ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

OPTIMIZING REHABILITATION THROUGH BOTULINUM TOXIN THERAPY IN CHILDREN UNDER 5 YEARS WITH CEREBRAL PALSY

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Relevance of the topic:

Cerebral palsy (CP) is a neurological syndrome resulting from hypoxic-ischemic brain damage occurring before or during childbirth. It is characterized by movement disorders and altered muscle tone. The period under 5 years of age is marked by intense neuroplasticity, making timely and effective rehabilitation crucial for the child's neurological development. In this context, botulinum toxin-based injection therapy (botulinotherapy) has gained prominence in recent years as an effective method to reduce spasticity and promote functional recovery.

Aim of the study:

To assess the clinical effectiveness of botulinotherapy in children under the age of 5 diagnosed with cerebral palsy and to integrate this treatment into rehabilitation programs to optimize outcomes.

Materials and Methods:

The study was conducted during 2024–2025 at the "Mother and Child" Genesis Clinic in Fergana city. A total of 40 children aged 2–5 years with a confirmed diagnosis of CP participated in the study. They were divided into two groups:

• Main group (n=20): received a standard rehabilitation program (physical therapy, occupational therapy, speech therapy) along with botulinum toxin type A (Dysport®) injections.

• Control group (n=20): received only the standard rehabilitation program.

Injections were administered anatomically into selected muscles: gastrocnemius, adductor longus, and biceps brachii. Dosage was calculated individually based on body weight and degree of spasticity. Effectiveness was evaluated using the Modified Ashworth Scale (MAS), Gross Motor Function Measure (GMFM-66), and Pediatric Evaluation of Disability Inventory (PEDI) at 1 and 3 months post-treatment.

Results and Discussion:

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In the main group, muscle tone decreased from an average of 2.5 to 1.5 on the Ashworth scale ($p<0.01$). GMFM-66 scores increased by 15% after 3 months, and significant positive dynamics in daily motor activity were observed using PEDI. In the control group, improvements were less pronounced. Botulinotherapy was well tolerated, and no adverse effects were recorded.

Conclusion:

Botulinum toxin therapy in children under 5 years with cerebral palsy is an effective and safe method to reduce spasticity, improve motor function, and support social adaptation. The study conducted at the "Mother and Child" Genesis Clinic confirmed the practical importance of integrating botulinotherapy into pediatric neurorehabilitation.

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