

Cerebral Palsy: measurement and classification systems

childhood
disability
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Summary

Cerebral Palsy (CP) is a physical disability that, in the past, has been difficult to classify because of the different ways in which the condition originates and evolves. Experts have traditionally grouped CP into subtypes. These CP subtypes include (but are not limited to):

- **Spastic-quadruplegic:** spasticity (i.e. tightness of, or inability to control muscles) of all four extremities of the body.
- **Spastic-hemiplegic:** spasticity of extremities on one side of the body.
- **Spastic-diplegic:** spasticity of lower extremities of the body more pronounced than in the upper extremities.
- **Dyskinetic:** mixed muscle tone characterized by involuntary or uncontrolled and recurrent movements.

Recently, physicians have been more and more interested in measuring participation and activity limitations for children with developmental disabilities. As such, new classification systems – such as the Gross Motor Function Classification System (GMFCS) – have been integrated into clinical practice. The GMFCS, for instance, measures a child's motor abilities and groups them into different levels:

- **Levels I and II:** moves about independently without assistance.
- **Level III:** moves about independently with assistance.

- **Levels IV and V:** non-ambulatory (i.e. cannot walk from place to place).

The purpose of this study was to see whether there was a link, if any, between the traditional CP subtype classification system and the GMFCS. The authors analyzed information on CP subtypes and GMFCS levels obtained from a record of cases of children with cerebral palsy in the province of Quebec. The authors found a link between CP subtypes and the level of motor function as measured by the GMFCS. Specifically, they found that a child with spastic diplegia or spastic hemiplegia will usually achieve independent ambulation (i.e. walk from place to place with or without assistance). A child with spastic quadriplegia or dyskinesia will rarely achieve independent ambulation.

What families should know

Once their child has been diagnosed with cerebral palsy, parents are usually concerned about their child's ability to move about independently. This is understandable since independent ambulation is a major factor of participation. This study shows that by using the two above-mentioned classification systems, doctors can attain a more accurate diagnostic profile of children with cerebral palsy. Families also benefit from being well informed about the manifestations and possible outcomes of cerebral palsy.

What practitioners should know

These findings have strong implications for counseling families. Determining neurological subtype allows physicians to assess pathogenesis, type of motor impairment and burden of comorbidity associated with cerebral palsy. Alternatively, GMFCS allows physicians to measure the severity of motor impairment and helps inform the progress of treatment and rehabilitation.

Reference

Shevell MI, Dagenais L, Hall N; REPACQ CONSORTIUM. 2009. The relationship of cerebral palsy subtype and functional motor impairment: a population-based study. *Dev Med Child Neurol* Nov;51(11):872-7.

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