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Ataxia and Homeopathy

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ABSTRACT

Ataxia is a neurological sign that manifests lack of coordination in the movement of different muscles in the body[1]. Ataxia is a term for a group of disorders that affect co-ordination, balance and speech. The exact symptoms and their severity vary depending on the type of ataxia person has. Homeopathic treatment is based on the Totality of Symptoms in each case. Today Homoeopathy is unique system of medicine as it takes a holistic approach towards the sick individual through enhance the inner balance at mental, physical, emotional, and spiritual levels. There are many effective medicines available in Homoeopathy for Ataxia, but the selection depends upon the individuality of the patient, considering mental and physical symptoms.

Keywords- Ataxia, cerebellum, Hereditary, Autosomal dominant, Homeopathy.

I. INTRODUCTION

Ataxia is a neurological condition characterized by a lack of voluntary coordination of muscle movements. It can affect various parts of the body, leading to difficulties with balance, coordination, and speech. Ataxia is often a symptom of an underlying neurological disorder rather than a specific disease itself.

Ataxia usually results from damage to a part of the brain called the cerebellum, but it can also be caused by damage to other parts of the nervous system such as in MS, or can be cause by a head injury, lack of oxygen to the brain, or long-term, excessive alcohol consumption. Ataxia can be acquired or inherited, and some forms of ataxia are more common than others. Here are a few examples:

***1.1 Hereditary Ataxias*:** Some ataxia are inherited and can run in families. The prevalence of hereditary ataxias can vary based on the specific genetic mutation and population studied. For example, Friedreich's ataxia is one of the more common inherited forms of ataxia, and it is estimated to affect about 1 in 50,000 people.

1.2 Multiple System Atrophy (MSA): MSA is a rare neurodegenerative disorder that can cause ataxia among other symptoms. The prevalence of MSA is generally considered to be around 1 to 4 cases per 100,000 people.

1.3 Idiopathic Late-Onset Cerebellar Ataxia (ILOCA): This is a form of ataxia with an unknown cause that typically begins later in life. The prevalence of ILOCA is not well-defined, but it tends to be more common in the elderly population.

It's important to note that ataxia can also occur secondary to other conditions, such as stroke, tumors, or infections, and the prevalence of ataxia in these cases would depend on the prevalence of the underlying conditions.

Prevalence-The prevalence of ataxia can vary depending on the specific type of ataxia and the population studied. Ataxia is a neurological condition characterized by a lack of coordination and balance. There are various types of ataxia, including hereditary ataxias (like Friedreich's ataxia), acquired ataxias (resulting from injury or certain medical conditions), and idiopathic late-onset cerebellar ataxia, among others.

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The prevalence rates for different types of ataxia can range widely. For example, Friedreich's ataxia is considered one of the more common hereditary ataxias, and its prevalence is estimated to be around 1 in 50,000 people. However, other forms of ataxia may be rarer.

The overall prevalence of ataxia is 26 cases per 100,000 in children. The overall prevalence rate of hereditary ataxias is 10 cases per 100,000 individuals.[2]

1.4 Objective- To access the effectiveness of Homoeopathic medicines in case of Ataxia and To improve the quality of life of person affected with Ataxia.

II. PATHOPHYSIOLOGY AND CAUSES-

Ataxia is caused by damage to a part of the brain known as the cerebellum, but it can also be caused by damage to the spinal cord or other nerves. The spinal cord is a long bundle of nerves that runs altogether down through the spine and connects the brain to all other parts of the body. The cerebellum is located at the base of the brain and is responsible for controlling:[3]

- walking and sitting balance
- limb co-ordination
- eye movements
- speech
- some tasks that require a high degree of control, such as writing and eating
- vision

The symptoms of ataxia can vary widely depending on the underlying cause and type of ataxia. Common signs include unsteady gait, difficulty with fine motor tasks, slurred speech, and problems with coordination. Ataxia can be caused by various factors, including genetic mutations, head trauma, infections, toxins, and certain autoimmune conditions.

2.1 Causes of Ataxia:

Damage, degeneration or loss of nerve cells in the part of brain that controls muscle coordination (cerebellum), results in ataxia. Cerebellum comprises of two portions of folded tissue situated at the base of brain near to brainstem. This area of the brain helps with balance as well as eye movements, swallowing and speech. Diseases that damage the spinal cord and peripheral nerves that connect cerebellum to muscles also can cause ataxia. Ataxia causes include:[4]

Head trauma- Damage to your brain or spinal cord from a blow to head, such as might occur in a car accident, can cause acute cerebellar ataxia, which comes on suddenly.

Stroke-When the blood supply to a part of brain is interrupted or severely reduced, depriving brain tissue of oxygen and nutrients, brain cells die that causes Ataxia. It may occur either a blockage or bleeding in the brain can cause ataxia.

Cerebral palsy-Cerebral palsy is a group of disorders occur due to damage of a child's brain during early development either before, during or shortly after birth. It affects the child's ability to coordinate body movements. Autoimmune diseases-Multiple sclerosis, sarcoidosis, celiac disease and other autoimmune conditions can cause ataxia.

Infections-It may be an uncommon complication of chickenpox and other viral infections such as HIV and Lyme disease. Normally, the ataxia resolves over time.

Paraneoplastic syndromes- These are rare, degenerative disorders triggered by immune system's response to a cancerous tumor (neoplasm), most commonly from lung, ovarian, breast or lymphatic cancer. Ataxia can appear months or years before the cancer is diagnosed.[5]

Abnormalities in the brain-An infected area (abscess) in the brain may cause ataxia. A growth on the brain, cancerous (malignant) or noncancerous (benign), can damage the cerebellum.

Toxic reaction-Ataxia is a potential side effect of certain medications, especially barbiturates, such as phenobarbital; sedatives, such as benzodiazepines; antiepileptic drugs, such as phenytoin; and some types of chemotherapy. Vitamin B-6 toxicity also may cause ataxia. These causes are important to identify because the effects are often reversible. Also, some medications ,Alcohol and drug intoxication; heavy metal poisoning, such as from lead or mercury; and solvent poisoning, such as from paint thinner, also can cause ataxia.

Vitamin E, vitamin B-12 or thiamine deficiency- Deficiency of these nutrients, because of the inability to absorb enough, alcohol misuse or other reasons, can lead to ataxia.[6]

Thyroid problems- Hypothyroidism and hypoparathyroidism can also cause ataxia.

The one who develop sporadic ataxia, no specific cause can be found.It may occur in different forms, including multiple system atrophy, a progressive, degenerative disorder.

III. TYPES OF ATAXIA

There are several types of ataxia that can be broadly categorized into three groups:

1-Cerebellar ataxia: This type of ataxia is associated with dysfunction or damage to the cerebellum, a part of the brain that plays a crucial role in coordinating voluntary movements. Conditions such as stroke, multiple sclerosis, or tumors affecting the cerebellum can lead to cerebellar ataxia.

2-Sensory ataxia: This form of ataxia is related to problems with sensory information, particularly proprioception, which is the ability to sense the position and movement of the body. Disorders affecting the sensory nerves or the dorsal columns of the spinal cord can result in sensory ataxia.

3-Vestibular ataxia: Vestibular ataxia is associated with the disturbance in Vestibular system, which is responsible for maintaining balance and spatial orientation. Inner ear disorders, such as Vestibular neuritis or Meniere's disease, can cause Vestibular ataxia.

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IV. SYMPTOMS OF ATAXIA

Some common symptoms include:

4.1 Lack of Coordination: Individuals with ataxia often experience difficulties with coordination, making precise movements challenging. This can affect activities such as walking, writing, or buttoning a shirt.

4.2 Unsteady Gait: Ataxia frequently causes an unsteady or staggering gait. People may walk with a wide stance to maintain balance.

4.3 Speech Difficulties: Ataxia can affect the muscles used in speech, leading to slurred or slow speech. Some individuals may have difficulty controlling the pitch and volume of their voice.

4.4 Fine Motor Skills Impairment: Tasks requiring fine motor skills, such as using utensils, typing, or fastening buttons, can be challenging for individuals with ataxia.[7]

4.5 Tremors: In some cases, individuals with ataxia may experience tremors or shaky movements, especially during intentional actions.

4.6 Eye Movement Abnormalities: Ataxia can affect eye movements, leading to difficulties with controlling eye gaze and coordination.

4.7 Difficulty Swallowing: Some people with ataxia may have difficulty swallowing (dysphagia), which can lead to problems with eating and drinking.

4.8 Fatigue: Ataxia can be associated with fatigue, both physical and mental, as individuals may exert extra effort to compensate for coordination difficulties.

4.9 Muscle Weakness: Weakness in the muscles, particularly those involved in coordination, may be present in individuals with ataxia.

4.10 Abnormal Reflexes: Reflexes may be altered, and certain reflex tests may show abnormalities during a neurological examination.

V. DIFFERENTIAL DIAGNOSIS

- Alcohol use
- Ischemic stroke
- Cerebellar hemorrhage
- Drug-induced
- Toxicity
- Hypoxia or heat stroke
- Von Hippel-Lindau syndrome

VI. DIAGNOSIS

1. Family and medical history.
2. Further testing

a. Genetic testing- sometimes called genomic testing, finds changes in genes that can cause health problems. It's mainly used to diagnose rare and inherited health conditions and some cancer, genetic mutation known to cause ataxia.

b. Brain scans-Brain scans can be used to check for physical abnormalities in the brain that could be caused by certain types of hereditary ataxia.

c. Other tests-Some of the other test help to diagnose ataxia and determine how severe it is can include:

- Lumbar puncture – In a lumbar puncture a sample of cerebrospinal fluid is taken from the base of the spine to rule out infection and any other abnormalities
- Nerve conduction studies and electromyography (EMG) – These tests are used to assess the electrical activity in nerves and muscles.
- Videofluoroscopy – In this process a continuous moving X-ray taken while swallowing different types of food and drink
- Electrocardiogram (ECG) – In ECG, an assessment of the electrical activity of the heart done.
- Echocardiogram – Ultrasound scan of the heart is known as Echocardiogram.

VII. TREATMENT

Treatment of Ataxia depends on the underlying cause. In some cases, addressing the root cause may help improve symptoms. Physical therapy and occupational therapy can also be beneficial in managing the effects of Ataxia and improving daily functioning.

The treatment for ataxia can vary depending on exactly on the type of ataxia. It's sometimes possible to treat the underlying cause of the condition so it improves or stops getting worse, but in most cases this isn't possible and we'll have treatment to relieve symptoms. Care plan will play an important part in the management of condition.Treating the symptoms.

Speech and language therapy- It is for slurred speech (dysarthria) and swallowing problems(dysphagia).

Occupational therapy- The aim of occupational therapy is to teach how to adapt to gradual loss of mobility and how to develop new skills to carry out daily activities.

Physiotherapy- Physiotherapy can help to maintain the use of your arms and legs, and prevent your muscles weakening or getting stuck in one position(contractures).

VIII. HOMEOPATHIC REMEDIES[8][9][10][11]

8.1 Early Stage

Argentum Nitricum- Argentum nitricum is a great remedy for inco-ordination of muscles. Patient is unable to stand in the dark or with closed eyes. Walks and stands unsteadily, especially when unobserved. Legs are weak with bruised feeling. patient feels that legs are made of wood. Trembling of limbs. Loss of papillary reflexes, and perhaps incontinence of urine. Useful in the early stages.

Plumbum Metallicum- There is paralysis with atrophy, loss of co-ordination of muscles, impotence, and anaesthesia. Sharp, piercing pains, worse at night, sometimes so severe as to make the patient cry out. Pains in muscles of thighs, come in paroxysms. Loss of patellar reflex.

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Belladonna- In first stage of the disease Belladonna is indicated. Inco-ordination of the upper and lower extremities. When walking he raises his legs as if he had to pass over an obstacle. Sharp pains, which are lightening like. Pain appear suddenly and disappear suddenly. Trembling of limbs, and tottering gait is also found. Belladonna is also a useful remedy in the last stage of the disease, when gastric crises are present.

Nux Vomica- A useful remedy in the first stage of ataxia. Drags feet while walking. There is sensation of sudden loss of power in extremities esp. in the morning. Legs numb, feel paralysed, cramps in calves and soles. Ataxia Tin alcoholics.

Zincum Metallicum- Zincum is also a remedy effective in the early stage. Stumbling, spastic, gait while walking, especially in the dark and with closed eyes. Lightning like pain in limbs with sweaty feet with sore toes. Formication of feet and legs as of insects crawling over the skin, prevent sleep, better rubbing and pressure. Twitchings and the whole body jerks during sleep.

8.2 Advanced Stages

Alumina- Staggers on walking. Legs feel numb, especially when sitting cross legged. Heaviness of legs, can scarcely lift them. Heels feel numb when stepping. Soles tender, on stepping, feel soft and swollen. Impairment of coordination. Inability to walk, expect with eyes open and in the day time. Sensation as if ants were crawling on his legs. Pain in the back, as if hot iron were thrust through the vertebrae. Lightning like pains shooting in the back and abdomen. Sensation as if a cobweb were on the face, or as if the white of egg had dried on it –a prominent symptom of Alumina. Constipation due to paralysis of rectum. Ptosis and diplopia due paralysis of ciliary muscles. The esophagus feel contracted, food cannot pass. Feels as if splinter or plug were in throat. Throat is sore and dry.

Causticum- Unsteady walk and easily falling. Falling sideways or forward. Unsteady staggering gait. Contraction in the instep, with tensive pain when stepping. Paralytic feeling of tongue.

Gelsemium Sempervirens- Dullness, dizziness and drowsiness are the characteristic symptoms of Gelsemium. Lack of muscular co-ordination. Muscles refuse to obey the wills. There is complete relaxation and prostration of the whole muscular system with motor paralysis. Unsteady gait. Fatigue after slight exercise. Pain in sole of foot when walking. Excessive trembling and weakness of limbs. Spasmodic contraction of toes.

Heloderma- Staggering gait. Cock's gait. While walking, lifts feet higher than usual and puts down heel hard. Feet cold as ice or burn. Sensation as if walking on sponge and as if feet were swollen. Numbness and trembling.

Lathyrus Sativus- Heels do not touch the ground when walking. Gluteal muscles and muscles of lower limbs are emaciated. While lying down legs can be moved from side to side, but cannot be lifted. This remedy is effective in advanced conditions.

Phosphorus– Phosphorus is indicated esp. in cases where eye complaints are associated with ataxia. Atrophy of the optic nerve, with flushes of light. Dim vision, blurred vision and diplopia. Great nervous prostration. Trembling of hands while writing. Sharp pains in different parts of the body. There is burning along the spine and in the extremities with Formication.

Some other remedies-

Agaricus Muscaris, Alumina, Arsenicum Album, Calcarea Carb, Cocculus Indicus, Fluoric Acid, Graphites, Helleborus, Helonias, Kali Bromatum, Lachesis, Lilium Tig, Nux Vomica, Onosmodium, Phosphorus

Biochemic Medicines-

Calcarea Phos, Kali Phos, Magnesia Phos, Natrum Mur and Silicea are very helpful.

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