COMPREHENSIVE CARE CENTRE FOR MOVEMENT DISORDERS

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DYSTONIA & BOTULINUM TOXIN INJECTIONS

"a friendly toxin"

Dystonia is a movement disorder characterized by involuntary muscle contractions, which force certain parts of the body into abnormal, sometimes painful, twisted postures, occasionally accompanied by jerky movements. Dystonia can affect any part of the body including the arms and legs, trunk, neck, eyelids, face, or vocal cords. There are different names given to describe various forms of dystonia, usually based on the affected body part (eg: blepharospasm, oromandibular dystonia), cause of Dystonia (Eg: primary dystonia, secondary dystonia) or number of areas involved (eg: focal dystonia, segmental dystonia and generalized dystonia).

WHAT CAUSES DYSTONIA?

Exactly what causes dystonia is not clear. Dystonia is due to abnormal functioning of the basal ganglia, (which structures located deep in the brain involved with the control of movement), cortex of the brain, or both. Abnormalities in the interaction between basal ganglia structures and cortex also may play a role.

Is dystonia a genetic disorder?

Some forms of dystonia are due to genetic causes. A patient with dystonia due to a genetic cause is said to have 'primary dystonia'; in such patients, dystonia will generally be the only manifestation of Nervous system dysfunction. The patient's intellect and other aspects of nervous system function will usually be normal. Certain others are secondary, resulting

from an apparent outside factor and attributed to specific causes such as exposure to certain medications and toxins, trauma, infections or stroke. Sometimes dystonia can occur due to degenerative diseases causing widespread nervous system dysfunction and result in manifestations other than dystonia also (like intellectual dysfunction, imbalance, epileptic fits etc)

Focal Dystonia: Focal Dystonia is one which affects only one part of the body. The common forms include: Blepharospasm: Affects the muscles of the eyelids, forcing them to close. The spasm may become sufficiently severe to render the patient unable to see, although the eyes and vision are normal. Cervical dystonia: Affects muscles in the neck and shoulders. The muscle spasms can be painful and cause the neck to twist to one side (Torticollis), forward (antecollis), or backward (retrocollis). Oromandibular dystonia: The muscles of the lower face undergo spasm. The jaw muscles that pull the mouth open or close may be involved.

Writer's Cramp: This is a 'task-specific' dystonia in which the hand and forearm muscles contract during the act of writing. The patient usually has no symptoms while doing other activities (like buttoning his shirt or eating) with the affected hand. Similar 'task-specific' dystonia may arise in musicians when a violin is played or certain fingers are moved while playing a flute or other musical instrument.

Hemifacial Spasm: This is very similar to dystonia and is treated similarly with botulinum toxin injections. However, in hemifacial spasm, the signals for the abnormal movements are generated, not inside the brain, but more peripherally, in the nerve supplying the muscles of face (Facial Nerve). As a result of this, the muscles on one side of the face contract irregularly. Rarely, this is secondary to inflammation or irritation of the facial nerve.

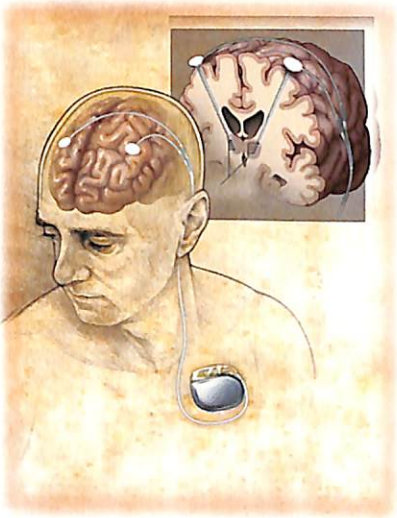
The Diagnosis of Dystonia: The diagnosis of dystonia is clinical, and a Neurologist trained in movement disorders can make it by carefully observing the abnormal movements which the patient is having. Certain electrophysiological tests can assist the diagnosis in difficult cases, by demonstrating simultaneous activity in various muscle groups, during the movements. Other investigations like MRI scan, blood tests and genetic studies may be required to find out the underlying cause and to differentiate between primary and secondary dystonia.

Treatment of Dystonia: can be with oral medications, botulinum toxin injection and surgery. The aim of treatment is to relieve the muscle spasm and abnormal movements and postures so that the patient can function normally.

Botulinum Toxin: Botulinum Toxin Injections are used for the treatment of a wide variety of indications in movement disorders. The common conditions for which botulinum toxin is used include various types of focal and segmental dystonia including torticollis, writer's cramp, blepharospasm, oromandibular dystonia etc as well as other conditions like hemi-facial spasm and post-stroke spasticity (stiffness of muscles occurring in a limb, paralysed by stroke). Free hand injections are used for some conditions like blepharospasm and hemifacial spasm, while others like writer's cramp and cervical dystonia may require EMG (electromyogram) guidance. The involved muscles are identified and injected using special equipments including EMG. It takes around 4 weeks to get the maximum benefit after the injection. A single session gives relief of symptoms (generally varying from 50% to 100%, depending on the condition and the muscles involved) for around 3-4 months on an average. Subsequently, the symptoms may gradually recur and the patient may require re-injection.

Possible side effects, which occur only rarely, include pain or bruising at the injection site, dry mouth, blurred or double vision, droopy eyelids (when injected on the face, near the eyelids), flu-like symptoms, muscle weakness in nontargetted muscles, more than the desired amount of weakness in the targetted muscles and swallowing difficulty in the case of neck muscle injections.

Surgical treatment is done for patients with generalized dystonia who are significantly disabled in spite of optimal medical therapy. The surgical treatment is usually offered for patients with primary dystonia only. The preferred surgical treatment is Deep Brain Stimulation (DBS), in which a device called the Neurostimulator ("DBS Battery") which is similar to a cardiac pacemaker is implanted over the chest wall, under the skin. It is a device containing a battery and microelectronic circuitry. It generates electrical signals that are delivered to the brain via a thin wire with electrodes attached at the tip, to relieve the symptoms. Other treatment options include ablative surgeries (a small 'lesion' is produced in a strategic location of the target) like pallidotomy.



For more details contact:

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