Improving the Management of Paediatric Prolonged Seizures in Wessex

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Background & Aims

Evidence suggests (1, 2, 3) high morbidity and mortality for children with prolonged seizures. A 6 month retrospective audit at Queen Alexandra Hospital in 2016 supported this evidence and provided the basis for a regional project which was launched in December 2016.

The aim is to improve morbidity and mortality of children with prolonged seizures (defined as those presenting with a seizure of > 5 minutes duration) as measured by:

1. Time to seizure termination
2. Percentage intubated, ventilated or admitted to level 3 care.

A secondary aim is to reduce the numbers with evidence of respiratory, haemodynamic or metabolic compromise

Results to date:

Over the first 9 months of the project, 134 cases have been captured from 8 centres. Initial data collection was slow and strategies to improve this including refinement of an electronic form, local leads championing the project and local targeted strategies such as posters and paper lists have been successful.

Run charts have been plotted for regional and local results looking at seizure duration over time – the aim is to reduce variability and standardise practice. 21.6% of patients to date required intubation and the majority of these were intubated for less than 12 hours.

Improvements & Future Plans:

The first improvement is being implemented - a focus on ‘thinking ahead’ to the next step of the treatment algorithm. Regionally this is planned via the SORT guideline. Locally, run charts have been produced and local centres are considering how to best achieve this improvement.

In view of the feedback and results on ‘time to transfer’ and medications administered pre hospital, consideration has been given to targeting pre hospital health-care workers to improve their knowledge and confidence in managing paediatric seizures. At present, this is not easily achieved and has been postponed until a paediatric-SIM programme for pre hospital staff is established.

We are hoping to utilise a nurse or allied healthcare professional via PIER to facilitate implementation of improvements. For all interventions, the PDSA cycles with continuous monitoring of outcomes will be used to track effects. Where local changes lead to improvement in outcomes, we will use the regional nature of the project to enable other centres to learn and benefit from this learning.

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References:


Seizure duration over time

Initial run charts plotting ‘time to phenytoin (or equivalent anticonvulsant)’ have been modified to plot ‘time from arrival to phenytoin’ after feedback and observation that a lag period between the time of seizure start to arrival in hospital was affecting the ‘time to phenytoin’ results.

Arrival to anticonvulsant load run chart