Levetiracetam as an alternative to phenytoin for second-line emergency treatment of children with convulsive status epilepticus: the EcLiPSE RCT

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Disclaimer: This report contains transcripts of interviews conducted in the course of the research and contains language that may offend some readers.

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Plain English summary

The EcLiPSE RCT

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Plain English summary

Most epileptic tonic–clonic seizures, also called convulsions, last for < 4 minutes and stop spontaneously. A convulsion that lasts for > 5 minutes is called convulsive status epilepticus. This may cause neurological abnormalities or, rarely, death.

There is good scientific evidence for the best first-line medicine, called a benzodiazepine, to stop convulsive status epilepticus. When a benzodiazepine has not stopped status, a second-line medicine is given. The usual second-line medicine, which has been used for > 50 years, is phenytoin (Epanutin, Pfizer Inc., New York, NY, USA). However, it stops status in only half of children. It must be given slowly because it can cause unpleasant and potentially serious side effects. A new medicine called levetiracetam (Keppra, UCB Pharma, Brussels, Belgium) may be more effective. It seems to have less serious side effects than phenytoin. However, there is no good scientific evidence as to whether phenytoin or levetiracetam is better. A randomised controlled trial is the best scientific way to decide which of these two medicines is better.

The Emergency treatment with Levetiracetam or Phenytoin in Status Epilepticus in children (EcLiPSE) trial was a randomised controlled trial that compared levetiracetam with phenytoin. A total of 152 children were randomised to receive levetiracetam and a total of 134 children were randomised to receive phenytoin. Research without prior consent was shown to be acceptable to parents, doctors and nurses. Parents' consent to use their child's data and continue in the trial was provided after the emergency situation was resolved.

Convulsive status epilepticus stopped in 70.4% of the levetiracetam-treated children and in 64% of the phenytoin-treated children.

The median time to status stopping was 35 minutes in the levetiracetam-treated children and 45 minutes in the phenytoin-treated children.

Only one participant on phenytoin (vs. none on levetiracetam) experienced serious side effects that were thought to be caused by their treatment.

None of the results showed any statistically significant or meaningful difference between levetiracetam and phenytoin. However, the results suggest that levetiracetam might be an alternative choice to phenytoin.

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This report

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