

Retrospective study (2008-2018):

- 103 term neonates were enrolled.
- 80 received phenobarbitone & 23 phenytoin.

Outcome:

- Time to achieve seizure cessation, requirement of second line AED.

Long term outcome assessment:

- At 18-24 months with Denver and Baylyes scale



ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



Neonatal Seizures: Choice of 1st Line Antiepileptic (Updated)

Efficacy of Fosphenytoin as First-Line Antiseizure Medication for Neonatal Seizures Compared to Phenobarbital. Journal of Child Neurology 2020, 1-8

Phenobarbitone Group	Phenytoin Group
<ul style="list-style-type: none"> • VEEG/aEEG monitoring • Levels: 20-40mg/L • Age at seizures onset \approx 21 hr 	<ul style="list-style-type: none"> • VEEG/aEEG monitoring • Levels: 20-25mg/L • Age at seizures onset \approx 24 hr
Phenobarbitone Group	Fosphenytoin Group
<ul style="list-style-type: none"> • Time to seizure cessation \approx 1 (0.5-15) hr • Recurrence of seizures- 55% • Need for 2nd line AED - 44% • <u>18 month developmental outcome: mod-severe delay - 30%</u> 	<ul style="list-style-type: none"> • Time to seizure cessation \approx 0.5 (0.5 – 3)hr • Recurrence of seizures- 48% • Need for 2nd line AED - 44% • <u>18 month developmental outcome: mod-severe delay – 5%</u>

Conclusion:

Fosphenytoin & phenobarbitone were equally efficacious for acute neonatal seizure control. Fosphenytoin had the potential for significantly better neurodevelopmental outcomes at 18-24 months of age.

Key Message:

In this retrospective observational study efficacy of phenobarbitone & phenytoin was similar (45% vs 52%) for acute seizures control, however at 18-24 months significantly higher number of infants in phenobarbitone arm had mod to severe developmental delay (30% vs 5%, $p= 0.02$).

EXPERT COMMENT



“Choice of antiepileptic agent for neonatal seizures should take consideration about long-term developmental outcome”

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Reference

Alix V, James M, Jackson AH, Visintainer PF, Singh R. Efficacy of Fosphenytoin as First-Line Antiseizure Medication for Neonatal Seizures Compared to Phenobarbital. Journal of Child Neurology. August 2020. doi:10.1177/0883073820947514