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BOTOX

Wrinkle Correction Botox®

An advanced and effective treatment to smooth fine lines and wrinkles giving the skin a rejuvenated and youthful appearance. Botulinum toxin A is injected to relax the muscles under the skin, to lift brows, relax frown lines and crows feet.

Botox® to prevent Migraines

The muscle-relaxing injections are popular as a cosmetic treatment but, due to its nerve-blocking effects, Botox also has a role in treating certain medical conditions.

The move to use Botox to prevent migraines is based on new guidance published by the National Institute for Health and Clinical Excellence (NICE). NICE recommends that Botox can be considered as an option for the prevention of headaches for people who have chronic migraine (headaches on at least 15 days of every month, at least eight days of which are migraine) that has not responded to at least three prior preventative drug treatments.

Botox® hyperhidrosis treatment (excessive sweating)

Botox® (Botulinum toxin A) is injected into the skin to treat the symptoms of severe underarm sweating (severe primary axillary hyperhidrosis) when medicines used on the skin (topical) do not work well enough in people 18 years and older. Treatment is available for palms, underarms, and face & forehead excessive sweating.

The Botox binds to the nerves that control sweating in the skin, and reduces sweating in the area for 4-6 months without having compensatory effects. Clinical studies have shown that this treatment reduces the amount of sweating by 75 - 80%. A course usually lasts 4-6 months. In order to ensure you obtain the best results CJG administer only Botox at strong therapeutic levels.

APPROVED THERAPEUTIC INDICATIONS FOR BOTOX®

Blepharospasm:

Patients suffering from the condition experience an involuntary clenching of the muscles that control the eyelids, causing uncontrollable blinking which generally affects both eyes. Blepharospasm can diminish a patient's ability to perform everyday activities by interfering with their ability to see due to the lid blocking their vision. This can progress from increased blinking to inability to open the eyelids, and finally, to functional blindness.

Blepharospasm affects an estimated 20,000–50,000 people in the UK, with 2,000 new cases diagnosed annually. Therapy with Botox® is a recognized treatment for blepharospasm, and involves the injection of small therapeutic doses directly in the affected muscles around the eye to temporarily reduce the excessive muscle contractions.

Cervical Dystonia

Cervical dystonia, also called chronic spasmodic torticollis, is a painful neurological disorder. Cervical dystonia is a type of movement disorder – conditions that are characterized by loss of control in the neck area, which is estimated to affect approximately 125,000 people in the UK, yet awareness of the condition is extremely limited. Cervical dystonia is characterised by involuntary contractions of the neck muscles that cause twisting, repetitive movements, or abnormal postures of the head. The mean age of symptom onset in patients with cervical dystonia is approximately 41 years – although it may occur in all ages – and women are twice as likely to be affected as men. Botox® (botulinum toxin A) has been approved for the treatment of the abnormal head position and neck pain that happens with cervical dystonia (CD) in people 16 years and older.

Chronic Migraine

Chronic Migraine is a distinct and severe neurological disorder impacting an estimated 3.2 million people and characterised by patients who have a history of migraine and suffer from headaches for consecutive days. Botox® is approved by the NICE guidelines. Although Chronic Migraine occurs in both men and women, women are three times more likely than men to be affected. Sufferers often experience depression and anxiety as part of the condition. Chronic Migraine also can be influenced by life stress, sleep habits, diet and overuse of acute medications that relieve pain associated with symptoms of headache.

Severe Primary Axillary Hyperhidrosis

Hyperhidrosis is the medical term for severe sweating, where patients may sweat up to four or five times more than normal, far exceeding what is needed to regulate body temperature. Severe underarm sweating may be exacerbated by stress, emotion or exercise, but often occurs spontaneously. BOTOX® The effects of treatment are temporary, lasting approximately 6–7 months, and treatment is often covered by insurance. BOTOX® is also injected into the skin to treat the symptoms of severe underarm sweating (severe primary axillary hyperhidrosis) when medicines used on the skin (topical) do not work well enough in people 18 years and older.

Strabismus

Strabismus is a visual defect that results when the eyes do not properly align with each other. One eye may look straight ahead but the other may turn in (“crossed eyes”), out (“wall eyes”), upward, or downward. Strabismus usually develops during childhood but can occur at any age, affecting nearly four in every 100 adults. Therapy with BOTOX® involves the injection of small therapeutic doses of purified botulinum toxin protein directly into the muscles surrounding the eye.

Limb Spasticity

Spasticity is a debilitating condition, caused by spasm of muscles in the upper or lower limbs following a stroke. Upper limb spasticity may also occur following traumatic spinal cord or brain injury or in patients affected by multiple sclerosis or adults with a history of cerebral palsy. Although not a life-threatening condition, upper limb spasticity can be debilitating, producing muscle contractions that can result in stiff, tight muscles in the elbow, wrist and fingers, or a clenched fist. This stiffness hinders a patient's ability to perform simple tasks, such as dressing or washing the hand, and often leaves the patient dependent on a carer to help with simple activities. In patients diagnosed with upper limb spasticity, Botox® is injected by a trained specialist directly into the affected muscles blocking overactive nerve impulses that trigger these contractions to reduce the severity of increased muscle tone in the elbow, wrist and fingers. In clinical studies, the efficacy of Botox® persisted up to three months on average. Treatment with Botox® is not meant to replace your existing physical therapy or rehabilitation that your doctor may have prescribed.

Urinary Incontinence

Urinary incontinence due to detrusor over-activity associated with a neurologic condition, such as multiple sclerosis (MS) or spinal cord injury (SCI), results when the spinal cord and bladder do not communicate effectively. For people living with MS, this occurs because they develop lesions on the spinal cord, while people with SCI have irreversible nerve damage, resulting in the inability of the spinal cord and bladder to communicate effectively. As a result, the bladder muscle involuntarily contracts, increasing the pressure in the bladder and decreasing the volume of urine the bladder can hold, which causes the individual to leak urine frequently and unexpectedly. More than half of patients with MS, SCI, Parkinson's disease or stroke may have overactive bladder. Botox® has been approved for injection into muscles for the treatment of leakage of urine (incontinence) in adults with overactive bladder due to neurologic disease (e.g. multiple sclerosis (MS) or spinal cord injury (SCI)) who still have leakage or

experience too many side effects after trying an anti-cholinergic medication in people 18 years and older.

Physiology and Pharmacology of BOTOX®

Botulinum Toxin is a neurotoxin made by the bacteria *Clostridium Botulinum*, a rod shaped anaerobic bacterium found in soil, which can cause a severe form of food poisoning. Botulinum Toxin is purified for clinical use. Botox® is a formulation of Botulinum Toxin type A produced by Allergan, Inc. Botox® is a 900kD complex containing Type A neurotoxin and associated proteins.

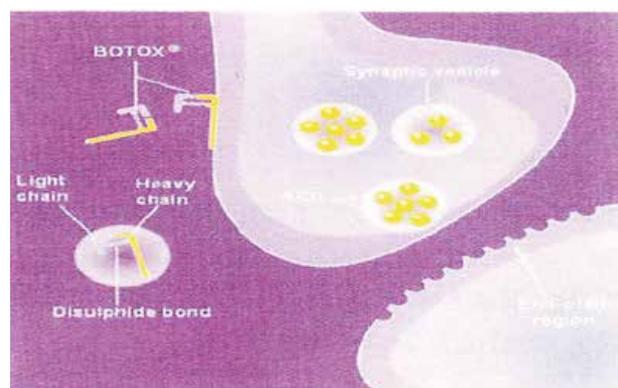
There are 7 separate serotypes of Botulinum Toxin. These serotypes differ in potency and duration of effect. Botulinum Toxin Type A is the most potent of the serotypes and therefore is used for clinical and aesthetic uses. It is a di-chain polypeptide molecule; it consists of two chains - a light chain (SOkD) and a heavy chain.

Mechanism of action of Botox®

Botox® is injected intramuscularly. It works by inhibiting the release of the neurotransmitter acetylcholine from motor nerve terminals. This is a form of chemical denervation. The mechanism of action of Botox® can be divided into 4 stages:

Stage 1 – Binding

Figure 1. Post injection Botox® binds to special receptors on the external Membranes of motor cholinergic neurons via the heavy chain.



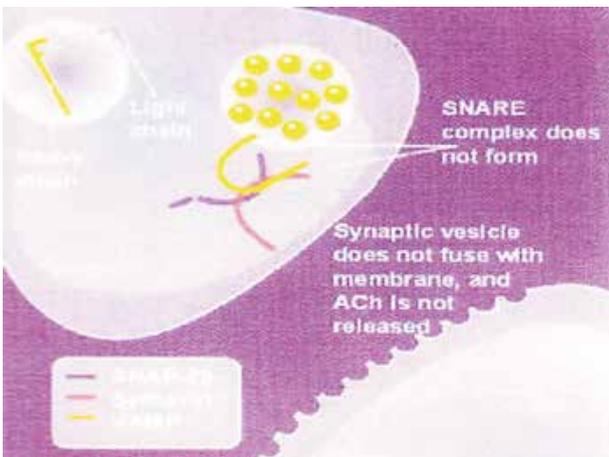
Stage 2 — Internalisation

Figure 2. Botox® is now internalised by a process called endocytosis. Botox® then forms a vesicle inside the motor-neurone terminal. The light chain of the molecule is then released on to the cytoplasm of the Cell.



Stage 3 — Blocking

Figure 3' while in the cytoplasm the light chain splits one of the proteins which is needed to form, which {SNARE complex) is responsible for exocytose of the vesicles containing acetylcholine. Acetylcholine is therefore not released and muscle contraction is inhibited.



Stage 4 — Re-establishment of neuromuscular transmission

Figure 4: Botox® prevents affected terminals from stimulating muscle contraction' the synthesis and storage of acetylcholine or the conduction of the electrical signals is unaffected. Evidence indicates that chemo denervation by Botox® results in growth of the end plate region and the emergence of axonal sprouts. These sprouts may begin to release Acetylcholine.

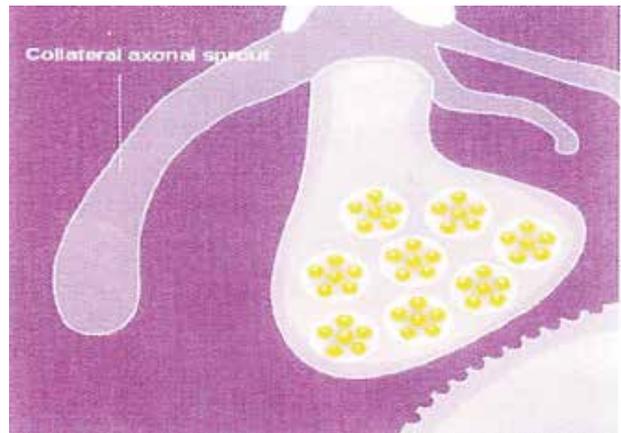
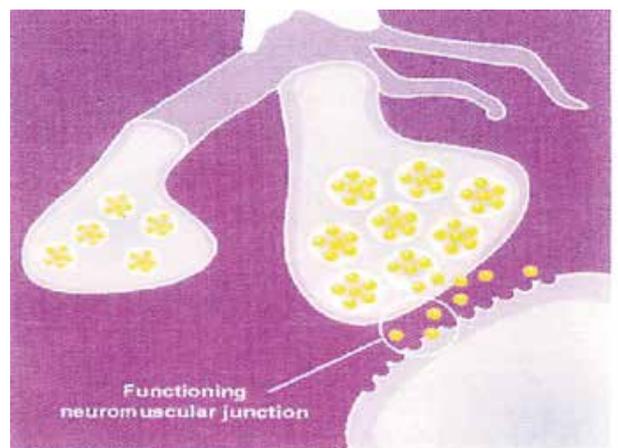
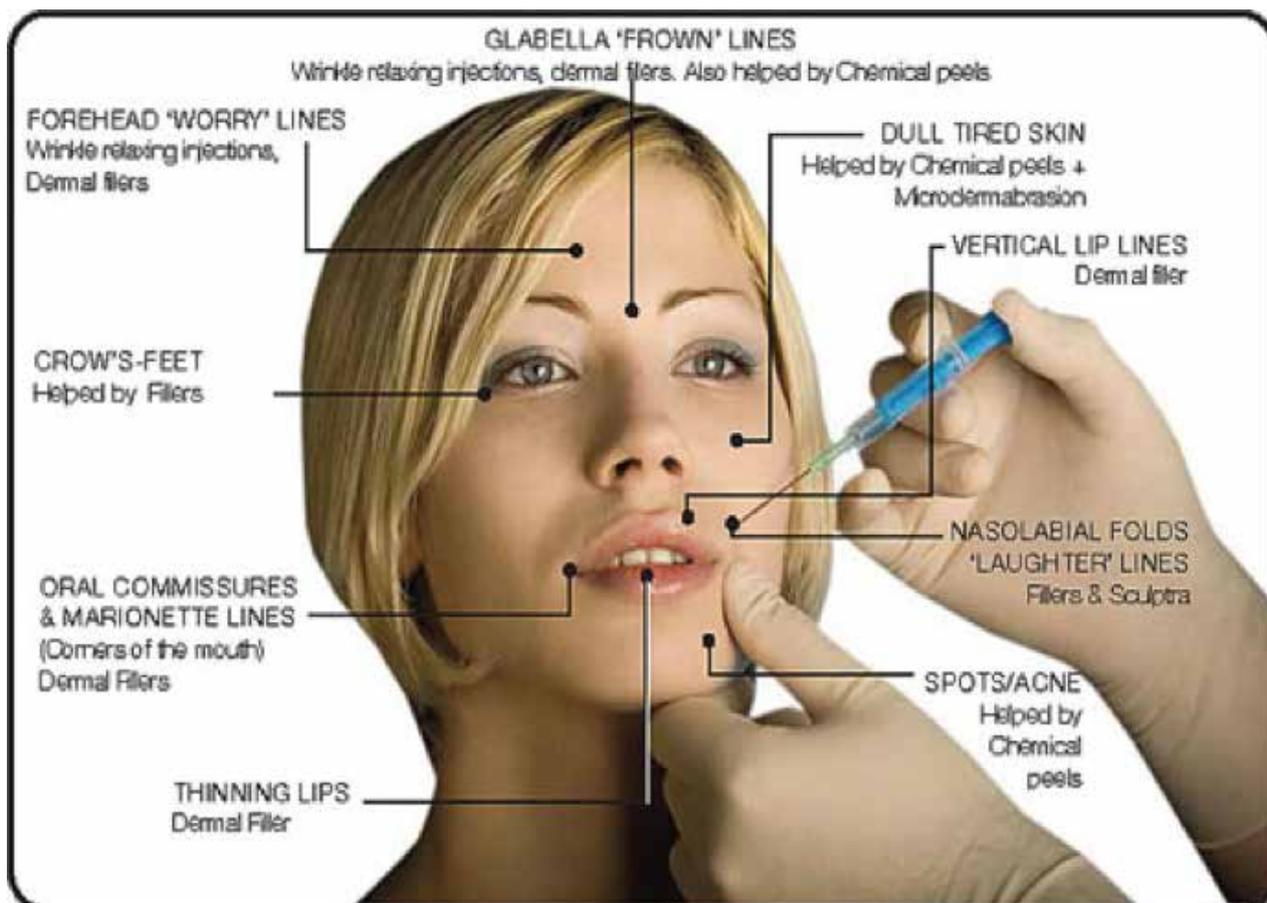


Figure 5: The development of a new neuromuscular junction means that muscle activity resumes usually after about three months, repeated injections are thus required to maintain therapeutic effects. Eventually, the original junction resumes activity, and sprouts regress.



This diagram shows where you can use BOTOX®



For further information on Botox® please follow this link: <http://www.botox.com>

Diagram of the Musculature of the Face

