Epilepsy and cerebral palsy: Characteristics and trends in children born in 1976 – 1998.

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Background

The epilepsies are common in children with cerebral palsy (CP) and have been used as a marker of severity in this disorder. They are estimated to affect between 15 and 60 out of every 100 children with CP. However, we do not know if the frequency of the epilepsies among children with CP decreases or not over time.

What was the aim?

This paper set out to answer questions about:

- What is the rate of CP associated with the epilepsies across Europe;
- Whether this rate has changed from the 1970s to the 1990s;
- Whether there are some events or characteristics at birth that are risk factors for developing one of the epilepsies;

1. - How frequency of the epilepsies differs depending on the type of CP or depending on other impairments (intellectual, visual or hearing impairment, inability to walk).

How was the work carried out?

The SCPE database was used to obtain information from 17 CP registers across Europe. This gave information on a total of 9654 children with CP born between 1976 and 1998. This included details of their birth such as birth weight, admission to an intensive care unit and the presence or not of an epilepsy at the age of 5 years and other associated impairments.

What were the findings?

A total of 3424 (35 out every 100 children with CP children had a history of an epilepsy.

Among them, seventy-two percent (72 out of 100) were taking anti-epileptic drugs at the time of registration. Epilepsy was more frequent in children with a dyskinetic (52% or 52/100) or bilateral spastic type (37% or 37 out of 100) than children with unilateral spastic (26% or 26 out of 100) or ataxic type (27% or 27 out of 100). Compared with children with CP but without epilepsy, children with epilepsy were more likely to have other associated impairments such as intellectual, hearing, visual impairment and were more likely to be unable to walk. The rate of CP with epilepsy was 0.69 per 1000 live births. This means that for every 2000 children born, one or two were likely to have CP and epilepsy. There was an increase in this rate from 1976 to 1983 and a decrease afterwards. Children with a brain malformation, with a syndrome, born at term and who had signs of distress at birth (children who suffered from neonatal seizures at birth or those who were ventilated or admitted to a neonatal care unit) were more at risk to develop epilepsy.

What does this tell us?

In Europe, one child out of every three with CP has a history of epilepsy. The proportion of children with epilepsy among children with CP tended to decrease over the two decades, but not much, despite progress in neonatal care. We know that children who are born at term and suffered from neonatal seizures or were admitted to a neonatal care unit are more at risk of having epilepsy. This means that children at risk of having epilepsy can be identified at an early stage.

Further work

When a standardized description for neonatal ultrasound and magnetic resonance imaging results is available, it should be possible to study in greater detail the association between the type of cerebral lesion and the epilepsies. We will be able to better understand why some children have epilepsy whereas others do not.

Paper The full results of this study can be found in European journal of paediatric neurology: EJPN: Official journal of European Paediatric Neurology Society. **2012 Jan**;16(1):48-55

Pubmed abstract The summary of this study can be found in Pubmed, a database of citations from biomedical journals. http://www.ncbi.nlm.nih.gov/pubmed/22079130

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