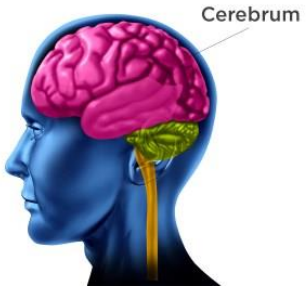
LexiMed
Medicolegal Specialists

Brain Disorders

Cerebral Palsy

Cerebral refers to the cerebrum, the largest portion of the brain. The cerebrum controls and integrates motor, sensory and higher cognitive functions, such as thought, reason, emotion and memory. Palsy refers to a disorder of movement.



Causes

Every fifteen hours, an Australian child is born with cerebral palsy. Cerebral palsy is caused by injuries to or abnormalities of the brain which usually occur as the baby grows in the womb, although they can happen during the first two years of life while the child's brain is still developing.

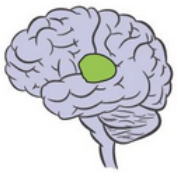
Incidents related to the development of cerebral palsy include bleeding in the brain, brain infections, head injuries and infections in the mother during pregnancy such as rubella. Of all children with cerebral palsy, 40% are born prematurely and 60% are born on time.

Types of Cerebral Palsy

There are different types of cerebral palsy depending on which part of the brain is affected.

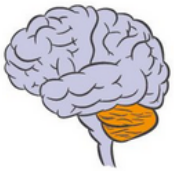
Spastic Cerebral Palsy is the most common form of this disorder, accounting for 70% to 80% of cases, and is associated with damage to or developmental differences in the cerebral cortex.

The muscles appear stiff and tight which results in spasticity.



Dyskinetic Cerebral Palsy accounts for 6% of cases and arises from basal ganglia damage.

People with this form of cerebral palsy have variable involuntary movement. The type of movement depends on which part of the basal ganglia has been damaged.



Ataxia Cerebral Palsy accounts for approximately 6% of cases and is associated with damage to the cerebellum.

This form of cerebral palsy is characterised by shaky movements. It affects balance, coordination and sense of position.

Mixed Cerebral Palsy is a combination of two or more types of cerebral palsy caused by damage to multiple areas of the brain.

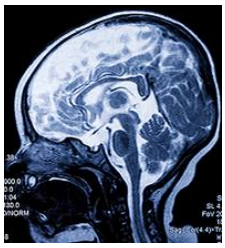
A blend of spastic and dyskinetic cerebral palsy types is the most common type of mixed cerebral palsy whereas a mix of ataxic and dyskinetic cerebral palsy types is the least common.

Symptoms

The presenting symptoms are related to the severity, size and location of the brain lesion. They can range from mild to severe and can involve one or both sides of the body. In addition to the symptoms noted above, children with cerebral palsy may also have a range of other physical and cognitive impairments, including:

- Gait disorders - 1 in 3 children with cerebral palsy are unable to walk.
- Communication issues – 1 in 4 children with cerebral palsy cannot talk.
- Pain – 3 in 4 children experience pain.
- Developmental motor delay – at least two thirds of children with cerebral palsy will have movement difficulties affecting one or both arms. This impacts on daily activities such as eating, dressing, writing et cetera.
- Swallowing difficulties – 1 in 5 children has saliva control problems.
- Impaired cognitive ability – 1 in 2 children has an intellectual impairment.
- Convulsions – 1 in 4 children has epilepsy.
- Vision problems – 1 in 10 children has a severe vision impairment abnormal movements and loss of coordination

Diagnosis and Treatment of Cerebral Palsy



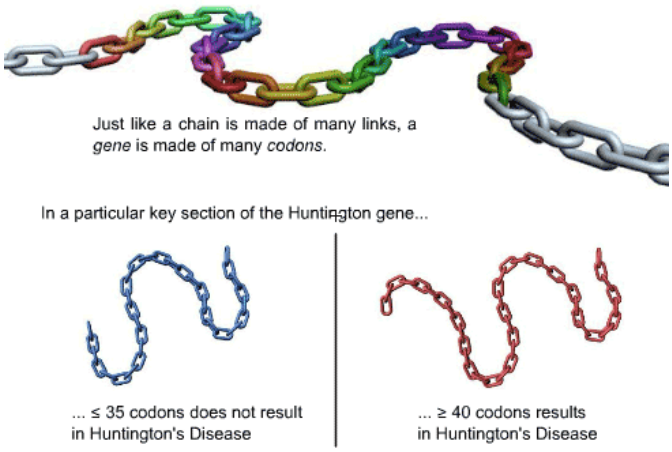
A full neurological examination is critical to rule out other conditions. Diagnostic tests include Magnetic Resonance Imaging (MRI) Scans of the head, vision and hearing tests, blood tests and electroencephalograms (EEG).

There is no cure for cerebral palsy, treatment is aimed at reducing symptoms and assisting the affected individual to live as normal a life as possible. This involves a support team of professionals including a physical therapist to assist in building muscle tone, an occupational therapist to monitor and assist with self care tasks and a speech therapist to evaluate communication and assist with speech.

Cerebral palsy does not affect life expectancy however lifelong care and assistance may be required.

Huntington's Disease

Huntington's disease is a progressive hereditary disorder that leads to premature death. It is characterised by mental and physical deterioration and symptoms usually manifest during midlife, between the ages of thirty five and forty four, however the onset of the disease can occur at any age.



Causes

All humans have two copies of the HTT gene, which provides instructions for making up a protein called huntingtin. Although the exact function of this protein is unclear it is known to be involved with the nerve cells in the brain.

In Huntington's disease, a mutation occurs in the HTT gene which produces an abnormally long huntingtin protein. This is then broken up into smaller fragments which then form toxic clumps that accumulate in neurones and lead to brain cell death. As the disease is passed from generation to generation, this mutated protein gets longer. The longer the mutation, the earlier the onset of the symptoms and the more the neurons deteriorate.

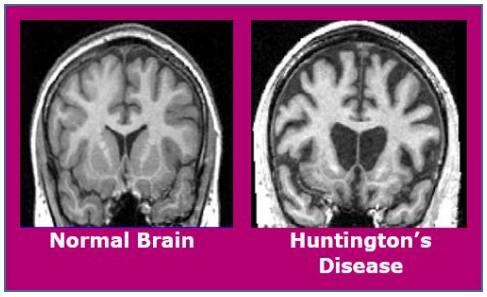
Symptoms

During the early stages of onset, there are subtle changes in cognition and motor skills. The physical symptoms are usually noticed before the cognitive manifestations.

Symptoms are related to the deterioration of neurons in the brain and include unsteady gait, decreased motor control, quick jerking movements of limbs and involuntary facial movements. The affected person may lose weight as eating becomes frustrating and messy and will eventually require a high level of care.

In terms of mental health, mood swings and dementia are fairly common, especially in the late stages of the disease.

Diagnosis and Treatment of Huntington's Disease



Diagnosis is done by genetic testing. A child of an affected parent has a 50% chance of having the disease.

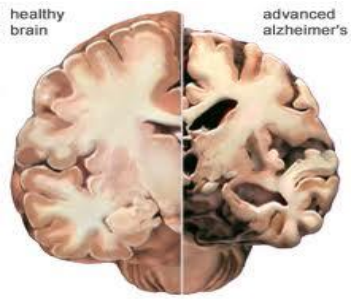
There is no cure for the disease, and no treatment to slow down its progression or reverse its effects. Medication can be taken to reduce the symptoms, such as antidepressants.

As the disease progresses, the affected person will lose control of all body functions and be unable to walk or talk.

Causes of death include choking from loss of motor control, infection due to having a suppressed immune system, and suicide. Rates of suicide among sufferers are sadly quite high.

Alzheimer's Disease

Dementia is the umbrella term for a number of neurological conditions, of which the major symptom includes a global decline in brain function. Alzheimer's disease is the most common cause of dementia, accounting for up to 70% of all dementia cases. It is a physical disease which attacks the brain resulting in impaired memory, thinking and behaviour. In 1907 a German Physician, Alois Alzheimer, first described the disease and hence this is the origin of the unusual name.



Causes

The causes of Alzheimer's disease are still largely unknown, although various links have been made. Alzheimer's disease is more common in the elderly, and can affect 50% of people at the age of eighty five. That said, it is not a normal process of ageing.

Alzheimer's disease can be hereditary. Other risk factors include high blood pressure over a number of years, coronary artery disease and diabetes. Almost 100% of people with Down syndrome will develop Alzheimer's disease in their forties.

Symptoms

Symptoms relate to the deterioration and shrinking of the brain. Sufferers usually lose their short term memory first, so they may not remember who their child is, however they can recall a song they heard at a party forty years ago. Other common symptoms include being less able to think logically, language difficulties, emotional unpredictability and changes in behaviour, personality and mood.

Diagnosis and Treatment of Alzheimer's Disease

Diagnosis is usually done clinically on the presentation of the patient and discussion with family and close friends.

At present, there is no cure for Alzheimer's disease and no treatment can stop the disease from progressing. Medication is available to help stabilise or slow down the decline in memory and thinking abilities for a time. Medication may also be aimed at secondary symptoms for example depression and agitation.

The prognosis is variable. In some patients the disease progresses very slowly, however in other patients, the progression is much quicker.

Dementia, including Alzheimer's disease is the second leading cause of death in Australia. The average time a person lives with Alzheimer's disease is seven to ten years, but this varies greatly.

LexiMed Consultants

- **Dr Leigh Atkinson**
  Neurosurgeon
- **Dr Micheal Redmond**
  Neurosurgeon
- **Dr Martin Wood**
  Neurosurgeon
- **Dr Malcolm Wright**
  General Physician
- **Dr Matthew Rickard**
  General Physician

References:
www.research.cerebralpalsy.org.au
www.dementia.org.au/information/about-dementia/types-of-dementia

Suite 30, Level 2, Silverton Place, 101 Wickham Terrace, Brisbane QLD 4000 l P.O Box 1225 Spring Hill 4004
T 07 3831 5681 l F 07 3831 5682 l www.leximed.com.au