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AHMEDABAD FAMILY PHYSICIANS ASSOCIATION

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SEASON'S GREETINGS

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Respected Seniors and friends,

Winter season is in full swing and war against Corona is still going on.
Day by day Omicron cases are increasing in our OPD but by grace of God recovery rate is also good.

Thanks to AFPA members who gave their noble service in AMA COVID Helpline created for public awareness.

The 4th February is the world cancer day, so in next month we have planned a Webinar on Cancer. Please attend in large number.

We have postponed our AFPA conference because of 3rd wave of Covid19. We will plan it as early as possible.

Please encourage your senior citizen patients for precaution(booster) dose of covid vaccine.

Thanking you,
JAI AFPA JAI FFPAI JAI IMA

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EMERGENCY INTERVENTION: PATIENT WITH EPILEPTIC SEIZURE AT GP CLINIC

PATIENT WITH SEIZURE

A 45-year-old man was brought to the OPD while experiencing a generalised tonic-clonic seizure. At this point, the seizure had lasted at least 15 minutes. There is no information accessible regarding his prior medical history.

How would you handle such a situation?

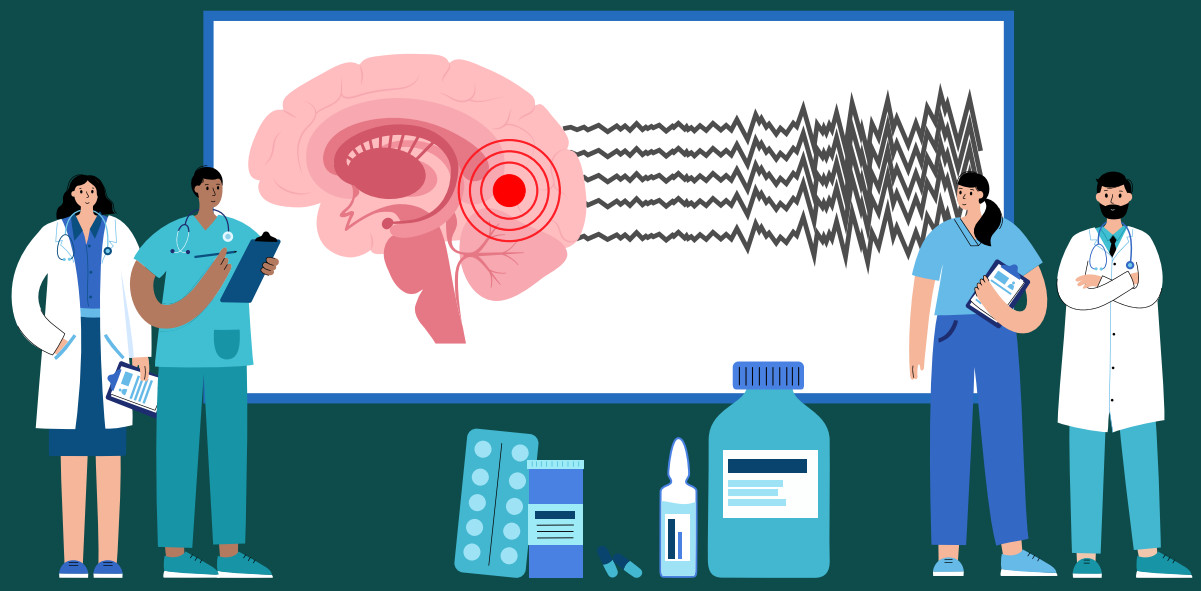
Status epilepticus is a medical emergency that needs rapid attention, as opposed to ordinary seizures, which recover without intervention and require therapeutic restriction to prevent overtreatment.

THE CHARACTERISTICS OF STATUS EPILEPTICUS ARE:

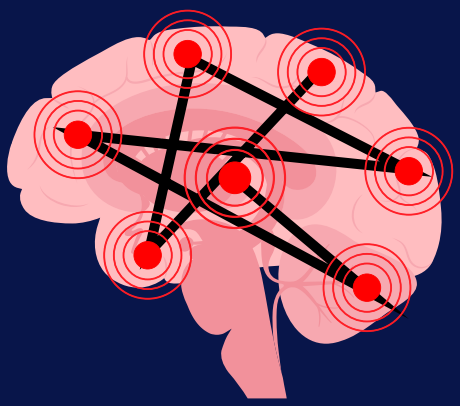
1. A persistent seizure lasting for more than 5 minutes, or
2. Two or more seizures within a 5-minute interval without reverting to neurological baseline

EARLY AND IMMEDIATE TREATMENT OF STATUS EPILEPTICUS:

1. Solicit assistance, since several management procedures will occur concurrently.
2. ABCDEFG- Airway, Breathing, Circulation and Don't Ever Forget Glucose (capillary glucose).
3. Airway: Place in lateral decubitus posture (when/if feasible to decrease the risk of aspiration) or head up with continuous suction and nasal oxygen cannula.



4. Attempt IV access and get VBG, glucose, electrolytes (Na, Ca, Mg), a tox screen, BhCG, CK, Cr, and lactate.
5. Consider administering a crystalloid bolus and preparing a push dosage pressor to prevent/ manage any hypotension.
6. Rx: IV Lorazepam 4 mg (as needed) or IM Midazolam 10 mg.
7. If there is no response to the initial dose of IV benzodiazepine, initiate phenytoin/fosphenytoin (avoid in tox), valproate, or levetiracetam.
8. Prepare intubation via RSI with propofol or "ketofol" and rocuronium (if sugammadex is available or the seizure lasts longer than 20-25 minutes) or succinylcholine.
9. Take into account imminent life-threatening situations that need prompt treatment with particular antidotes.
10. Call for help as many steps of the management will occur in parallel.
11. Consider immediate life threats that require prompt treatment with specific antidotes:
    i. tHypoxemia (O2)
    ii. Hypertensive encephalopathy (labetalol, nitroprusside)
    iii. Severe hyperthermia (cooling)
    iv. Hypoglycemia (glucose)
    v. Hyponatremia (hypertonic saline)
    vi. Hypomagnesemia (Mg), hypocalcemia (Ca)
    vii. Anticholinergics (HCO3)
    viii. Isoniazid (pyridoxine)
    ix. Lipophilic drug overdose (lipid emulsion) etc.
    x. Eclampsia: Generally, more than 20 weeks of pregnancy and up to 8 weeks postpartum (IV MgSO4 4-6 g, over 15-20 minutes, then infusion 1-2 g/hour)



12. Computed tomography of the head to rule out the presence of a lesion/ICH that occupies space.

It is important to note that individuals who no longer exhibit tonic-clonic seizures may maintain non-convulsive status epilepticus, which may be diagnosed only with EEG.

FIRST-LINE THERAPY FOR ADULT STATUS EPILEPTICUS-BENZODIAZEPINES

Select one of the following first-line alternatives (Level A evidence):

1. Lorazepam IV: 4 mg every 4 minutes, repeat if necessary (frequently underdosed)
2. Midazolam IM: 10 mg IM once (often used at an insufficient dosage)

The following choices are available if none of the previous two options is available:

i. Diazepam: 0.15 mg/kg IV
ii. Diazepam PR: 0.2–0.5 mg/kg, maximum dosage of 20 mg in a single dose
iii. Phenobarbital IV: 15 mg/kg, single dose
iv. Midazolam IV: 0.1 mg/kg
v. Intranasal midazolam: 0.2 mg/kg, maximum 10 mg, or buccal midazolam- 0.3 mg/kg, maximum 10 mg (Level B evidence)

Midazolam IM is preferable in individuals who do not have established IV access. However, rather than the kind of benzodiazepine or the method of administration, the most critical factor of benzodiazepine effectiveness in ending seizures is the time to administration. They grow more resistant to medicines the longer they are in an epileptic seizure.

Flaws-The most common errors in the emergency treatment of seizures are underdosing benzodiazepines and administering it too late.

How long should benzodiazepines be given to patients with seizures lasting less than five minutes?

Some doctors advocate delaying the administration of the initial anti-seizure medicine by five minutes and gradually providing it over a few minutes since the majority of seizures resolve spontaneously in 5 minutes and these medications have severe side effects at therapeutic levels.

Apnoea and hypotension, on the other hand, are more likely with persistent seizure activity. Despite the increased benzodiazepine dosage, aborting the seizure leads to reduced respiratory depression. Other clinicians propose not waiting five minutes before administering the first dosage of benzodiazepine, preferring to provide it by IV push.

In fact, in the great majority of patients who seize, by the time we prepare and administer the first drug, many minutes may have passed and the patient may likely be in status epilepticus or on the verge of entering status epilepticus.

Practice nugget: As a general rule, benzodiazepines should be administered intravenously at the onset of a seizure. Prepare additional doses of benzodiazepines concurrently at the start of the resuscitation in order to be prepared to administer a second dosage if necessary.

SECOND-LINE THERAPY FOR STATUS EPILEPTICUS

Start second-line drugs if benzodiazepines fail and the patient continues to seize. Status epilepticus may evolve to non-convulsive status epilepticus, making diagnosis difficult without EEG monitoring. Within 60 minutes after leaving the emergency room, monitor for a gradual return to baseline.

If observable seizures cease but the patient does not revert to a near-baseline mental state within 60 minutes, non-convulsive status epilepticus should be suspected. The non-convulsive state may only be ruled out in individuals who need continuous infusions of sedating drugs or who have received a paralytic.

The main conclusion is that if mild motor movements persist or there is no improvement in mental state, err on the side of caution and continue treating for status epilepticus until EEG monitoring becomes available.

As a single dosage, select one of the below corresponding second-line choices:

1. Levetiracetam 60 mg/kg IV, with a maximum dose of 4500 mg
2. Fosphenytoin or Phenytoin 20 mg/kg IV, maximum 1500 mg to prevent seizure due to toxicologic reasons

PROPOFOL ADMINISTRATION AS A SECOND-LINE TREATMENT IN STATUS EPILEPTICUS

There is a growing body of evidence supporting the use of propofol as a second-line antiepileptic drug in conjunction with conventional second-line medications, however, controlled data are few. Propofol IV bolus 2 mg/kg is indicated, followed by an infusion rate of 50-80 mcg/kg/min 3-5 mg/kg/hr).

All second-line treatments indicated by the recommendations need time to prepare and time to administer, resulting in a lengthy period of seizure cessation (examples are ConSEPT and EcLIPSE trials in children showing 30-45 minutes until the cessation of seizure).

Propofol is commonly accessible, is well-known, is easily administered, and has a fast initiation of effect. Additionally, it is a safe alternative in case of suspected toxicology.

RESISTANT EPILEPSY

Refractory status epilepticus is when a patient's seizures persist after first- and second-line therapy. Midazolam infusion, ketamine, or another second-line antiepileptic medicine that has not been utilised before are all possible therapeutic alternatives.

1. Propofol 2-5 mg/kg IV, followed by an infusion of 50-80 mcg/kg/min (3-5 mg/kg/hr)
2. Midazolam 0.2 mg/kg IV, then 0.05-2 mg/kg/hr infusion
3. Ketamine 0.5-3 mg/kg IV, then 0.3-4 mg/kg/hr infusion
4. Phenobarbital 15-20mg/kg IV at a rate of 50-75mg/min
5. Consult anaesthesia for inhaled anaesthetics

The longer convulsive SE persists, the less convulsive it seems clinically, and continuous EEG monitoring should be initiated immediately.

NEED FOR ADVANCED AIRWAY MANAGEMENT

Why do we intubate?

Prolonged seizure with respiratory depression as a result of rising benzodiazepine dosages

When is it appropriate to intubate?

1. If the patient is aspirating or apnoeic
2. In the absence of a response to the sufficient dosage of benzodiazepine

How to do intubation?

Rapid Sequences Induction (RSI)

Preoxygenation

Status epilepticus prohibits sufficient preoxygenation and denitrogenation, and individuals with high O2 consumption rates are at significant risk of fast desaturation. Provide apnoeic oxygenation via nasal prong oxygen and a non-rebreather facemask. Consider securing the patient with a BVM until laryngoscopy is performed.

Agent of induction

Propofol or propofol in combination with ketamine (may have a synergistic effect through modulating GABA and NMDA receptors).

1. Propofol intravenous 1.5-2 mg/kg
2. Ketamine intravenous 1-2 mg/kg

Keep rescue vasopressors available in case of an emergency.

PRACTICE PEARLS- DEALING WITH AN EPILEPTIC SEIZURE IN AN EMERGENCY SITUATION

1. Request assistance- Several first processes occur concurrently, including ABCDEFG (ABC's and Don't Forget the Glucose), IVs, bloodwork, medicine preparation, and securing the airway.
2. Lorazepam IV (may repeat once) or Midazolam IM are the first-line benzodiazepine alternatives (give once).
3. In the absence of first-line benzodiazepine, you may provide IV Diazepam, Phenobarbital IV, Diazepam PR, or Midazolam IN or buccal.
4. The most common error in emergency seizure treatment is underdosing benzodiazepines or dosing too late.
5. There are four equivalent second-line treatment options: levetiracetam, fosphenytoin, phenytoin, or valproate.