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Research in Developmental Disabilities



Screening for psychopathology in a national cohort of 8- to 15-year-old children with cerebral palsy



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ARTICLE INFO

Article history:

Received 19 May 2015

Received in revised form 1 November 2015

Accepted 19 November 2015

Available online 17 December 2015

Keywords:

Cerebral palsy

Child behavior checklist

Screening for psychopathology

Mental health care

ABSTRACT

Cerebral palsy (CP) is often accompanied by psychopathology and learning disability. *Aims:* (1) to evaluate the prevalence of psychopathology as estimated by the Child Behavior Checklist (CBCL) parental questionnaire in 8- to 15-year-old Danish children with CP and to analyze its association with cognitive ability and families' social characteristics; (2) to examine to what extent children with CP had been evaluated by a child psychiatrist and/or psychologist.

Method: The parents of 462 children with CP answered a questionnaire about their child's treatment and the family's characteristics and 446 the CBCL. The cutoff for psychopathology was the Total CBCL score or DSM-oriented scores above the 93rd percentile in an age- and gender-stratified population.

Results: The psychopathology screening was positive in 46.2% (CI 41.6–50.8%) against 15.1% in general population. Cognitive disability was associated with an increased prevalence of psychopathology (odds ratio (OR) 2.6, CI 1.4–4.6, for Developmental Quotient of cognitive function (DQ) 50–85 and OR 3.0, CI 1.3–7.0, for DQ < 50). Children with CP and a single parent showed increased odds for a positive CBCL screening compared to children living with two parents (OR 2.1, 95% CI 1.1–4.0). Children with DQ 50–85 more often had a psychological evaluation. A positive CBCL screening was strongly associated with a psychiatric assessment (21% vs. 7%, $p < 0.01$).

Conclusion: The high prevalence of emotional and behavioral problems indicates that screening for psychopathology should be a part of multidisciplinary follow-up of CP. The CBCL can be used as a screening instrument in children with CP without severe motor and cognitive disability.

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1. What this paper adds?

Almost half of 8-to-15 year old children with CP appear positive in screening for psychopathology (CBCL values above the 93rd percentile in either the CBCL total problem score or at least one of the DSM-oriented scores).

Proportions of children with possible psychopathology differ between GMFCS levels (38% in GMFCS level I; 53% and 52% in GMFCS levels II–III and IV–V).

In children with CP, positive screening for psychopathology is associated with cognitive disability and living in a family with a single parent.

Having a positive screening for psychopathology is strongly associated with a previous psychiatric assessment (21% vs. 7%, $p < 0.01$). CBCL may therefore be used as a screening instrument in children with CP without severe motor and cognitive disability (IQ > 50 and GMFCS above level V).

Paucity of mental health care services in contrast to the high prevalence of emotional and behavior problems implies that screening for psychopathology should be a part of multidisciplinary follow-up of CP in childhood.

2. Introduction

Cerebral palsy (CP) is one of the most common childhood disabilities, and consists of a group of disorders in the development of posture and motor control caused by a non-progressive lesion of the developing brain. The lesion may cause accompanying disorders of cognition, communication, perception and behavior (Bax et al., 2005). An increased prevalence of psychopathology and learning disability in children with CP has been demonstrated in children with hemiplegic CP (Goodman & Graham, 1996) and recently also in population-based studies (Bjorgaas, Hysing, & Elgen, 2012; Parkes et al., 2008; Sigurdardottir et al., 2010).

Intelligence quotient (IQ) has previously been reported to be the best predictor for psychiatric disorders in hemiplegic CP (Goodman & Graham, 1996) and was also associated with an increased risk for psychological problems in a recent multinational European study (Parkes et al., 2008). However, low IQ (<70) was not associated with the psychiatric disorder in a small population study (Bjorgaas et al., 2012). A larger population based study is needed to clarify this association. To the best of our knowledge, no results on psychopathology screening with the DSM-oriented scores from Child Behavior Checklist (CBCL) in a national population of school children with CP have ever been published.

The health care in Denmark is financed mainly by public resources. The responsibility of organizing mental health care is divided between municipalities (psychological services in schools; provision of special education and social services) and five geographical regions (child psychiatric services in the hospitals and in the private praxis). Referral to the child psychiatric services can be undertaken by general practitioner, pediatrician or school-psychologists. There is no requirement of referral to psychological services in municipalities, but waiting lists may appear due to the limited resources.

According to the multifactorial developmental model of psychopathology, a child with motor disability may have a higher risk of psychopathology as a result of incongruence between the abilities of the child and the demands and expectations of the family and society (Bottcher & Dammeyer, 2013). Psychosocial characteristics of the family or other unknown factors in the society may act as additional risk factors as well.

The aim of the present study was to evaluate the prevalence of psychopathology as estimated by the CBCL parental questionnaire in 8- to 15-year-old Danish children with CP compared to a normative population sample, and to analyze its association with the children's cognitive abilities and the families' social characteristics.

Mental health services provided to children with CP have never been investigated in a national CP-population. An additional aim of the study was to examine to what extent the children with CP had been evaluated by a child psychiatrist and/or psychologist, and to compare the contact with mental health services between children with CP and normal CBCL scores and children with CP and abnormal CBCL scores.

3. Materials and methods

3.1. Study design

This study was part of a cross-sectional study of treatment and comorbidity in 8- to 15-year-old children with CP. Data was based on the Danish Cerebral Palsy Registry (NCPR) and questionnaires to the parents.

3.2. Participants

Children ($N=977$) with CP and born 1997–2003 were identified from the Danish National CP Registry (NCPR), and 893 children were still eligible for the study after update of their civil status in September 2011 (79 died, 2 addresses not available, 3 diagnoses not confirmed). Inclusion criteria for the NCPR were a child born in Denmark and a diagnosis of congenital CP confirmed by a neuropediatrician at the age of 4 to 5 years (Uldall, Michelsen, Topp, & Madsen, 2001). An invitation letter was addressed to the parents between January 2012 and January 2013. It included a description of the project and login information to the online questionnaires. The first reminder was sent after 1 month and the last reminder including the questionnaires in paper form after 2 months.

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