

# Causes of cerebral palsy

Cerebral palsy is the term for a group of disorders and has many different causes. It is important to distinguish between risk factors, which may or may not result in cerebral palsy, and known definite causes. In developed countries, approximately 75% of cerebral palsy occurs from events in the antenatal period, 15% from the perinatal period and 10% in the post-neonatal period.

## Risk factors

Prenatal, perinatal and post-neonatal risk factors include being born prematurely (the earlier the gestation, the greater the risk), having a low birth weight, being a product of a multiple birth, maternal infections during pregnancy, birth complications including umbilical cord problems and neonatal encephalopathy which may sometimes result from oxygen deprivation during labour or delivery.

## Causes

Known causes of cerebral palsy include congenital intrauterine infection (e.g. rubella, cytomegalovirus, toxoplasmosis), vascular events (e.g. middle cerebral artery occlusion) and brain malformations (e.g. cortical dysplasias).

Post-neonatal events are easier to identify and include:

- Accidental injury e.g. hypoxic events – such as near drowning accidents, head trauma – such as from motor vehicle accidents.
- Non-accidental injury, resulting in head injury.
- Severe brain infections e.g. meningitis.

## The importance of identifying the cause

Knowing the cause of cerebral palsy provides information important to the person concerned, the family and the medical practitioners. Knowing the aetiology:

- Informs medical care.
- Explains when and why the disability occurred which is particularly important for individuals with cerebral palsy and their families as it may help them resolve some of their questions.
- Indicates recurrence risk.
- Facilitates understanding of behaviours that a person may exhibit.
- Enables individuals/families to locate specific information relevant to the aetiology including specific medical information and support groups.

Information about the cause of cerebral palsy is also important for research into treatment and prevention.

## Investigations

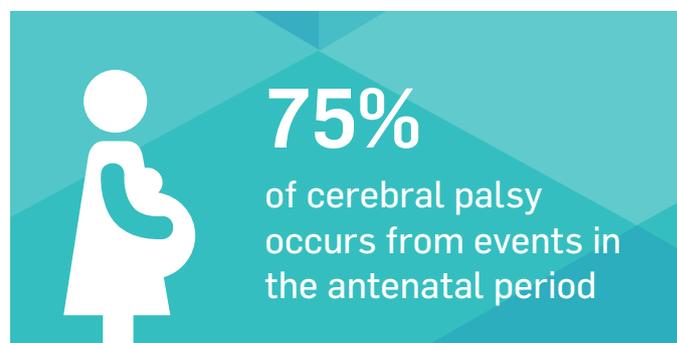
Investigations are important as they confirm clinical suspicion. However, investigation recommendations are subject to availability, and even where available, may be too expensive for families. The clinician will need to personalise the decision for the family.

There is increasing interest in the role that genetic factors may play in the genesis of some cases of cerebral palsy. Only a few definite genetic causes have so far been identified. Because the understanding of genetics is developing so rapidly, genetic review every five years is suggested for people with cerebral palsy and intellectual disability who have not had a definitive cause for their disability identified.<sup>1</sup>

- The American Academy of Neurology's Practice Parameter recommends that an MRI brain scan should be performed if the cause of the cerebral palsy is not apparent.<sup>2</sup> In about 10-15% of cases of cerebral palsy, MRI findings may be normal.<sup>3</sup>
- Investigations such as urinary metabolic screening may also be helpful, particularly when risk factors and causes are not apparent and also when there is an atypical clinical presentation.
- A review by a neurologist or a geneticist may be worthwhile to guide investigations.

## REFERENCES

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3. Reid SM, Dagia CD, Ditchfield MR, Carlin JB, Reddihough DS. Population-based studies of brain imaging patterns in cerebral palsy. *Developmental Medicine and Child Neurology.* 2014;56:222-232.



These resources are designed to support healthcare practitioners in the care of their patients with cerebral palsy in Australia. They were developed in partnership by The Royal Children's Hospital; the Centre for Developmental Disability, Monash Health; and Murdoch Children's Research Institute. They have been amended for use by healthcare workers globally in partnership with IAACD. The initial project was funded by an Avant Quality Improvement Grant 2017.