**FEBRILE CONVULSIONS**

This is an event in infancy or childhood that occurs between 3months to 5years associated with fever but without evidence of intracranial infections or defined cause. It is seizure associated fever in the absence of another cause and not due to intracranial infection from meningitis or encephalitis.

The highest incidence is in children between 9months-20months. About 3% of all children develop febrile seizures. Genetic trait is most probably present disposing a particular child to get it easily, with 10-20% of relatives having a seizure disorder including febrile convulsions.

It is usually a benign disorder occuring in children of normal development and occuring early in a recognised illness when the temperature is high. Seizures are single, brief, bilateral, tonic-clonic

they have benign prognosis- recurrence may occur in 1/3rd of the cases but the child grow out of it. Minority of the seizures are of longer duration ( more than 15-20minutes) or recur repeatedly within 24hours or show partial or unilateral features. These are callrd complex or complicated febrile seizures. These are not benign and they may lead to cerebral atrophy and mesial temporal sclerosis which could lead **to temporal lobe epilepsy**.

Prolonged seizures may become unilateral and a special syndrome HHE- hemiconvulsion, hemiplegia and later epilepsy – actually this has been associated with **febrile status epilepsy**

**Risk factors to epilepsy**

h/o epilepsy in a first degree relative

neurological abnormality present after the first febrile seizure

a complex febrile convulsion( multiple, focal or prolonged).

**Management**

When a seizure lasts longer than 15minutes, it should be stopped with either

* Diazepam 0.3-0.5mg/kg bwt slowly iv or per rectal 0.5mg/kg or
* Paralydehyde 0.15-0.20 mls/kg bwt im upto 5mls.

**Control fever**: antipyretics eg paracetamol, exposure, fanning

**If seizures controlled**: recovery position adopted left lateral position, clear airway.

Start prophylactic treatment of phenorbabitone 5mg/kg as an evening dose or valproate 20-30mg/kg divided into 2 doses

NB: phenytoin plus carbanazepine are not indicated

**Investigate and treat casuse**

**Prevention**: measles, malaria preventable causes.

**Indications for prophylactic:**

* 2 or more febrile convulsions
* One complex febrile convulsions (multiple, focal, prolonged)
* One febrile convulsion with a family history of epilepsy or febrile convulsion.
* One febrile convulsion and a neurological abnormality.

Causes

1. **Fever and convulsions**

**Intracranial infections:** meningitis/encephalitis

Cerebral malaria

**Extracranial infections :** otitis media, URTI, LRTI (pneumonia, bronchiolitis), shigellosis, UTI,, measles, malaria

**Causes of seizures**

**Epilepsy**

**Idiopathic**: 70-80%

* Secondary

Cerebral dysgenesis/ malformation eg porencephalic cyst, hydrocephalus

* Cerebral damage, eg. Congenital infection, hypoxic-ischemic encephalopathy, intraventricular hemorrhge/ischemia
* Cerebral tumor
* Neurodegenerative disorders
* Neurocutaneous syndromes

Non-epileptic

* Febrile convulsions
* Metabolic due to hypoglycemia, hypocalcemia/hypomagnesaemia, hypo/hypernatremia
* Head trauma
* Meningitis
* Poisons/toxins

**ENCEPHALITIS/ENCEPHALOPATHY**

this is inflammation of the brain substance, although the meninges are often also affected. Encephalitis may be caused by:

* Direct invasion of the cerebrum by a neurotoxicvirus
* Delayed brain swelling following a disordered neuroimmunological response to an antigen, usually a virus (post infectious encephalopathy), e.g following chicken pox
* Slow virus infection such as HIV infection or sub-acute ssclerosing panencephalitis (SSPE) following measles.

In encephalopathy from a non infectious cause, eg a metabolic abnormality, the clinical features may be similar to an infectious encephalitis..

***Etiology:***

The underlying causative organisms are detected in up to 50%. In UK the frequent causes orf encephalitis are enteroviruses, respiratory viruses and herpes viruses (e.g varicella and HHV-6). Worldwide micro-organisms causing encephalitis include mycoplasma, borrelia burgdorfii (lyme diseases), bartonella henselae (cat scratch disease), rickettsial infections (e,g rocky mountain spotted fever) and the arboviruses.

HSV is a very rare cause of childhood encephalitis but it may have devastating long term consequences.

***Clinical presentation***

The most common signs of acute viral encephalitis are:

Fever

Headache

Change in level of conciousness

Others:

Photophobia

Confusion and sometimes seizures

Meningitis may occur with encephalitis

Herpes simplex encephalitis is known to cause additional symptoms. Fever, headache, decreased level of conciousness, and confusion may occur.

***Physical findings:***

* Fever
* Neck stiffness (not always present in infants)
* Positive brudziski`s sign/kernig sign
* Focal neurological signs
* Altered concious level
* Papilloedema (rare).

***Investigations***

* Full blood count and differential count
* Blood glucose and blood gas analysis for acidosis
* Coagulation screen
* C-reactive protein
* Urea and electrolytes
* Liver function tests
* Viral cultures from blood, urine, stool
* Serology
* PCR of blood and CSF (the PCR may be positive for HSV
* If TB suspected chest radiology, mantoux test, gastric washings for sputum
* Consider CT /MRI brain scan and EEG.( may show focal changes within temporal lobes as HSV is destructive in children.

***Management:***

Mainly supportive, basically rehydrate, feeding antipyretics and coma care

In HSV encephalitis give aciclovir for 3weeks. Untreated, the mortality rate from HSV encephalitis is over 70% and survivors have severe neurological sequele.

**PEDIATRIC BACTERIAL MENINGITIS**