CEREBRAL PALSY IN WESTERN SWEDEN

Epidemiology and function

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This thesis is based on the following papers:

I. Himmelmann K, Hagberg G, Beckung E, Hagberg B, Uvebrant P.
The changing panorama of cerebral palsy in Sweden IX.
Prevalence and origin in the birth-year period 1995-1998.
Acta Paediatr 2005;94:287-294.

II. Himmelmann K, Beckung E, Hagberg G, Uvebrant P.
Gross and fine motor function and accompanying
impairments in cerebral palsy.
*Dev Med Child Neurol 2006;*48:417-423.

III. Himmelmann K, Hagberg G, Wiklund LM, Eek MN, Uvebrant P.
Dyskinetic cerebral palsy – a population-based study of children
born in 1991-1998**.**
Dev Med Child Neurol 2006; accepted for publication.

IV. Himmelmann K, Beckung E, Hagberg G, Uvebrant P.
Bilateral spastic cerebral palsy – epidemiology, function and
growth.
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Epidemiology and function

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Aims: To investigate the prevalence and aetiology of cerebral palsy (CP), describe and analyse motor function and accompanying impairments, apply a new classification of unilateral and bilateral CP and describe prevalence, aetiology, function and growth in dyskinetic and bilateral spastic CP.

Material and methods: In a population-based study in western Sweden, the prevalence and aetiology of CP were analysed in children born in 1995-1998. Gross and fine motor function, accompanying impairments and, in the case of dyskinetic and bilateral spastic CP, neurology and growth were recorded in the 1991-1998 birth cohort. For dyskinetic CP, neuroimaging and perinatal factors were reviewed. The prevalence and severity of motor impairment in the birth-year period 1959-1998 were analysed.

Results: The prevalence of CP was 1.92 per 1,000 live births. Spastic hemiplegia, diplegia and tetraplegia accounted for 38%, 35% and 6%, dyskinetic CP for 15% and ataxia for 6% respectively. The aetiology in children born at term was considered to be prenatal in 38%, peri/neonatal in 35% and unclassifiable in 27%. In children born preterm, it was 17%, 49% and 33% respectively. Gross Motor Classification System (GMFCS) levels were distributed at level I in 32%, level II in 29%, level III in 8%, level IV in 15% and level V in 16%. Learning disability was present in 40%, epilepsy in 33% and severe visual impairment in 19%. The severity of the motor impairment correlated to the presence of accompanying impairments and, in children born at term, to the presence of adverse peri/neonatal events. The prevalence of dyskinetic CP was 0.27 per 1,000 live births. The majority were dystonic, 79% were unable to walk and spasticity was present in 69%. Learning disability was present in 73%, epilepsy in 63% and 79% had anarthria. In the children born near term or at term, peri/neonatal adverse events had been present in 81%. The motor impairment was most severe in this group. Neuroimaging revealed isolated late third-trimester lesions in 56% and a combination of early and late third-trimester lesions in 16%. The prevalence of bilateral spastic CP was 0.69 per 1,000 live births. After 1975, children born preterm dominated. A severe motor impairment was found in 46% of the children born at term and in 33% of those born preterm. The GMFCS correlated with the severity of spasticity and deviation in growth.

Conclusion: The prevalence of CP continued to decrease, especially in those born preterm. Hemiplegia was the most common CP type, due to a decrease in preterm diplegia. CP type and motor function combined was an indicator of the total impairment load. Gestational age at birth and peri/neonatal morbidity provided prognostic information. Classification into unilateral and bilateral spastic CP combined with GMFCS level added structure to the CP classification. Dyskinetic CP was dominated by term-born, appropriate for gestational age children, with severe disabilities and underweight at follow-up. Peri/neonatal adverse events were common. The prevalence of bilateral spastic CP had decreased, parallel to a decrease in the severity of motor impairment. Spasticity correlated with motor function.

Key words: cerebral palsy, prevalence, aetiology, motor function, dyskinetic, bilateral spastic, growth

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