

# Nursing of Botulinum Toxin Type A Local Injection for Treatment of Spasmodic Torticollis

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## Abstract

**Objective:** To discuss the efficacy of botulinum toxin type A (LANTOX) in treating spasmodic torticollis and the prevention of the side effects.

**Method:** 76 spasmodic torticollis patients were treated with LANTOX muscle injection under EMG guidance.

**Result:** The efficacy rate was 85.53% (65/76). The duration of benefit was  $15.93 \pm 6.19$  weeks, and there were no recurrence on 11 patients who were followed up for 1 – 3.5 years. The adverse effects such as transient red macula around injection site occurred in 2 cases and disappeared in 30 minutes. Dysphagia and weakness of neck muscles occurred in 9 cases (13.84%) and lasted for 2 – 7 weeks. There was no systemic intoxicity of LANTOX local injection.

**Conclusion:** The efficacy of LANTOX in treating ST is remarkable, and the side effects are mild and reversible.

**Key words:** Spasmodic torticollis; Botulinum toxin type A; Electromyography; Nursing care

76 cases of spasmodic torticollis were treated by botulinum toxin type A (LANTOX) muscle injection under EMG guidance during March 1995 to March 1998, the effect was obvious. Combined with clinical observation of the author, the coordination of nursing staff during treatment and prevention of adverse effects were reported as follows.

## Information and Method

### 1. Information

Among our 79 cases, 33 were males, 43 were females, aged from 25 – 27, with an average of  $44.39 \pm 13.81$  years, medical history 5 – 17 years, with an average of  $4.73 \pm 13.48$  years. All patients were confirmed diagnoses by outpatient or inpatient services of internal medicine of neurology department, and tried medicine treatment of two or more of artane, rivotril, myonal, lioresal, carbamazepine, haloperidol, etc. but not effective or could not tolerate the side effects, except the medicine-initiated dyskinesia (acute or delayed dyskinesia) or other causal treatment diseases like Wilson Disease. Also, patients that had been processed for the offside thalamus surgery,

homolateral selectively radicotomy or surgery on muscles of neck were excluded in this study.

## **2. Method of Operation and Cooperation**

i) Patient sit, and was given suitable explanations to eliminate any nervous or uneasy feelings. ii) The LANTOX produced by Lanzhou Biological Institute was used. iii) Principle for allocation of muscle was aware of the functional muscle of special location of neck; observed and touched thick and spasmodic muscle, could be initiated by some postures; localized aching pain of spasmodic muscle could be the reference. Dosage and reference loci of each piece of muscles: sternocleidomastoid muscle: 5 loci, 25 – 50U; trapezius muscle: 8 – 10 loci, 40 – 60U; splenius muscle of head: 4 -5 loci, 40 – 50U; levator muscle of scapula: 3 – 5 loci, 15 – 45U; posterior deep cervical muscle: 4 – 5 loci, 30 – 50U; scalene muscle: 4 loci, 10 – 20U. iv) Injection under EMG guidance: PVP iodine routine partial sterilization, used special electrode pins (13R18 or 13R19), lateral pole connected to electromyography, earth wire connected to one side of upper limb wrist, the reference pole placed in front of the forehead, assured that the electrode pin was injected in the spasmodic muscles (muscle persistence or paroxysmal muscular catalepsy myoelectric activity). Injected 1 – 3 times for each course of treatment, once for one to two week. v) After injection for each loci, pulled out the pin and used sterilized cotton sticks for homeostasis by compression. vi) The patient stayed 30 minutes after injection for observing whether general allergy responses occurred and whether injection point of neck processed haematoma.

## **3. Things to Notice and Nursing**

i) Patients often have terror against medicines and injections. Before LANTOX injection into neck, they should be clearly stated and explained about the characteristics of medicines, injection method, curative effects and the possible side effects. The mentally nursing work should be done well to release uneasy feelings and worries, and gained sufficient understanding and cooperation from the patients and their relatives.

ii) Generally, it needs 5 – 10 days for the reaction to occur after LANTOX injection, and the reaction is the most obvious after 2 weeks. Patients with remaining spasm should be reinjected at least after 2 weeks, or the dosage would be over. It was still effective for repeated injection for recurrent, thus it should be clearly explained to the patient, prevent patients from losing confidence about the treatment.

iii) The patients should be asked detailed for the clinical history. Patients who are using anticoagulant agent, with severe sensitive constitution, with nerve muscle joint disease, pregnant women, children are not suitable for this method.

vi) Strict sterilized technical operation is needed to prevent infection. Homeostasis by compression should be done seriously to prevent haematoma.

v) Observe 30 minutes after each injection, prepare 1mg adrenaline for use, in case to prevent anaphylactic reaction; check again for haematoma in neck, if there is, observe frequently, and compress to prevent enlargement of haematoma from compressing trachea and the surrounding main blood vessels. Assure patient that the haematoma will probably disappear after a week. vi) During treatment, the patient may be asked to do some postures that will initiate spasm to facilitate accurate localization of muscle. After the electrode pin is inserted into the muscle, the toxin should only be injected when the muscle processes spontaneous paroxysmal or continual high-frequency high-amplitude myoelectric activity. It is because the main factors that affect curative effect are localization of the involved muscles and accurate intramuscular injection<sup>[2]</sup>.

vii) Injection of sternocleidomastoid muscle and scalene muscle: notice that the location should not be too deep, the no. of injection loci should not be too high, the dosage should not be too large. Prevent bilateral injection of sternocleidomastoid muscle and scalene muscle at the same time, decrease the chance of diffusion of the toxin to the throat and muscles of esophagus<sup>[3]</sup>, and decrease the side effect of dysphagia.

viii) Dysphagia and forceless in lifting up the head are common side effects of the treatment (13.84%). Dysphagia affects intake of food and even leads to danger of suffocated. If dysphagia happens, the patient should be observed frequently. Reclining posture and semi-soft food can help swallowing. Nasal feeding may be needed in serious conditions. Also, assure patients that this kind of side effects is reversible, normally will be recovered completely during 2 – 7 weeks.

## **Result**

### **1. Standard Therapeutic Evaluation**

The scoring is according to the table of Tsui's scores, that of curative effects is based on the percentage estimation ( $\Delta T = T$  before treatment –  $T$  after treatment): basic remission > 85%, obvious remission: 51 – 85%, partial remission: 26 – 50%, no effect

<25%. Percentage of effectiveness = (basic remission + obvious remission) / Total no. of cases. Standard of recurrent: T / T before treatment > 50%.

## **2. Result**

76 patients completed at least one session of treatment and be visited for a year. Curative effects and side effects occurred at about 3 – 5 days, and reached the maximum at about 7 – 14 days. There were 32 cases of remission, 33 cases of remission, 9 cases of partial remission, 2 cases of no effects. According to the new drug evaluation standard of the hygiene department, the effectiveness is 85.31%. Duration of effectiveness: 11 cases with no recurrence happened after in 1 – 3.5 years of observation. 65 cases with recurrence in  $15.93 \pm 6.19$  weeks, no side effects of LANTOX general toxin reaction, 2 cases of transient red macula which disappeared within 30 minutes. Different levels of dysphagia and forceless in muscle of neck of 9/65 cases (13.84%). The duration was 2 – 7 weeks.

## **Discussion**

Spasmodic Torticollis expressed as paroxysmal or continual involuntary spasm, leads to distortion of head to one side or paroxysmal torticollis. Past medical and physiotherapy were often ineffective. The disease not just causes pain of body, but also affect patient's image at different circumstances, thus patients suffer from mentally and psychologically pain, seriously affect daily life and work. Local injection of LANTOX treatment has accurate curative effects, if operated normalized and enhance nursing during and after operation, the side effects are seldom and reversible, and can avoid occurrence of serious complication.

## **References**

1. Greence P, Kang U, Fahn S, *et al.* Double-blind place-controlled trial of Botulinum toxin injections for the treatment of spasmodic torticollis [J].eurology, 1990, 40:1213.
2. Hu XY, Shao YQ, Wang J, *et al.* Local Injection of Botulinum Toxin Type A for Cervical Dystonia under Electromyography Guidance: A crossover controlled clinical trail [J]. J Clin Neurol, 1992, 12(4):2363.
3. Schantz EJ, Johnson EA. Properties and use of botulinum toxin and other microbial neurotoxin in medicine [J]. Microbiol Rev, 1992, 56(1):80-99.