

16 June 2016

Dear Doctor,

**Botulism Following Botulinum Toxin Injection**

We are writing to draw your attention to five probable cases of botulism recorded by the Centre for Health Protection (CHP) of the Department of Health in the past few weeks. All cases have a history of receiving botulinum toxin (BTX) injection prior to symptom onset.

BTX is not uncommonly used for therapeutic and cosmetic purposes. Following intramuscular injection, onset of clinical effect is usually delayed for 2 to 3 days, with peak effect between 10 and 21 days after injection. Onset of adverse effects after therapeutic dose use is expected to be delayed for 2 to 3 days after injection.

Commonly reported adverse drug reactions (ADR) after therapeutic dose include: fatigue, influenza-like-illness and headache. The following ADR which are localized to the site of injection could also occur: eyes discomfort, ptosis, eyelid oedema, increased or decreased lacrimation, blurred vision, injection site pain / bruising / swelling / reddening, muscle pain, muscle twitching, muscle weakness adjacent to the area of injection, dysphagia, dysphonia, gait disturbance, diarrhea and urinary incontinence.

Spread of BTX beyond the injection site (defined as botulism) has been rarely reported in causing generalized weakness, dysphagia, aspiration pneumonia, flaccid paralysis, respiratory muscle paralysis, autonomic neuropathy etc.

According to the Hong Kong Poison Control Network, management of botulism is supportive. Botulinum antitoxin cannot reverse established muscle weakness and is generally not indicated in cases presented with mild to moderate symptoms. The use of antitoxins should only be considered where symptoms are progressive and life-threatening. Please refer to the website of the Hong Kong Poison Control Network (<http://www.hkpcn.org.hk/eng/ER.html>) for more information. In case of doubt, please consult Hong Kong Poison Information Centre (Tel.: 2772 2211) or Prince of Wales Hospital Poison Treatment Centre (Tel: 2632 6209).



In Hong Kong, botulism has become a notifiable disease since 14 July 2008. If you encounter patients with clinical signs, symptoms or history suspicious for botulism, please refer them to hospital promptly for clinical management and report the case to Central Notification Office (CENO) of CHP via fax (2477 2770) using the reporting form, phone (2477 2772) or CENO On-line ([https://cdis.chp.gov.hk/CDIS\\_CENO\\_ONLINE/ceno.html](https://cdis.chp.gov.hk/CDIS_CENO_ONLINE/ceno.html)). Please also call Medical Control Officer at 7116 3300 a/c 9179 outside office hour for prompt investigation.

For ADR after injection, please report to the Drug Office of the Department of Health: [http://www.drugoffice.gov.hk/eps/do/en/healthcare\\_providers/adr\\_reporting/index.html](http://www.drugoffice.gov.hk/eps/do/en/healthcare_providers/adr_reporting/index.html).

You are kindly requested to bring this to the attention of relevant healthcare staff who may act accordingly. Thank you for your cooperation.

Yours faithfully,



(Dr. Regina CHING)

for Controller, Centre for Health Protection  
Department of Health



# Botulism Following Botulinum Toxin Injection

## Introduction

Pharmaceutical grade botulinum toxin type A or B (though B is not registered in HK) is being used for cosmetic and therapeutic purposes. It is produced from culture of *Clostridium Botulinum*.

Botulinum toxin (BTX) irreversibly blocks the release of acetylcholine from presynaptic neurons and prevents nerve impulse transmission. It acts at neuromuscular junctions, autonomic ganglia and parasympathetic nerve terminals.

## Adverse drug reactions (ADR) and toxicity of overdose

Onset of adverse drug reactions (ADR) after therapeutic dose use is expected to be delayed for 2-3 days after injection.

### ***Common BTX adverse effects***

Commonly reported (1-10%) adverse effects after therapeutic dose use include: fatigue, influenza-like-illness and headache. The following adverse effects which are localized to the site of injection could also occur: eyes discomfort, ptosis, eyelid oedema, increased or decreased lacrimation, blurred vision, injection site pain / bruising / swelling / reddening, muscles pain, muscle twitching, muscle weakness adjacent to the area of injection, dysphagia, dysphonia, gait disturbance, diarrhoea, urinary incontinence.

### ***Rare and life-threatening BTX adverse effect / toxicity***

Spreads of BTX beyond the site of local injection (botulism) have been very rarely reported in causing generalized weakness, dysphagia, aspiration pneumonia, flaccid paralysis, respiratory muscle paralysis, autonomic neuropathy etc. In rare occasion after receiving massive BTX dose, patient can present with botulism 1-2 days after exposure.

Botulism classically presented with progressive descending symmetrical flaccid paralysis, starting with dysphagia, dysphonia, ptosis and blurred vision, followed by respiratory muscles paralysis. Autonomic neuropathy may lead to postural hypotension, dry mouth and cardiovascular, gastrointestinal and urinary autonomic dysfunction. Mental state and sensory functions are preserved.

## Diagnosis

BTX adverse effects and toxicity is mainly a clinical diagnosis. Monitor bedside spirometry (e.g.: peak expiratory flow rate) and blood gas in severe cases. Nerve conduction study in patient with botulism

typically shows reduced motor potentials amplitude with normal conduction velocity and normal sensory potentials.

## **Management**

In contrast to other forms of botulism (foodborne, infant, wound or inhalation botulisms), the mainstay management of botulism following botulinum toxin injection is supportive. Monitor for weakness progression and respiratory failure. Severe cases may require intubation and mechanical ventilation.

Botulinum antitoxin cannot reverse established muscle weakness. It is generally NOT indicated in cases presented with common BTX adverse effects.

In rare incidents of severe poisoning presented with progressive generalized weakness, swallowing and breathing difficulty, the use of antitoxin should be considered. Please contact Hong Kong Poison Information Centre (Tel: 2772 2211) or Prince of Wales Hospital Poison Treatment Centre (Tel: 2632 6209) for management advice.

*Produced by the Hong Kong Poison Control Network*

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