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Psychiatric disorders among children with cerebral palsy at school starting age

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ABSTRACT

The aim of the present population study was to estimate the prevalence of psychiatric disorders in children with cerebral palsy (CP), as well as the impact of comorbid conditions. A cohort of children with CP born 2001–2003, and living in the Western Health Region of Norway were evaluated at school starting age. Parents were interviewed with the diagnostic instrument Kiddie-SADS, to find the prevalence of psychiatric disorders. Sixty-seven children participated, 43 boys, with mean age 88 months (SD 6,8 months). Most children had spastic CP, Gross Motor Function Classification System (GMFCS) levels I and II were found in 2/3 of the group. We found the diagnostic instrument appropriate for GMFCS levels I–IV. Child psychiatric disorders were found in 57% of the children, including 28 children meeting criteria for an attention deficit disorder, which was the most common. Communication problem was significantly associated with having a psychiatric disorder, whereas intellectual disability, type of CP and functional level did not account for significant differences. Subthreshold symptoms were found in 33 children, and 42 children (75%) met criteria for either psychiatric disorder, or mental health symptoms. One in four (14 children) were considered well-functioning from a mental health point of view. We conclude with a recommendation for early psychiatric evaluation of all children with CP.

1. Introduction

Cerebral palsy (CP) is one of the most frequent neurological conditions in childhood and has shown an increased risk for associated mental health problems according to questionnaire based studies (Carlsson, Olsson, Hagberg, & Beckung, 2008; Parkes et al., 2008; Sigurdardottir et al., 2010) A population study from Iceland, where preschool children with CP were included, found a three to four fold increased risk for emotional and behavioural problems for these children compared to controls (Sigurdardottir et al., 2010). A similar European multicenter study using a mental health screening instrument, Strengths and Difficulties Questionnaire (SDQ), found one in four children aged 8–12 years with CP had scores indicating mental health problems. They concluded with a need for in depth interviews to learn more about the extent of mental health problems in children with CP (Parkes et al., 2008). To our knowledge only one previous study has done this, more specifically, Goodman et al. verified psychiatric disorders in a childhood population with unilateral CP where a sample of parents were interviewed, finding psychiatric disorders present in more than half of the children (Goodman & Graham, 1996). A semistructured diagnostic interview was to our knowledge not yet available at that time, and comparability is therefore

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limited. The sample was restricted to unilateral CP, and little is known about psychiatric disorders in the CP group as a whole, and even more so for the children with multiple disabilities, taking into account the impact of functional level and comorbid conditions. A European questionnaire based multicentre study has shown an apparent lower risk for mental health problems among children with a lower functional level (Parkes et al., 2008). The reliability of these findings has however been discussed, as the more severely affected children will have difficulties expressing their emotional status, and questionnaire based studies may not capture the subtle symptoms of emotional distress.

The aims of the present population based study were to assess the rate of psychiatric disorders using a diagnostic interview, and to evaluate the impact of type of CP, functional level and comorbid conditions on mental health in a cohort of children with CP.

2. Methods

2.1. Study population

A cohort of children with Cerebral Palsy (CP) in the three western counties of Norway (Western Health Region of Norway) born 2001–2003 were invited to participate in the study. The population is approximately 1 million, it is stable with little migration, and equally distributed between urban and rural areas. All children with CP in Norway are referred to paediatric habilitation units for diagnostic confirmation and follow up, and are offered free services. The four local habilitation units in the region provided in 2009 lists of all children diagnosed with CP according to International Classification of Diseases (ICD-10) criteria under G80.0–G80.9. All children with a diagnosis of CP with an onset of injury up to the age of three years were included in the study.

2.2. Classification, functional levels and medical information

2.2.1. Classification

Cerebral Palsy was classified according to ICD-10 criteria with the following subgroups: spastic bilateral and unilateral, dyskinetic, a tactic or not further classified. We recorded status of classification given prior to the study, and stated in the medical record. Functional level was classified by the Gross Motor Function Classification System (GMFCS) and Manual Ability Classification System (MACS)which distinguishes five groups (Eliasson et al., 2006; Palisano et al., 1997). Classification for gross motor function was based on self-initiated movement, functional limitations, and the use of mobility devices in everyday life. Fine motor function was classified according to bimanual ability in daily activities, and five groups were distinguished according to functional level. Functional classification given in the medical record was obtained, or was given during the medical examination if information was not available prior to the study. Classification was grouped as follows: light disability (GMFCS I and II, MACS I and II), moderate disability (GMFCS III and IV, MACS III–IV), and severe disability (GMFCS V, MACS V). Cognitive level was recorded by standardized psychological tests and classified as normal intellectual ability with the two categories IQ 85 and above and IQ 70–84, or as intellectual disability with the categories mild intellectual disability IQ 50–74, and moderate to severe disability IQ < 50. When this information was not available, the children were assessed clinically with information drawn from the medical records and the educational system.

2.2.2. Medical information

From the child's medical record, available information on visual and hearing impairment and the need for adaptive measures for such was recorded, as well as information about epilepsy and other diagnoses. A medical examination was performed, and communication problems were based on this information, as well as information from the medical records. It was then defined as communication problem when having no speech, difficulties with speaking, or having the need for a communication aid.

2.2.3. Mental health assessment using the Kiddie-SADS interview

All children were assessed using the Schedule for Affective Disorders and Schizophrenia for school-age children: present and lifetime version (6–18) 10.04.00 (Kiddie-SADS). It is a semi-structured child psychiatric diagnostic interview, designed to unveil psychiatric symptoms within the following groups of disorders: affective-, anxiety-, psychotic-, eating-, attention/hyperactivity-, oppositional defiant-, conduct-, tics-, substance abuse- and post-traumatic stress disorders, as well as encopresis and enuresis. Diagnostic conclusions were drawn according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Parents were interviewed, and we recorded present symptoms. All interviews were conducted by the first author, a child- and adolescent psychiatrist. A *psychiatric disorder* was ascertained if criteria listed in the DSM-IV for each specific diagnosis were fulfilled, including severity and duration of specific symptoms. Subthreshold symptoms were defined as *mental health symptoms* present to a degree above 75% of that required to qualify for a distinct disorder according to DSM IV criteria. Specific incidents considered by the parents to have made considerable negative impact on the child's mental health, were recorded as traumatic events.

2.3. Statistical analysis

Pearsons Chi Square Tests were used to examine demograhics, clinical characteristics and functional level when comparing children meeting criteria for a psychiatric disorder and children not meeting criteria for such, as well as