

**BOTULINUM TOXIN THERAPY IN THE TREATMENT OF SPASTIC TYPE OF
CEREBRAL PALSY IN CHILDREN: SIDE EFFECTS AND THEIR PREVENTION**

Author: Ermatov Farhod Akhmedovich

Central Asian Medical University

Assistant of the Department of Pediatrics and Pediatric Surgery

Independent Doctoral Researcher

Abstract: Spastic type of cerebral palsy (CP) in children results from congenital or early childhood injury to the central nervous system. Spasticity is the leading clinical symptom in this condition. Currently, botulinum toxin (BTX) is widely used in the treatment of spastic CP. This article analyzes the clinical efficacy of botulinum toxin therapy, possible side effects, and methods for their prevention.

Keywords: cerebral palsy in children, spasticity, botulinum toxin, botulinum therapy, side effects, prevention.

Introduction:

Spastic cerebral palsy is one of the most common motor disorders in children. Spasticity is characterized by increased muscle tone, heightened reflexes, and impaired motor coordination. In recent years, BTX has found wide application in various medical fields, including pediatric neurology. Type A BTX is considered the most effective and is administered through localized muscle injections.

Advantages of Botulinum Toxin Therapy:

BTX selectively targets spastic muscles, causing them to relax. This improves mobility, reduces pain, and helps prevent orthopedic complications in affected children. One of the main advantages of BTX is that it offers a non-surgical, relatively safe, and repeatable method of treatment.

Side Effects:

The following side effects may occur after BTX injections:

- Local pain, swelling, redness
- Elevated body temperature
- Pronounced muscle weakness
- Diffuse effects on unintended muscle groups (e.g., difficulty swallowing)
- Allergic reactions

- Development of antibodies to BTX due to immune response
- Rare systemic effects: general fatigue, drowsiness, diarrhea, or respiratory difficulties

Prevention of Side Effects:

Accurate diagnosis and patient selection:

BTX should only be used when spasticity is the primary problem. Identification of target muscles using EMG or ultrasound is recommended.

Proper dosage determination:

Dosage should be based on the child's weight, age, and affected muscle groups. Maximum allowable doses must not be exceeded.

Local anesthesia:

To reduce pain during injection, local anesthesia or sedation may be used.

Monitoring and observation:

After treatment, patients should be monitored for 24–72 hours. Immediate medical intervention is necessary if breathing or swallowing problems are observed.

Combined with a rehabilitation program:

BTX injections should be part of a comprehensive rehabilitation strategy, including physiotherapy and other supportive therapies, to achieve optimal outcomes.

Conclusion:

Botulinum toxin therapy is an effective and safe method for treating spastic cerebral palsy in children. However, like any treatment, it carries the risk of side effects. Minimizing these risks requires an individualized approach, precise dosing, and continuous monitoring. In the future, new BTX formulations are expected to reduce antibody formation and improve treatment efficacy.

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Tashkent – 2025