Convulsive Disorders II

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Febrile Convulsions

- The most common seizure disorder in childhood
- Fever occuring in a febrile child age 6mo-60mo without intracranial infection, metabolic disturbance or hx of afebrile seizure
- Peak at 12 to 18 mo
- Can be divided into simple and complex

Criteria for febrile convulsions

- Associated with elevated temp. above 38 degrees celsius and seizure within 24hrs
- Age 6-60 mo
- Absence of CNS infection
- Absence of acute metabolic abnomality
- No hx of previous afebrile seizure
- Last <10min
- No residual weakness or paralysis
- Generalized seizure

Febrile seizures classified as either simple or complex.

Simple Febrile Convulsions

- Occur in children aged 6 months – 6 years
- In association with a core temperature that rapidly rises ≥38°c
- They are generalized tonic-clonic in nature
- Last a few seconds and rarely up to 15 minutes
- Usually occur only once in 24 hours

- No infection of the CNS

- A brief postictal period of drowsiness

- Have an excellent prognosis

Simple Febrile Seizures

- Not associated with reduction of later intellectual performance
- Have only a slightly greater risk of epilepsy than general population

Complex Febrile Convulsions

- Last > 15 minutes
- Repeated convulsions in 24 hours
- Could be focal in nature
- Focal findings in the postictal period

Complex Febrile Convulsions

- A seizure lasting ≥30 minutes or repeated seizures for≥ 30 minutes without regaining consciousness is often due to CNS infection

Complex Febrile seizures

Risk factors for development of epilepsy later in life include

1. Complex features during seizure/postictal period
2. Family history of epilepsy
3. Initial febrile seizure <12 months of age
4. Delayed developmental milestones

Incidence is >9% compared to 1% in those with febrile seizures without risk factors

Causes of febrile seizures

- URTI
- Human herpes virus 6
- Influenza
- UTI
- Gastroenteritis

Recurrence Risk Factors

- Age < 1year
- Fever duration < 24 hrs
- Convulsion with lower temperature

Other minor risk factors; family history of febrile seizure or epilepsy, male gender, low serum sodium

Pathogenesis of febrile

Imbalance of pro and anticonvulsion system in the brain.

Electrolyte derangement with heperthermia alskalosis

Activation of cytokines, IL-1

DDX

- Meningitis
- Encephalitis
- Drug ingestion
- Metablic imbalance
- CVA

Seizures with Fever

- Some children have a chronic seizure disorder with more seizures during fever
- These are not febrile convulsions but are referred to as convulsions with fever

Approach

- Ensure that *Airway* is clear, the child is *Breathing*, and the *Circulation* is adequate
- If convulsing *Stop* the convulsions with diazepam 0.2mg/kg as slow IV injection or 0.5 mg/kg rectally
- Active measures to control the fever
- Search for potentially life threatening conditions (meningitis, encephalitis, sepsis, head trauma, ingestion of poisons)

History/Examination

- History should attempt to:-

1. define factors that prompted the seizure
2. provide detailed description of the seizure and postictal state

- Examination should look out for signs of CNS infection (stiff neck, Kernig sign, Brudzinski sign)

Investigations

- If any doubt exists about possibility of meningitis, a lumbar puncture is indicated

  - should strongly be considered in children <12 months and

  - in children >12 months with complex seizures and if sensorium remains clouded after a short postictal period

- Blood slide
- Random blood sugar

Prevention of recurrence

- Antipyretics have not been shown to prevent seizure recurrences but reduce discomfort and are reassuring to parents
- Prolonged anticonvulsant prophylaxis is controversial and no longer recommended
- Antiepileptics, phenytoin and carbamazapine do not prevent febrile seizures

Prevention

- Phenobarbitone prevents recurrent febrile convulsions but may also reduce cognitive function

- Sodium valproate effective in prevention of recurrent febrile seizures but potential risk of fatal hepatotoxicity does not justify it's use in a disorder with excellent prognosis

Prevention

If parental anxiety is very high

- Oral diazepam may be used to reduce the risk of a febrile convulsion
- At onset of each febrile illness oral diazepam 0.3mg/kg 8 hourly is administered for the duration of illness. Alternatives; nitrazepam, clobazam, clonazepam
- Diazepam gel rectally during seizure stops the seizure and prevents recurrence over 12 hours

Rx cont'd

- Losen clothing
- Cool with towel using warm water
- Reassure the mother

- Prognosis usually excellent.

Status Epilepticus

definition

- continuous convulsion lasting longer than 20–30 min
- the occurrence of serial convulsions between which there is no return of consciousness
- Status epilepticus is a medical emergency
- It requires an organized and skillful approach to minimize the associated mortality and morbidity

- Status epilepticus may be classified as
  - generalized (tonic-clonic, absence)
  - partial (simple, complex, or with secondary generalization)
- Generalized tonic-clonic seizures predominate in cases of status epilepticus.

ETIOLOGY.

- There are three major subtypes of status epilepticus in children:
- prolonged febrile seizures in which a seizure develops in the absence of an underlying CNS lesion or insult
- A febrile seizure lasting for >30 min, particularly in a child younger than 3 yr of age, is the most common cause of status epilepticus
- symptomatic status epilepticus
- when the seizure occurs as a result of an underlying neurologic disorder or a metabolic abnormality
- Status epilepticus may also be the initial presentation of epilepsy

NB

- The mortality and morbidity among patients with prolonged febrile seizures and idiopathic status epilepticus are low

preciptating factors

- Sleep deprivation
- intercurrent infection tend to render epileptic patients more susceptible to status epilepticus
- idiopathic status epilepticus
  - epileptic patients in whom status epilepticus followed sudden stoppage of the antiepileptics
  - Epileptic children who are given anticonvulsants on an irregular basis or who are noncompliant

- Status epilepticus due to other causes has a much higher mortality rate

- the cause of death usually is directly attributable to the underlying abnormality

- children with secondary causes usually have not previously had a convulsion.

- Prolonged status epilepticus has been associated with severe damage to the hippocampus in children, so-called hippocampal sclerosis.

differentials

•A prolonged convulsion may be the initial manifestation of encephalitis, and epilepsy may be a long-term complication of meningitis.

• congenital malformations of the brain (lissencephaly or schizencephaly) may have recurrent episodes of status epilepticus that are frequently refractory to anticonvulsants

• Inborn errors of metabolism may present with status epilepticus in newborns. Affected infants often have a progressive loss of consciousness associated with failure to thrive and excessive vomiting

- Electrolyte abnormalities
  - Hypocalcemia
  - Hypoglycemia
- drug intoxication
- Reye syndrome
- lead intoxication
- extreme hyperpyrexia
- brain tumors, particularly in the frontal lobe, are additional causes of status epilepticus.

TREATMENT

Time 0-5min.

Confirm diagnosis

- Initial treatment of patients begins with an assessment of the respiratory and cardiovascular systems

- Children should be transferred to an intensive care unit

- The oral airway is secured and inspected for patency, and the pulse, temperature, respirations, and blood pressure are recorded

- Excessive oral secretions are removed by gentle suction, and a properly fitting face mask attached to oxygen is applied

- If patients do not respond to oxygen by mask or are difficult to ventilate by an Ambu bag, they require intubation and assisted ventilation

- A nasogastric tube is placed in position, and an IV catheter is immediately inserted

- Blood is obtained for a CBC

- determination of electrolytes (including calcium, phosphorus, and magnesium), glucose, creatinine, lactate, and anticonvulsant levels, if indicated

- Blood and urine may be obtained for metabolic studies and toxicology (amphetamines, cocaine, phenothiazines, theophylline in toxic levels, tricyclic antidepressants)

- Arterial blood gases should be determined, and oxygen saturation (SaO_2) should be monitored with an oximeter

- Examination of the CSF is imperative if meningitis or encephalitis is considered, unless there is a contraindication to the procedure

  Time 6-9 min

- If hypoglycemia is confirmed , a rapid infusion of 5 mL/kg of 10% dextrose is provided

Time 10-20 min

- If meningitis is suspected appropriate antibiotics should be administered, followed by imaging studies, **before** a lumbar puncture is attempted

- If the seizures are refractory to the front-line anticonvulsants or if the patient is paralyzed and is on a respirator, continuous EEG monitoring is important to assess the frequency of seizure discharges, their location, and the response to anticonvulsant therapy.

A physical and neurologic examination should be carried out concurrently to assess the following:

- evidence of trauma
- papilledema
- a bulging anterior fontanel
- lateralizing neurologic signs suggesting increased intracranial pressure (ICP)

- manifestations of sepsis or meningitis
- retinal hemorrhages that may indicate a subdural hematoma
- Kussmaul breathing and dehydration suggestive of metabolic acidosis
- irregular respirations signifying brainstem dysfunction

- evidence of failure to thrive
- a peculiar body odor
- abnormal hair pigmentation that suggests an inborn error of metabolism
- constriction or dilatation of pupils suggesting a toxin or drugs as the cause of the status epilepticus

- A comprehensive examination should be undertaken once the seizures are under control

- Further investigation of the patient including neuroradiologic studies depends on the physical and neurologic findings and on a precise history of the seizure type and frequency

Drugs

- should always be administered IV in the management of status epilepticus

- the IM route is unreliable because some drugs are sequestered by muscle

- One of the major problems in the management of status epilepticus is the inappropriate use of anticonvulsants

- An unsuitably low drug dose is too often given, and with lack of response, another antiepileptic is introduced immediately

- Care should be given with regard to how the anticonvulsant is administered

- Phenytoin forms a precipitate in glucose solutions and is rendered ineffective

- It is essential to have resuscitation equipment at the bedside and the ability to intubate and ventilate the patient immediately if respiratory depression occurs

- A benzodiazepine (diazepam, lorazepam, or midazolam) should be used initially, because these are effective for immediate control of prolonged tonic-clonic seizures in most children

- Diazepam should be given IV directly into the vein (not the tubing) in a dose of 0.1–0.3 mg/kg at a rate no greater than 2 mg/min for a maximum of three doses

- Diazepam in the form of a rectal gel can also be given outside a hospital setting or in a hospital when IV access is not immediately available
  - PR dose is 0.2–0.5 mg/kg.

- Buccal or nasal midazolam (0.5 mg/kg) is another option when IV access is not available and can be administered safely by the emergency medical service (EMS) crew prior to arrival to the hospital

- Diazepam is effective in the management of tonic-clonic status, but the drug has a short half-life and seizures thus recur unless a longer acting anticonvulsant is administered simultaneously

- Lorazepam is an equally effective short-term anticonvulsant, with a greater duration of action and decreased likelihood of producing hypotension and respiratory arrest

- The recommended dose is 0.05–0.1 mg/kg IV administered slowly. The dose of midazolam is 0.15–0.3 mg/kg IV

- If an IV line cannot be fixed rectal diazepam or lorazepam can be used safely

- Diazepam diluted in 3 mL 0.9% NaCl is placed into the rectum by a syringe and a flexible tube at a dose of 0.3–0.5 mg/kg

- The effective dose of rectal lorazepam is 0.05–0.1 mg/kg. Therapeutic serum levels occur within 5–10 min

- Sublingual lorazepam may be used to treat children with serial seizures that tend to develop into status epilepticus while the children are at home

- The dose of sublingual lorazepam is 0.05–0.1 mg/kg. The tablet is placed under the patient's tongue and dissolves in a few seconds

- Rectal diazepam gel (Diastat, pediatric doses of 2.5, 5, or 10 mg) may also be useful.

- After administration of diazepam or lorazepam, several options are available for further management

Time 21-50min

- If the convulsive activity ceases after diazepam or lorazepam therapy or if the seizures persist, phenytoin is given immediately.
- NB, *phenytoin incompatible with glucose solutions therefore the line should be flashed first.*

- The loading dose of phenytoin is 15 up to 30 mg/kg IV (given in 10 mg/kg increments) at the rate of 1 mg/kg/min

- The phenytoin prodrug fosphenytoin has advantages over the older formulation because it is water soluble, less irritating after IV injection, and well absorbed after intramuscular injection

- phenytoin may be safely added to half-normal or normal saline but not to glucose solutions

- the undiluted drug can cause pain, irritation, and phlebitis of the vein

- Electrocardiography is recommended during the loading phase to
  - identify arrhythmias and bradycardia, a rare complication in children

- Systemic hypotension may also complicate IV phenytoin

- If the seizures do not recur, a maintenance dose of 3–9 mg/kg divided into two equal doses daily is begun 12–24 hr later.

- Serum phenytoin levels should be monitored because the maintenance dose varies considerably with age

- Phenytoin is not always effective in controlling tonic-clonic status epilepticus, in which case an alternative drug is necessary.

Time 50-70min

If status epilepticus persists,

•Give phenobarbital 20mg/kg IV at 50-100mg/ min

•Assisted ventilation usually required

•If seizure continue, an additional 5-10mg/kg phenobarbital given,

- In some centers, phenobarbital is initiated before phenytoin
  - It is given in a loading dose of 15–20 mg/kg or in neonates 20–30 mg/kg IV during 10–30 min.

- With control of the seizures, the maintenance dose is 3–5 mg/kg/24 hr divided into two equal doses

Time Beyond 70 min

- If the status epilepticus is not controlled by the preceding strategy, the physician must make some important therapeutic decisions, because it is likely the *transitional period* has passed
- HDU/ICU is warranted

- The choices for further drug management include a diazepam infusion, barbiturate coma, paraldehyde, or general anesthesia

- By this stage, the patient is usually sedated and may show signs of respiratory depression, necessitating elective intubation and assisted ventilation

- Constant IV infusion of either midazolam (0.20 mg/kg bolus, 20–400 µg/kg/hr infusion) or propofol (1–2 mg/kg, 2–10 mg/kg/hr infusion) is effective in managing seizures during status epilepticus unresponsive to other anticonvulsants

- If seizures continue, serious consideration is given to induction of barbiturate coma

- In an intensive care unit, the patient is placed on a ventilator and a continuous EEG monitor

- The initial IV loading dose of thiopental is 2–4 mg/kg and is then titrated to achieve a burst suppression EEG pattern

- Barbiturate coma is continued for at least 48 hr, followed by cessation of thiopental until the serum phenobarbital level falls to the therapeutic range

- Barbiturate coma requires careful monitoring because hypotension due to myocardial depression often requires pressor therapy

- **General anesthesia** is an alternative adjunct to the management of status epilepticus if conventional drug therapy is not effective or if barbiturate coma is not an option

- Several agents have been used successfully, including halothane and isoflurane

- General anesthesia probably acts by reversing cerebral anoxia and the concomitant metabolic abnormalities, allowing the previously administered anticonvulsants to exert their effect

- The major disadvantage of general anesthesia is that it must be administered by well-trained personnel with anesthetic gas scavenging equipment for prolonged periods.

long term use of anticonvulsant

- The use of anticonvulsant therapy after status epilepticus is controversial

- There is little question that a long-term antiepileptic should be maintained in children with a progressive neurologic disorder or with a history of recurrent seizures before the onset of status epilepticus

- It is unlikely that a lengthy period of anticonvulsant treatment is necessary after an initial attack of idiopathic status epilepticus, particularly when a prolonged febrile seizure was the cause

- Anticonvulsant therapy is maintained arbitrarily for 3 mo in this case and is discontinued if the child remains asymptomatic

In controlled status epilepticus

- Revert to oral treatment
- Counselling
- Follow up

PROGNOSIS

- Status epilepticus produces potentially life-threatening disturbances in physiologic function, and the mortality rate of status epilepticus is ≈5%

- The greatest number of deaths occur in the symptomatic group, most of whom have a serious and life-threatening CNS disorder known before the onset of status epilepticus

- In the absence of a progressive neurologic insult (e.g., herpes encephalitis) or metabolic disorder, the morbidity from status epilepticus is low

- The fact that long-term sequelae such as hemiplegia, extrapyramidal syndromes, mental retardation, and epilepsy are more common in children younger than 1 yr following status epilepticus
  - is related to the fact that this group is more likely to have a premorbid underlying CNS disorder than are older children

- febrile status epilepticus in a neurologically impaired child is a risk factor for subsequent febrile as well as nonfebrile seizures, but febrile status in an otherwise normal child does not increase the risk of seizures

- MRI brain scan performed in several infants demonstrated that complex febrile convulsions can occasionally be associated with acute hippocampal injury progressing to atrophy

- ✓ In some of these infants, pathology and brain imaging also demonstrated evidence of pre-existing cerebral dysgenesis

- ✓ These cases suggest that hippocampal sclerosis associated with status epilepticus may reflect interaction between pre-existing and acquired processes

Conditions that Mimic Seizures

- Defined as Physical manifestation of an emotional disturbance
- Resemble epileptic seizures but are not caused by electrical disruptions in the brain
- Often experience loss of consciousness with tonic clonic twitching or jerks and aggravated emotional stress
- These episodes may last 20 minutes or more
- Can also be a psychologic defense mechanism which may be ushered in by episodes of severe stress or emotional trauma
- Tend to occur when patients try to suppress the trauma often taking a person suffering with them by surprise as do epileptic fits

- Pseudo seizure and true seizure may look virtually the same
- However pseudo seizure is bizarre with unusual postures, verbalizations and uncharacteristic tonic clonic movements
- Lack of cyanosis
- Patients are likely to have a neurotic personality documented
- Diagnosis made only after thorough history and physical examination and EEG recording when indicated to exclude a true seizure

- Normal reaction of pupils to light
- Relative lack of injury
- May moan or cry during a pseudo seizure
- Most common pitfall in diagnosis is the misconception that people who suffer from the phenomena are hypochondriacs, hysterics or are faking it.

Night terrors

Episodes of screaming, intense fear and flailing while asleep.

- Common in boys aged between 5 – 7 yrs.
- Occur in 1-3% of children and are usually short-lived
- They are usually of sudden onset between midnight and 2 am during stage 3 or 4 of slow wave sleep
- The child screams, appears frightened with dilated pupils, tachycardia and hyperventilation

Night terrors

- The child may thrash violently, cannot be consoled and is unaware of parents or surroundings
- Sleep follows in a few minutes and there is total amnesia the following morning
- About one third of children with night terrors experience somnambulism

Night terrors

- An underlying emotional disorder should be explored in those with persistent and prolonged night terrors
- A short course of diazepam may be tried in protracted night terrors while family dynamics are being explored

Breath-holding spells

- These are episodic occurrence of apnea in children associated with loss of consciousness and changes in postural tone
- There are two major types:-

1. Cyanotic breath holding spells
2. Pallid breath holding spells

Cyanotic breath-holding spell

- They are provoked by upsetting or scolding an infant (anger or frustration)
- Ushered in by a brief shrill cry followed by forced expiration and apnoea
- Rapid onset of generalised cyanosis and loss of consciousness follows
- There are generalized clonic jerks, opisthotonus and bradycardia

Cyanotic breath-holding spells

- EEG normal
- Can occur repeatedly within a few hours or sporadically but it is always stereotyped
- Rare before age of six months peak at 2 years and abate by 5 years of age
- Management – reassuring the parents and avoid reinforcing the childs behaviour

Pallid breath-holding spells

- Less common than cyanotic
- Initiated by painful experience like falling, a strike on the head or a sudden startle
- The child stops breathing, loses consciousness becomes pale and hypotonic
- May have a tonic seizure and bradycardia
- EEG is normal
- **RX**
- Avoid panic,child put to lie on the side and watched,
- Sharp objects removed in the vicinity
- Allow the spell to stop by itself

Benign Paroxysmal Vertigo
BPV

- Typically develops in toddlers
- Rare beyond 3 years of age
- Attacks develop suddenly and are associated with ataxia causing the child to fall, sit or refuse to walk
- Horizontal nystigmus may be present
- Child appears frightened and pale
- Nausea and vomiting may be prominent

BPV

- Attacks vary in duration, frequency and intensity
- Older children may speak of rotational sensation
- Consciousness and speech not disturbed
- Lethargy and drowsiness do not follow completion of episode

Shuddering attacks

- Usual onset is at the age of 4-6 mo and may persist up to age of 6-7 yrs
- Characterised by sudden onset of head and trunk flexion and shuddering or shivering movements
- There may be 100 attacks/day followed by several symptom free weeks
- May be the childhood precursor of benign essential tremor

Benign Paroxysmal Torticolis of Infancy

- Recurrent attacks of head tilt associated with pallor, agitation and vomiting
- Child resists passive head movement
- Onset is usually at 2- 8 mo of age
- No loss of consciousness
- Spontaneous remission occurs by 2-3 yrs of age
- As with BPV abnormalities of vestibular function have been documented

Benign Paroxysmal Torticolis of Infancy

- Children with persistent torticolis should be investigated for abnormalities of cervical vertebrae (dislocation fracture tumour)
- Some of the children develop migraine headaches later in childhood

Hereditary Chin Trembling

- May be confused with epilepsy because of repeated episodes of rapid 3/sec chin trembling movements
- Precipitated by stress, anger and frustration
- Inherited as autosomal dominant trait
- Neuroligical examination and EEG normal

Syncope

- There are two types namely Simple and cough syncope
- Simple syncope results from vasovagal stimulation triggered off by pain, fear, excitement and extended periods of standing still
- There is transient systemic hypotension
- Decreased blood flow to the brain alters brain metabolism and causes uncnsciousness
- Resulting ischeamia influences the higher cortical centers to release their inhibitory influence on the reticular formation within the brainstem

Syncope

- Neuronal discharges from the reticular formation produce brief tonic contractions of muscles of the face, trunk and extremities in approximtely 50% of patients with syncope

- During the episode there may be fixed upward deviation of the eyes that can be confused with epilepsy
- EEG shows transient slowing during the attack but no seizure discharges
- Uncommon before 10-12 yrs but prevalent in adolescent girls
- Tilt-table testing is an effective method of producing symptoms in majority of those with unexplained syncope

Syncope

- Can be differentiated from a seizure because of it's short duration, associated symptoms of nausea and sweating and complete orientation after the event

- Beta-adrenergic blocking agents like …….. can be used for treatment

Cough Syncope

- Common in asthmatic children
- Occurs shortly after onset of sleep when a coughing paroxysm abruptly awakens the child
- Patient's face becomes plethoric and the child perspires, is agitated and frightened

Cough Syncope

- Loss of consciousness is accompanied by generalised muscle flaccidity, vertical upward gaze and clonic muscle contractions lasting for several seconds
- Urinary incontinence is frequent
- Recovery begins within seconds and consciousness is restored a few minutes later

Cough Syncope

- The child has no recollection of the attack except for events surrounding the paroxysm of cough
- Coughing produces marked increase in intra-thoracic pressure followed by lowered venous return to the right side of the heart
- Right ventricular out put is reduced

Cough Syncope

- There is reduction in left ventricular filling and therefore diminished cardiac out put
- This results in decreased cerebral blood flow, cerebral hypoxia and loss of consciousness
- Management is aggressive approach to prevention of broncho-constriction

Narcolepsy and Cataplexy

- Narcolepsy rarely begins before puberty
- Characterized by paroxysmal attacks of irrepressible day time sleep
- It is sometimes associated with loss of muscle tone (cataplexy)
- Narcolepsy occurs in 1/2000 population
- EEG shows that the recurrent sleep attacks consist of rapid eye (REM) sleep

Narcolepsy and Cataplexy

- A person suffering from narcolepsy can easily be aroused and becomes spontaneously alert
- Patients with Cataplexy usually experience sudden loss of muscle tone and fall to the ground because of laughter, stress or frightening experiences
- They lie without moving for a few minutes until normal body tone returns

Narcolepsy and Cataplexy

- Management includes scheduled naps
- Stimulant and anti-depressant drugs like Modafinil acetamide 200mg/day orally
- Side effects of stimulants and anti-depressants (anxiety, euphoria, hypersomnolence tolerance) should be born in mind
- Counselling on occupational safety and driving

Paroxysmal Kinesigenic Choreoathetosis

- Sudden onset of unilateral, occasionally bilateral choreoathetosis or dystonic movement of a leg or arm associated with facial grimacing and dysarthria
- Precipitated by sudden movement like rising from a sitting position or by excitement and stress

Paroxysmal Kinesgenic Choreoathetosis

- Attacks rarely persist for longer than one minute and are never associated with loss of consciousness
- Age of onset is typically between 8-14 yrs but may begin as early as 2 yrs
- Child may have several attacks daily or they may be intermittent occurring once or twice a month

Paroxysmal Kinesgenic Choreoathetosis

- Neurological studies are normal
- Most reported cases are familial suggestive of autosomal recessive inheritence
- Attacks can be prevented by use of anticonvulsants particularly phenytoin
- Attacks diminish in frequency in adulthood and phenytoin can be successfully withdrawn

Rage attacks/Episodic Dyscontrol Syndrome

- Sudden and recurrent attacks of violent physical behaviour with minimal provocation
- Consist of kicking, scratching, biting and shouting (abusive/profane language)
- Affected child or adolescent does not seem to control the behaviour and may seem momentarily psychotic throughout the attack

Rage attacks/Episodic Dyscontrol Syndrome

- Episode is followed by fatigue, amnesia and sincere `remorse

- EEG during the attack remains normal distinguishing it from complex partial seizures

Masturbation

- This self stimulating behaviour may occur in girls between the ages of 2mo-3 yrs
- Consists of repetitive stereotyped episodes of tonic posturing associated with copulatory movements but without manual stimulation of the genitalia
- Child suddenly becomes flushed and perspires,may grunt and breath irregularly but does not lose consciousness

Masturbation

- Masturbatory activity tends to occur during periods of stress or boredom, occurring suddenly lasting only a few minutes
- Treatment is reassurance to the parents that the condition will subside by 3 yrs of age and no specific therapy is required

Pseudo seizures

- The management of pseudo seizures involves:-

1. Anti-anxiety medication for underlying psychological issues
2. Individual family counselling
3. Additional psychiatric services to address the root cause of the psychological stressors

END