Cerebellar Degeneration

National Institute of Neurological Disorders and Stroke (NINDS)

Source

National Institute of Neurological Disorders and Stroke (NINDS). Cerebellar Degeneration Information Page.

Cerebellar degeneration is a process in which neurons (nerve cells) in the cerebellum - the area of the brain that controls coordination and balance - deteriorate and die. Diseases that cause cerebellar degeneration can also involve other areas of the central nervous system, including the spinal cord, medulla oblongata, cerebral cortex, and brain stem. Cerebellar degeneration may be the result of inherited genetic mutations that alter the normal production of specific proteins that are necessary for the survival of neurons. In some cases the disease is aqauired (is non-hereditary or non-genetic).

The most characteristic symptom of cerebellar degeneration is a wide-based, unsteady, lurching walk, often accompanied by a back and forth tremor in the trunk of the body. Other symptoms may include slow, unsteady and jerky movement of the arms or legs, slowed and slurred speech, and nystagmus -- rapid, small movements of the eyes.

Associated diseases: Diseases that are specific to the brain, as well as diseases that occur in other parts of the body, can cause neurons to die in the cerebellum. Neurological diseases that feature cerebellar degeneration include:

- ischemic or hemorrhagic stroke, when there is lack of blood flow or oxygen to the cerebellum
- cerebellar cortical atrophy, multisystem atrophy, and olivopontocerebellar degeneration, progressive degenerative disorders in which cerebellar degeneration is a key feature
- Friedreich's ataxia, and other spinocerebellar ataxias, which are caused by inherited genetic mutations that result in ongoing loss of neurons in the cerebellum, brain stem, and spinal cord
- transmissible spongiform encephalopathies (such as Creutzfeldt-Jakob disease) in which abnormal proteins cause inflammation in the brain, including the cerebellum
- multiple sclerosis, in which damage to the insulating membrane (myelin) that wraps

around and protects nerve cells can involve the cerebellum

Acquired diseases that can cause cerebellar degeneration include:

- chronic alcohol abuse that leads to temporary or permanent cerebellar damage
- paraneoplastic disorders, in which a malignancy (cancer) in other parts of the body produces substances that cause immune system cells to attack neurons in the cerebellum