PEDIATRIC NEUROLOGY BULLETIN

OFFICAL BULLETIN OF AOPN

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Dr. Vasant Khalatkar
Chairperson

Greetings from AOPN. As a chairperson I feel immense fortunate to lead this vibrant chapter of Pediatric neurology. In my tenure, as promised we will be doing regular academic activities which are helpful to practising pediatricians. As a part of this goal, we are coming with this neuro bulletin. I congratulate my editorial team to make it a reality.

Dr. Sanjeev Joshi
Secretary

From the AopN. Sec desk I wish this new venture of monthly NEURO bulletin by the editorial board a huge success. It will be an important academic tool for helping to manage common neurological problems for the practicing pediatrician.

Editor - Greetings to all the members of AOPN.As we are starting this new session of neurobulletin focussing mainly on day to day management of neurological cases.We will try to simplify management of common neurological diseases.Thanks for all you support and cooperation

Dr. Sanchi Rastogi
Editor

Dr. Amarjeet Wagh
Chief Editor

Dr. Umesh Biyani
Editor

The ILAE classification of seizures and the epilepsies : Modification for seizures in the neonate. Position Paper by the ILAE Task Force on Neonatal Seizures

Seizures are the most common neurological emergency in the neonatal period and in contrast to those in infancy and childhood, are often provoked seizures with an acute cause and may be electrographic - only. Hence neonatal seizures may not fit easily into calssification schemes for seizures and epilepsies primarily developed for older children and adults. A Neonatal Seizures Task Force was established by the International League Against Epilepsy (ILAE) to develop a modification of the 2017 ILAE Classification of Seizures and Epilepsies. relevant to neonates. The neonatal classification framework emphasizes the role of electroencephalography (EEG) in the diagnosis of seizures in the neonate and includes a classification of seizure types relevant to this age group/ The seizure type is determined by the predominant clinical feature. May neonatal seizures ate electro graphic only with no evident clinical features; therefore, these are included in the proposed Classification

Key points :

- The International League Against Epilepsy (ILAE) presents a new classification and framework for seizures in the neonatal period in line with 2017 ILAE classifications.
- It emphasizes the key role of electroencephalography (EEG) for the diagnosis of seizures in this age group.
- Seizure are considered focal at onset. and thus a division into focal and generalized is unnecessary
- Seizures can occur with clinical manifestations or without clinical manifestations (electrographcs-only)
- Descriptors are determined by the predominant clinical feature and divided into motor. non-motor and sequential.

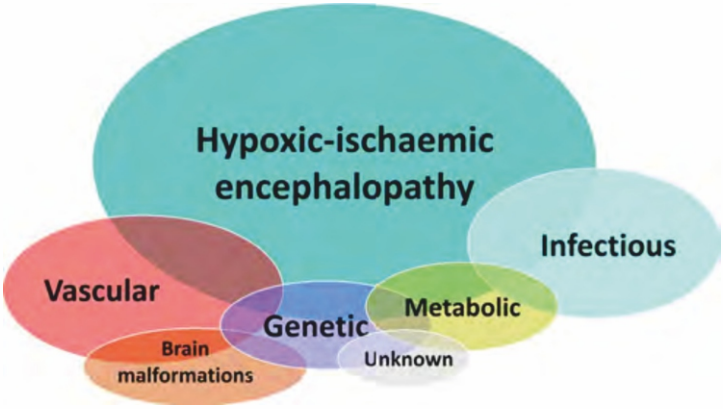


Figure 1 : Relative occurrences of common etiologies of neonatal seizures in term infants. Adapted from 3.5.8.81.82

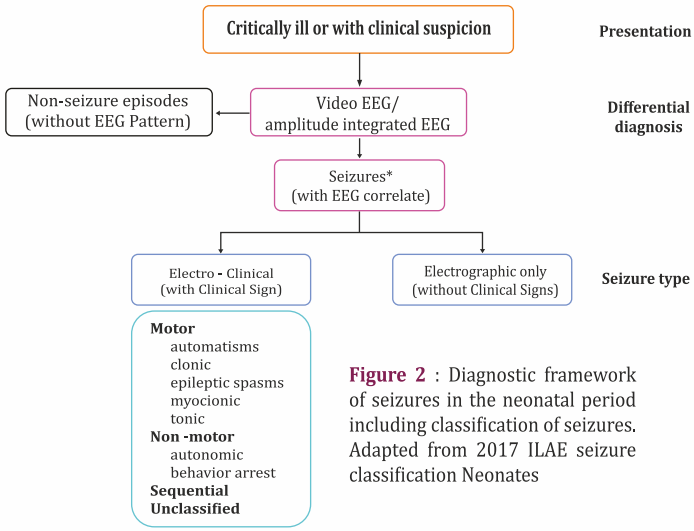


Figure 2 : Diagnostic framework of seizures in the neonatal period including classification of seizures. Adapted from 2017 ILAE seizure classification Neonates

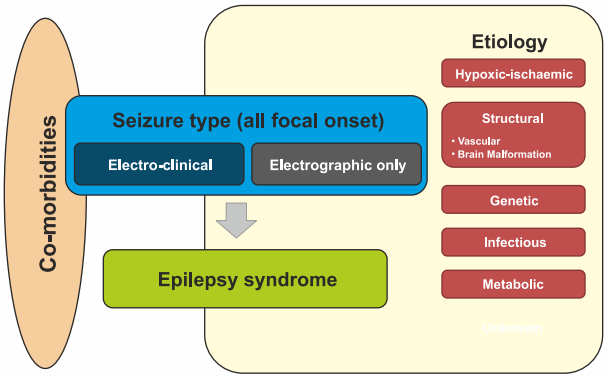


FIGURE 3 : Framework for neonatal seizures and epilepsy syndromes. Adapted from 2017 ILAE Framework of the epilepsies. 28 For the purpose of this paper, hypoxic-ischemic is considered a separate entity because it is the most common etiology of seizures in this age group. There is no evidence at present that immune processes play a role in seizure etiology in neonates. *Including acute ischemic stroke, hemorrhage (intraventricular, subarachnoid, intraparenchymal), and other vascular induced ischemia (such as periventricular leukomalacia).

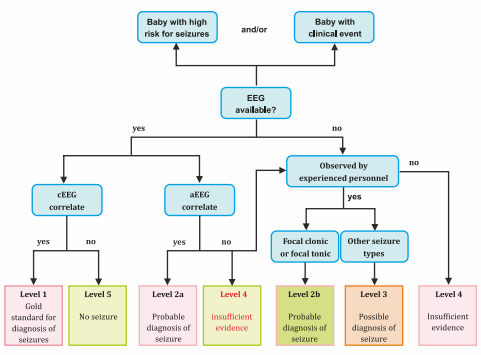


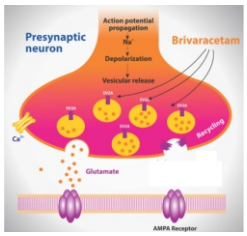
Figure 4 : Algorithm to determine degrees of diagnostic certainties for neonatal seizures. This flow chart will help to determine the diagnostic certainty of neonatal seizures depending on the available diagnostic method (EEG, aEEG or observation by experienced personnel) and seizure type. Developed by the Brighton collaboration (adapted from4). cEEG conventional EEG; aEEG; amplitude-integrated EEG

What's New: Tale of two antiseizure medications

BRIVARACETAM

Brivaracetam is a new antiseizure medication that is currently approved as an Adjunctive therapy for focal onset seizures. It is effective band well tolerated drug in pediatric population especially for children with focal onset seizures and drug resistant epilepsies.

Mechanism of action and efficacy :



Brivaracetam has 15 to 30 fold higher affinity gitr synatic vesicle protein 2A than leveti racetam.

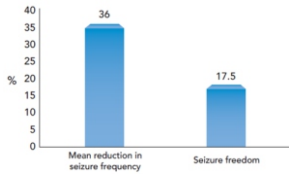
It has high lipid solubility, rapid Brian penet-ration and broad- spectrum antiepileptic activity.

Rapid absorption reaching peak plasma concentrations within 2 hours after dosing. Plasma Half life is 6-8 hours.

Safety profile

FDA approved for children older than 4 years. Safety and tolerability profile in children are similar to adults.

Efficacy :



In a study by Vykuntaraju et al, 50% reduction in seizure frequency was noted in 36% , seizure free in 10%, and unchanged in 47%.

Indications:

Adjunctive therapy and mono-therapy for

- Focal onset seizures with or without secondary generalization.
- Refractory Epilepsy
- Refractory status epilepticus.
- Undetermined focal or Generalised Epilepsy syndromes like Lennox gastaut syndrome, Dravet syndrome and Tuberous sclerosis.
- Symptomatic generalised Epilepsy.

Dose:

Average dose is 2mg/kg body weight with a Maximum daily dosage of 100mg twice daily for body weight > 50 kg

Formulation Available:

Injection (50mg/5ml), Tablets: 25 mg, 50mg,75mg, 100mg. Syrup (10mg/ml)

To be contnue.. page 4

PERAMPANEL

Perampanel is a relatively new antiseizure medication as an Adjunctive drug for focal onset and primary Generalised seizures. FDA approved drug for children more than 12 years of age.

- Mechanism of action: Perampanel is a non competitive selective antagonist at post synpatic AMPA Glutamate receptor.
- It takes 0.5 to 2.5 hours to reach the peak plasma concentration.
- Plasma half-life is 105 hours.

Indications :

Perampanel is indicated for treatment of focal onset seizures with or without secondary generalisation as well as for primary Generalised tonic clonic seizures as an Adjunctive agent.

Dosage:

The recommended dosage is 2mg at bed time per oral. Titrate the dose by 2mg daily every week. The maintaince dose varies from 8 mg to 12 mg HS for focal onset seizures and 8mg HS for generalised seizures. If the patient is on enzyme inducer drugs like carbamazepine, phenytoin, oxcarbamazepine then recomm-ended initial dose on 4mg.

Formulation :

Available in tablet form 2mg, 4mg, 6mg, 8mg, 10mg and 12mg.

Side effects:

Although well tolerated, side effects like dizziness, somnolence, headache, irritability, fatigue, nausea, vomiting, abdominal pain, vertigo, anxiety and back pain can occur.

Warning :

Patients should be monitored for psychiatric and behavioral reactions like hostility, aggression, agitation.

Adverse effects:

Drowsiness, mood swings, somnolence are common.

- Other non specific behavioural symptoms like irritability, aggression, decrease in appetite have been reported rarely.

Educational Poem: On Epilepsy syndrome

I AM A SHAKY BABY

Dear Mom,

"It's my body that at times, would not behave,
When my brain throws unwanted EEG waves!
It may be low calcium, glucose, or high fever,
Which might have led me to have an unintentional shake;

So, Mom,

"Not always I was as sick as I appeared to be,
And, maybe in the future, you would have nothing to worry!
The shaky moments may damage my brain cells, though,
If seizures persisted beyond 'T' two of the safe time zone;

Dear Mom,

"You need to know, how to control fever and use a drug,
And go for family screening to see familial occurrences;
When I keep throwing seizures every now and then,
I need to be tested and the culprit cause to be ascertained;"

Therefore, Mom,

"When I am under this strange jittery shaky distress,
My tongue may fall back to choke and make me breathless;
I may fall to get my head hurt, or get a burn from fire around,
You need to be watchful to keep me away from risky surrounds;"

Dear Mom,

"I am ready to undergo any CT, MRI imaging, and all blood tests,
to rule out electrolyte imbalance, infections, or brain defects,
I will be alright with the medicine if I take them as prescribed,
I promise that I will win this epilepsy syndrome,
With a positive attitude and with your caring hands!"

By Dr. Smita Mishra, MD (Pediatrics) FNB (Ped Cardiology)
H.O.D. Deptt of Pediatric Cardiology; HCMCT
Manipal Hospital, Sector 6, Dwarka Delhi
Date: 19/05/2022

Upcoming Event