

# **A Clinical Observation on Treatment of Hemifacial Spasm and Cephalocervical Dystonia with Botulinum A Toxin**

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## **Abstract**

**Objective:** To evaluate the efficacy of Botulinum Toxin Type A (LANTOX) treatment in hemifacial spasm and cephalocervical dystonia

**Method:** We processed LANTOX multi-point intramuscular injection for 42 cases of hemifacial spasm and 34 cases of cephalocervical dystonia (including 18 cases of blepharospasm, 12 cases of Meige's Syndrome, 4 cases of spasmodic torticollis), and compared the grading of states of illness before and after treatment.

**Result:** The efficacy of LANTOX treatment was 100%, the effects last for 8 – 26 weeks, can be injected repeatedly, and gain the effect again. Some of patients processed slight degree of muscle forceless, all recovered after a few weeks, no general toxic reaction.

**Conclusion:** LANTOX multi-point intramuscular injection is a easy and convenient treatment for hemifacial dystonia and cephalocervical dystonia.

**Key words:** Hemifacial spasm; Local dystonia; Botulinum toxin type A; Efficacy

In the past, depressant, antispastic, acupuncture and moxibustion, etc. were mostly used in treatment of disorders like facial spasm and local dystonia, etc, but the effects were mostly unsatisfactory. In 1980, Scott<sup>[1]</sup> from U.S. used Botulinum Toxin Type A (BTXA) for treatment of strabismus and obtained successful results. In 1993, similar products was produced in China, and gradually be used in clinical treatment of muscle spasm and local dystonia, the therapeutic effects were found to be good and safe. The results of LANTOX treatment for 42 cases of hemifacial spasm and 34 cases of cephalocervical dystonia of our hospital in these 3 years which visited for 5 – 20 months were reported as follows.

## **Subject and Method**

### **1. Subject**

There were 42 cases of hemifacial spasm, 34 cases of local dystonia (including 18 cases of blepharospasm, 12 cases of Meige's Syndrome, 4 cases of spasmodic torticollis), totally 76 cases. 44 cases were males and 32 cases were females. The ages ranged from 30 – 62 years, with an average of 45.5 years. The medical state ranged

from 5 months – 10 years. Cranial CT examination of 54 cases was all normal, cranial MRI examination of 12 cases was all normal. In the past, haloperidol, neostigmine, carbamazepine, phenytoin sodium, Chinese medicines, acupuncture and moxibustion, etc. were all used in treatment, but with no effect.

## **2. Method**

**Grading Standard before and after Treatment:** Graded according to strength of muscle spasm<sup>[2]</sup>. Grade 0: no spasm; Grade 1: external stimulation leads to light spasm; Grade 2: light spasm, showed jitters, no dysfunction; Grade III: medium, obvious spasm, with slight dysfunction; Grade 4: severe, severe spasm and dysfunction, affect work and life.

**Drug and Usage:** The LANTOX for therapy produced by Lanzhou Institute of Biological Products was used. It should be diluted to 2.5u/0.1ml by saline before use. Applied by multi-point intramuscular injection, dosage of each point was 2.5 – 5 u. Muscles of severe spasm were selected for injection. i) Hemifacial spasm: for the upper and lower eyelids of the lateral side of spasmodic eye, injected into 1/3 of the middle internal part and 1/3 of the middle outer part; also injected subcutaneously into the part of the outer canthus that distant from side of eyelid for 0.5cm, totally 5 injection points. At the same time, 6 – 10 points of middle face and musculus orbicularis oris were selected for injection. ii) Blepharospasm: for the upper or lower eyelid, injected subcutaneously into 1/3 of the middle internal part and 1/3 of the middle outer part. iii) Meige's Syndrome: selected totally 12 – 20 points from bilateral sides of orbicular muscle of eye, nasal face muscle, musculus orbicularis oris and other muscles involved in spasm. iv) Spasmodic torticollis: injected intramuscularly into spasmodic neck muscles (e.g. splenius muscle of head, semispinal muscle of head, trapezius muscle, sternocleidomastoid, etc), selected 2 – 4 injection points according to the muscle strength and spasmodic strength.

## **Result**

The LANTOX treatment for the 76 cases of hemifacial spasm and cephalocervical dystonia was all effective. Spasmodic strength before treatment: 4 cases of Grade 2, 46 cases of Grade III, 26 cases of Grade IV; spasmodic strength after treatment: 4 cases of Grade 0, 16 cases of Grade 1, 44 cases of Grade 2, 12 cases of Grade 3. The peak time of remission was 1 – 7 days, duration of effects was 8 – 26 weeks. There were 10 cases temporarily processed more severe spasm after 2 – 5 days of injection, and relieved gradually afterwards and showed the therapeutic effects. There was probability of recurrent of muscle spasm, but most were partial recurrent, still less

severe than that before treatment. Muscle spasm in 25 cases that processed replicated injection relieved again, and the duration was longer than that of the first remission period for 8 – 10 weeks. Side effects: some of patients processed slight forceless in injected muscle. For patients of hemifacial spasm, there were 12 cases of eyelid dysraphism of 1 – 2 mm and 15 cases of slight drop of lip angle; for patients of spasmodic torticollis, there was 1 case of dysphagia; for patients of Meige's Syndrome, there were 2 cases of forceless in masseter. Most of effects occurred after 1 – 6 days of injection, all cases naturally relieved at 3 – 5 weeks. No allergic response occurred in any cases.

### **Discussion**

The causes and onset mechanism of hemifacial spasm and topical cephalocervical dystonia were not known yet, no abnormality is found in cranial CT and MRI scanning. Dystonia mainly affected striated muscle, some parts are more easily to be involved, e.g. orbicular muscle of eye, sternocleidomastoid, trunk muscle, pronator of limbs, flexor muscle of toe, contractor muscle of plantar. The clinical characteristics are strange involuntary movement and slow and stressful contraction of far-end muscles of limbs and trunk muscles which leads to special postures, e.g. involuntary squeeze and closure of eyes, convulsion of face muscle, torticollis, etc. There is no regular pattern of episode, the time intervals are not the same. In the early stage, the symptoms only occur during activities and disappear when sleep. In the later stage, the episode tends to be stable. The states of illness show a progressive development pattern.

The treatment of hemifacial spasm and topical cephalocervical dystonia has been a clinically difficult problem for long. In the past, the patients were usually given oral-taken depressant and antispastic medicine in therapy, but the therapeutic effects were very little and temporary. Large dosage could improve local symptoms but with obvious general toxic side effects. The effects of nerve blocking and surgery are unsatisfactory, usually accompanied nerve damage and occurrence of severe forceless of muscle, also a considerable number of recurrent cases. LANTOX treatment for hemifacial spasm and topical cephalocervical dystonia has gained more and more values by its high efficacy, little and temporary side effects, repeatable, easy operation, etc. LANTOX is the exotoxin produced by botulinum fusiform bacillus under anaerobic environment. After injection, it acts on local nerve muscle joints, inhibits motor nerve endings presynaptic membrane from release of acetylcholine, thus leads to relax and paralyze of muscles, improves local spasmodic symptoms<sup>[3,4]</sup>.

We used LANTOX in treatment of 42 cases of hemifacial spasm and 34 cases of topical cephalocervical dystonia and observed the results, the efficacy was 100%, the effects generally occurred within 7 days, duration of effect was 8 – 26 weeks. For patients with no complete remission, supplementary injection could be processed after 1 week; for recurrent patients, replicated injection could be processed, all had therapeutic effects again. Side effects could be occurred locally but were little, and would recover naturally after 3 – 5 weeks. Many studies have proved that LANTOX is a safe and effective biological formulation, and has provided a safe, easy, effective and reliable treatment in hemifacial spasm and cephalocervical dystonia for symptom remission, basic elimination and reduction of mental and physical suffering.

#### **References**

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*(Originally published in the Chinese Journal of Microbiological and Immunology, 1999; 27(2): 50-51)*