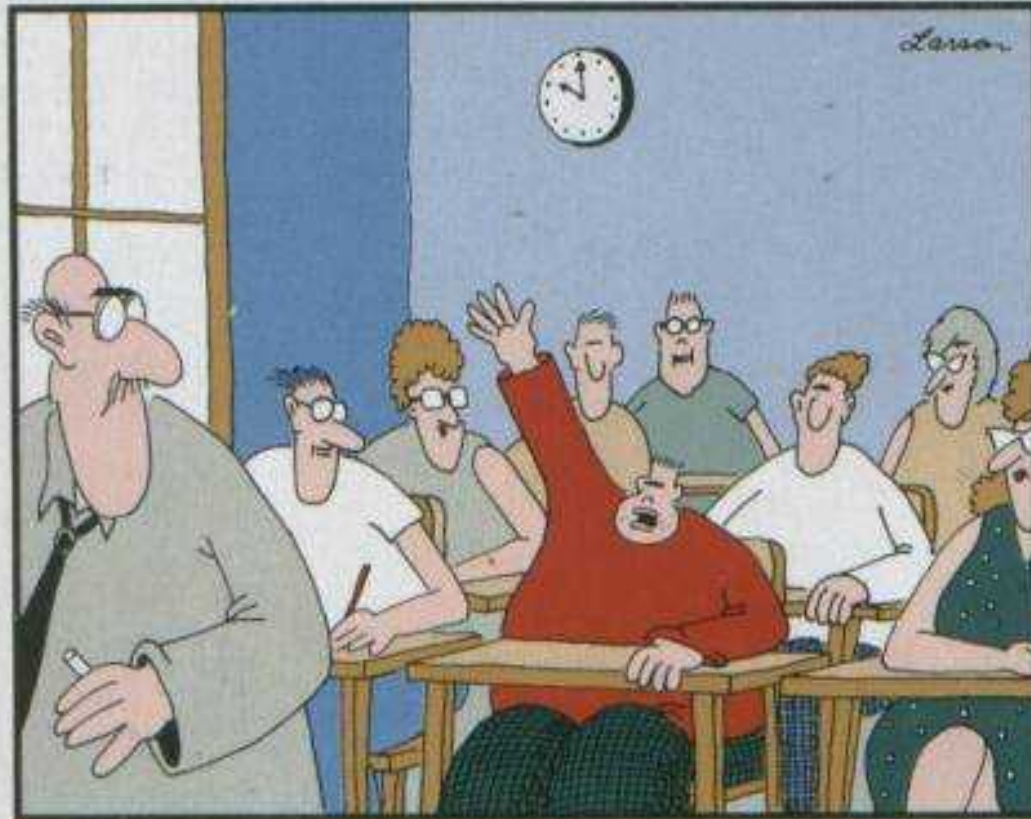
- High index of suspicion
- Low threshold to supplement thiamine (/glucose infusion)

Thiamine: the refresher

All figures based on normal gastrointestinal uptake

- Daily baseline requirement : **1-3 mg**
- Body stores : **30 mg**
- A healthy individual can deplete their thiamine in **2-4 days**
- Intestinal resorption of oral thiamine only **5%** BUT SAFE
- IV thiamine in at-risk patients : **100mg IV**
- PO thiamine in at-risk patients : **200mg PO BD**
- IV thiamine in WKS : **500mg IV TDS**
- PO thiamine in WKS : up to **1500mg PO QID!**
- Duration of high-dose treatment : **three** days or until plateau in neurological improvement
- Continue with tapering dose to eg. **100mg PO OD**

Questions?



**"Mr. Osborne, may I be excused?
My brain is full."**