

## Prolonged seizures cause developmental delays in children

Researchers from the UK have determined that developmental delays are present in children within 6 weeks following convulsive status epilepticus – a seizure lasting longer than 30 minutes (Martinos et al, 2013). The study suggests that neurodevelopmental impairments continue to be present 1 year after convulsive status epilepticus.

Convulsive status epilepticus is one of the most common neurological emergencies in children. These prolonged seizures can occur with or without fevers. Studies show that convulsive status epilepticus occurs more frequently during the first 3 years of life – a time

of critical growth and development in children. Prior research investigating convulsive status epilepticus has focused mainly on simple febrile seizures and was conducted years after the event occurred.

For the present study, researchers recruited 54 children between 1 and 42 months of age who had at least one convulsive status epilepticus event. Convulsive status epilepticus episodes were classified as prolonged febrile seizures or non-febrile convulsive status epilepticus.

All paediatric participants underwent neuropsychological assessments and imaging scans

within 6 weeks of the convulsive status epilepticus event and at 1 year. Developmental skills were measured in children who had seizures and compared to

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children without seizures with normal development.

Half of the paediatric participants had prolonged febrile seizures and the other half had non-febrile convulsive status epilepticus, with assessments carried out at a mean of 38 days following convulsive status epilepticus.

Findings indicate that convulsive status epilepticus is linked to developmental impairments within 6 weeks of the event, and that the impairments persisted at the 1-year follow up. Children with non-febrile prolonged seizures had worse developmental outcomes than those with prolonged febrile seizures, and children in the prolonged febrile seizures group had poorer developmental skills than those in the control group.

The authors also found that seizure characteristics (e.g. duration) were not a significant predictor of developmental performance.

‘Our study is the first to examine cognitive, language, and motor function in children within 6 weeks of convulsive status epilepticus, with follow-up at 1 year to determine their developmental track,’ said lead author, Dr Marina Martinos with the Developmental Cognitive Neurosciences Unit at UCL Institute of Child Health in London.

‘Understanding how convulsive status epilepticus impacts early childhood development and whether this type of seizure has long-term adverse effects is an important addition to medical evidence.’

Martinis MM, Yoong M, Patil S et al (2013) Early developmental outcomes in children following convulsive status epilepticus: a longitudinal study. *Epilepsia* Apr 8 (Epub ahead of print) doi: 10.1111/epi.12136

## New radiotherapy approach reduces dry mouth symptoms in patients with head and neck cancer

Researchers have shown for the first time that it is possible to reduce the distressing symptoms of dry mouth in patients treated with radiotherapy for head and neck cancers if the radiation dose to the contralateral submandibular gland is kept to a minimum (Terhaard et al, 2013).

The largest study yet to show a correlation between radiation doses to the submandibular glands and their output of saliva was presented at the 2nd Forum of the European Society for Radiotherapy and Oncology. As a result, the researchers say that guidelines for the recommended maximum dose can be issued for use in clinical practice to benefit patients.

The researchers wanted to see if it would be possible to deliver intensity modulated radiotherapy to tumours with the intention of sparing the

contralateral submandibular gland and both parotid glands.

They also wanted to see what the maximum radiation dose should be, and what the effect of this treatment would have on the prevalence of xerostomia (dry mouth) in patients 6 weeks and 1 year after treatment.

Dr Chris Terhaard and his colleagues at the University Medical Center Utrecht in The Netherlands recruited 50 patients with throat cancers, in which cancer cells had not migrated into the contralateral lymph nodes, and which had not metastasized to other parts of the body.

The patients were treated with the contralateral submandibular gland-sparing intensity modulated radiotherapy, and were compared with a historical group of 52 patients who had received

radiotherapy that had spared only the parotid glands.

After 6 weeks and after 1 year, the researchers measured saliva flow objectively from the submandibular and parotid glands. They also used a questionnaire to measure the patients’ subjective experience of dry mouth.

They found that saliva flows from the contralateral submandibular glands were significantly higher at 6 weeks and at 1 year in patients who received a dose to the submandibular gland of less than 40 Gy, and this translated into fewer complaints of dry mouth.

Terhaard CHJ, Dijkema T, Braam P, Roesink JM, Raaijmakers CPJ (2013) Sparing the contralateral submandibular gland in oropharyngeal cancer patients; dose-response analysis. 2nd Forum of the European Society for Radiotherapy and Oncology Geneva, Switzerland, April 19–23: Abstract OC-0078