

Comparative efficacy of Phenobarbitone Versus Levetiracetam in the initial treatment of Neonatal Seizure

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Introduction:

Phenobarbital is utilized in the treatment of a wide range of seizures, except for nonattendance seizures. It is no less powerful at seizure control than phenytoin, anyway phenobarbital isn't also endured. Phenobarbital may give a clinical favorable position over carbamazepine for rewarding fractional beginning seizures. Carbamazepine may give a clinical bit of leeway over phenobarbital for summed up beginning tonic-clonic seizures. It's extremely long dynamic half-life (53–118 hours) implies for certain individual's dosages don't need to be taken each day, especially once the portion has been settled over a time of a little while or months, and seizures are adequately controlled. The main line drugs for treatment of status epilepticus are benzodiazepines, for example, lorazepam or diazepam. In the event that these fizzle, at that point phenytoin might be utilized, with phenobarbital being an option in the US, yet utilized just third line in the UK. Bombing that, the main treatment is sedation in escalated care. The World Health Organization (WHO) gives phenobarbital a first-line suggestion in the creating scene and it is usually utilized there. Phenobarbital is the main line decision for the treatment of neonatal seizures. Worries that neonatal seizures in themselves could be destructive make most doctors treat them forcefully. No solid proof, however, underpins this methodology. Phenobarbital is here and there utilized for liquor detoxification and benzodiazepine detoxification for its calming and hostile to convulsant properties. The benzodiazepines chlordiazepoxide (Librium) and oxazepam (Serax) have generally substituted phenobarbital for detoxification. Levetiracetam, showcased under the exchange name Keppra among others, is a prescription used to treat epilepsy. It is utilized for incomplete beginning, myoclonic, or tonic-clonic seizures. It is taken by mouth as a quick or broadened discharge plan or by infusion into a vein. Levetiracetam is utilized in mix with different drugs to treat specific kinds of seizures in grown-ups and kids with epilepsy. Levetiracetam is in a class of prescriptions called anticonvulsants. It works by diminishing anomalous energy in the cerebrum. The most every now and again detailed reactions related with the utilization of LEV in pooled investigations of the administrative preliminaries were sluggishness, asthenia, migraine and wooziness. TPM-related unfriendly occasions were transcendently focal sensory system related side effects, including sleepiness, wooziness and psychomotor easing back. Levetiracetam is powerful as single-tranquilize treatment for recently analyzed central epilepsy in grown-ups. It decreases central seizures by half or more as an extra drug. Levetiracetam is successful for treatment of summed up tonic-clonic epilepsy. It has been endorsed in the United States as extra treatment for myoclonic, and tonic-clonic seizures. Levetiracetam has been endorsed in the European Union as a monotherapy treatment for epilepsy on account of halfway seizures or as an adjunctive treatment for incomplete, myoclonic, and tonic-clonic seizures. Levetiracetam is once in a while utilized off mark to treat status epilepticus. The most well-known antagonistic impacts of levetiracetam treatment incorporate CNS impacts, for example, lethargy, diminished vitality, migraine, dazedness, temperament swings and coordination

challenges. These unfriendly impacts are generally articulated in the primary month of treatment. About 4% of patients dropped out of pre-endorsement clinical preliminaries because of these symptoms.

About 13% of individuals taking levetiracetam experience unfavorable neuropsychiatric side effects, which are typically mellow. These incorporate disturbance, aggression, indifference, uneasiness, enthusiastic lability, and despondency. Genuine mental antagonistic symptoms that are turned around by tranquilize suspension happen in about 1%. These incorporate pipedreams, self-destructive considerations, or psychosis. These happened generally inside the principal month of treatment, yet they could create whenever during treatment.

Neonatal seizures are common in the first month of life and may impair neurodevelopmental outcome. Phenobarbitone (PB) currently represents the anti-epileptic drug (AED) of choice, despite related to cognitive impairment in human subjects and limited efficacy. Intravenous levetiracetam is increasingly being used in the neonatal period to treat seizures. Presently, insufficient data about the efficacy and safety of intravenous levetiracetam in neonates, we have structured a randomized control trial with levetiracetam in the initial treatment of acute neonatal seizure. Phenobarbitone (PB) currently represents the first line anti-epileptic drug (AED) of choice with limited efficacy. As Levetiracetam is increasingly being used in neonatal seizures, a randomized controlled trial (RCT) with Levetiracetam was structured.

Objective:

To find out the efficacy of levetiracetam in controlling the convulsions in acute neonatal seizures compared to phenobarbitone. To find out the clinical efficacy of Levetiracetam in controlling the acute neonatal convulsions compared to Phenobarbitone.

Methodology: The study was a randomized control trial. A total of 100 neonates from 0 day to 28 days of age irrespective of sex with clinical presentation of neonatal seizures admitted in the special care baby unit (SCABU) of Dhaka Medical College Hospital were included in the study and were randomly assigned to either levetiracetam or Phenobarbitone group after matching inclusion and exclusion criteria. The outcome variables were seizure control, times taken to be seizure free, and hospital stay. Outcome was evaluated through routine monitoring up to 48 hours and followed up to discharge or death. Irrespective of sex a total 100 neonates from 0 day to 28 days of age were included in this RCT and were randomly assigned to either Levetiracetam (group=50) or Phenobarbitone (group=50).

Result:

The study groups were almost similar with respect to their demographic characteristics like age, sex and gestational age. According to maternal obstetric data i.e- antenatal care (ANC), modes of delivery in the both groups were statistically not significant. Seizures status was non-significant in both groups. The study demonstrated that controlling the seizure with levetiracetam&phenobarbitone was 66.0% and 34.0%

respectively. Length of the hospital stay was shorter in levetiracetam group. Eventually the phenobarbitone group required more than one drug to control seizures and treatment outcome was not so good. But immediate adverse effect was not significant in both groups. The study groups were almost similar with respect to their demographic characteristics. The study demonstrated that controlling the seizure with Levetiracetam & Phenobarbitone was 66.0% and 38.0% respectively, which was statistically significant. But in both groups immediate adverse effect was in significant and negligible.

Conclusion:

The study concluded that levetiracetum significantly control the convulsion in comparison to phenobarbitone as first line antiepileptic drug in the initial treatment of acute neonatal seizures. Both the modalities of treatment were found to have no adverse effect. Levetiracetum significantly control the convulsion in comparison to Phenobarbitone as first line antiepileptic drug.