Differential Diagnosis of the epileptic seizures

Concerned: 6 year Medical students

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Learning objectives

✓ Define epileptic seizure with his main characteristics
✓ Know elements of the history orienting to Non Epileptic Seizure (NES)
✓ Apply a methodological clinical examination
✓ List and describe the most commonly clinical differential diagnosis encountered in the practice
✓ Recognize and refer to specialists patients with non-epileptic seizures
Introduction

- About 5% to 10% of out patients received in neurology and epileptology unit under antiepileptic drug (AED) have NES
- 20% to 40% of patients hospitalized for seizures, suffer other diseases (Rapposelli, 2005)
- In 10% of patients with non-epileptic seizures features, real seizures are detected in EEG (LaFrance, Benbadis 2002)
Introduction

Epileptic Seizure
“a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal discharge in the brain”
- Sudden onset, repetitive, stereotyped, sudden end

Non epileptic seizure: paroxysmal and repetitive Events evoking firstly epileptic seizures, but related to psychogenic, organic or physiological processes underpinned by a neuronal discharge

Fisher 2005
Josien 2005
History

Will describe the seizure (what the patient retains or felt, what the witness saw). It must specify:

1- Circumstances of occurrence and/or context:
   - Spontaneous or provoked?
   - Notion of recent head trauma?
   - Taking liquid: alcohol, coffee…
   - Medicine: psychotropes, corticosteroids, βmimetics…

2- Proceedings of the seizure
   - What patient said allows to claim or not the focal caracter
   - State of the patient after the seizure
History

3- Characteristics of the seizure:
- Age at the onset,
- Time of occurrence, how long,
- Repetitive and stereotyped or not

4- Type of the seizure: Generalised or Focal

5- Associated signs:
- Fear, palor, sweats, urination
- Biting tongue, confusion, hypersalivation

6- Whether or not without aura
7- Personal and family past history

- epilepsy,
- psychologic or psychiatric diseases,
- personal conflict, birth resuscitation,
- febrile convulsion, history of seizure.

8- Risk factors

- vascular,
- infectious,
- toxic,
- drugs and
- co-morbidity
Elements of the history orienting to Non Epileptic Seizure
(Josien, 2005 modified by Lamine et al)

- Not logical unfolding of the seizures
- Non-stereotypical aspects: seizure changing from one to another
- High frequency of seizure often multiple daily.
- Drug resistance despite good adherence by serum level of antiepileptic.
- Paradoxical response to antiepileptic: frequency of seizure increases with the increase in the number or dose of AEDs.
- Systematic occurrence of seizure in society, or in the absence of witnesses
- History of physical or sexual abuse.
- Notion of epilepsy in the family or professional: patient often witnessed seizure. It is a concept that is important to systematically investigate.
- Many hospitalisations at the emergencies unit for seizure or status epilepticus.
Clinical examination

It should be comprehensive and include:

- **General examination:**
  - Signs of potential injury during a fall
  - Signs of disease leading to etiological diagnosis of the seizure
  - Assess the impact of the seizure

- PB, pulse, T°...
Clinical examination

- Neurological examination:
  - Search the focal signs : Todd Sd = post-ictal paralysis
  - Eye blinking or not.
  - Resistance (tone) at the opening of the eyelids
    - Post-critical coma : no eyelids resistance
    - Simulation : eyelids resistance

- Cardiovascular examination:
  - Carotid or heart murmur,
  - Rhythm disorder

- Examination of other systems depending on the orientation
Investigation

Two objectives:

- Exclud an epileptic seizure knowing that an EEG doesn’t exclud a seizure
- If is a non epileptic seizure (NES) going to etiological diagnosis

It should be oriented according to the clinical examination

- Standard EEG
- In case of doute repeat the EEG
- Sleep EEG in particular to the children
- In case of an uncertain diagnosis or failure of antiepileptic treatment:
  - Vidéo-EEG using en utilisant toutes les suggestive technics according to the ethic issue
  - Holter EEG.
- Lab Tests : FBC, Ions, Glycémmie à jeûn
- Cerebral MRI if not cerebral CT Scann.
Decisional tree during brief paroxysmal event

Brief paroxysmal events

Epileptic seizure?

If yes precise:
- Type of seizure
- Syndrom
- Treat

Doute on the nature of seizure
- Reconsider the clinical history
- Video EEG
- Send to specialists

If not it’s a NES then
Treat according to the etiology or send to Specialists
Differential Diagnosis

- Myoclonic syncope
- Vasovagal syncope
- Generalised seizures
- Cardiac syncope
Differential Diagnosis

Generalised seizures

- Hysteria
- Simulation
- Factitious disorder
- Panic attack
Differential Diagnosis

- Hypoglycemia
- Hypocalcemia
- Secondary Psycho-motor seizures
- Acute alcohol Intoxication
Differential Diagnosis

- Inattention
- Micro-daytime sleep
- Absences seizures
- Cataplexy
Differential Diagnosis

- Spasmophilia
- Certain abnormal mvts
- simple motor seizures
- Pyramidal clonus
- episodic paroxystic dyskinésia
Differential Diagnosis

- Sleepwalking
- Night terrors
- motor complex seizures
- Nightmare
- Night paroxystic dystonia
Differential Diagnosis

- Paresthésia
- TIA
- Dyesthésia
- Aura migraine

Sensory seizures
Differential Diagnosis

- Aura migraine
  - Occipital seizures
    - TIA
  - Frontal seizures
    - Schizophrenic inappropriated laughter
      - maniac fun and euphoric laughter
    - episodic paroxystic dyskinésia
New born: generalised seizures are rare

Eye mvts

Sucking and mastication mvts

New Born Baby

Pure shocks or less rhythmic feet and hands
Infant

Spasm of sobs

Infant

vagale syncope
In children

**Morpheic seizures**
- Night terrors
- Nightmare
- Sleepwalking

**Day seizures**
- Fever malaise
- Decreased alertness, distraction attentional deficit
10 and 50% of patients with non-epileptic seizure have epilepsy associated (LaFrance, Benbadis 2002)

- Non epileptic seizures occurs many year after Epilepsy
- In the exceptionnal case, some partial epilepsy seizures may trigger NES