

BOTULIN THERAPY IN COMPLEX TREATMENT OF CEREBRAL PALSY

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ABSTRACT

Botulinum therapy is one of the important components of the comprehensive treatment of cerebral palsy (cerebral palsy). This study examines the efficacy and safety of botulinum therapy in combination with other rehabilitation methods in children with cerebral palsy. The aim of the study is to evaluate the effectiveness of botulinum therapy in improving motor functions and quality of life in children with cerebral palsy. Materials and methods include an analysis of the results of clinical trials in which children with cerebral palsy underwent botulinum therapy in combination with physiotherapy, speech therapy and other rehabilitation methods. The results of the study provide information on the benefits of botulinum therapy in improving motor skills, reducing muscle spasticity and increasing independence in children with cerebral palsy. In conclusion, the importance of integrating botulinum therapy into the comprehensive treatment of cerebral palsy is emphasized in order to achieve the best results in the rehabilitation of children with this neurological disease.

In this article, the authors consider the feasibility of using botulinum therapy in the complex treatment of cerebral palsy.

Key words: cerebral palsy, botulinum therapy, complex treatment.

INTRODUCTION

Cerebral palsy (cerebral palsy) is a disease of the central nervous system that does not progress and is manifested by the inability to maintain the correct posture and control over movements. It is accompanied by speech, mental, visual and hearing disorders. The disease develops when the central nervous system is affected in the perinatal period or as a result of an abnormality in the development of the brain. Cerebral palsy has its own cipher according to the International Classification of Diseases (ICD-10) G 80.-G 80.9.

The most common violation of muscle tone in cerebral palsy (cerebral palsy) is spasticity. It plays an important role in the formation and maintenance of

pathological motor stereotypes in a child, which, in turn, leads to various disorders of posture and functional activity, as well as to the development of secondary orthopedic problems [1, 2, 3]. Therefore, the use of botulinum therapy as a strategy to combat spasticity plays one of the most important roles in conservative treatment of cerebral palsy. According to the European Consensus on botulinum therapy, the percentage of patients with spastic forms of cerebral palsy who are shown this treatment varies depending on age and indicators of the GMFCS classification scale of large motor functions (classification system of functions of large motor skills) from 50 to 75% [4,5].

The purpose of the study: to study the role of botulinum therapy in the complex treatment of cerebral palsy.

Materials and methods

Injections of botulinum toxin type A (BTA) drugs are an effective and safe method of treating local and regional spasticity in children with cerebral palsy (cerebral palsy). In pediatric practice, indications for the use of BTA are the treatment of dynamic foot deformity caused by spasticity, as well as focal spasticity associated with dynamic foot deformity of the "horse foot" type due to spasticity in patients 2 years and older with cerebral palsy. However, with isolated spasticity of the calf muscles, observed only in 3-4% of cases, the use of BTA injections in only one segment of the limb may be ineffective, since it does not significantly change the motor stereotype of the child and prevent the formation of contractures.

GMFCS is used to assess the effectiveness of treatment and general motor development of a child, which is currently considered optimal for monitoring the development of motor capabilities of a child with cerebral palsy [10, 11]. This scale is a reliable, reliable and reproducible method of clinical assessment and allows you to evaluate the reactions of children during the correction of pathological motor functions.

The study was conducted at the National Children's Medical Center. For the objectivity of the study, 40 individual maps of children with spastic forms of cerebral palsy were selected by random sampling. The average age of children with cerebral palsy was 7.4 ± 2.8 years. In accordance with the assessment according to the classification system of large motor functions (GMFCS), patients with cerebral palsy were distributed as follows:

Level I – 12.5%, level II – 20%, level III – 27.5%,

Level IV is 15%, level V is 25% (see the table).

From the age of 3, 26 (65%) children received BTA, 14 (35%) children did not receive BTA. The study takes into account the degree of involvement of the

limb in daily activity, self-care and the role of spasticity in this activity. Injections can be performed both in a rehabilitation center and on an outpatient basis, in a treatment room.

Multilevel injections were performed, when several spastic muscles of both the lower and upper extremities are injected at once during one session. 1-2 injections are made into 1 muscle head per day. Subsequent injections are performed at intervals of 2-3 days.

In order to control the accuracy of injections into the muscles of the legs, the method of anatomical orientation and palpation, as well as ultrasound control and electromyography were used in most children.

The duration of the session was 10-15 days. The maximum dose is 30 units / 1 kg. It should be emphasized that immediately after the procedure, the injection site should not be massaged (to prevent the drug from being squeezed out of the tissues) and exposed to thermal procedures that can destroy the drug. It is not prohibited to perform active limb movements immediately after injection. When analyzing rehabilitation charts, it was found that side effects occurred in 65% of cases. The most common microhematomas were at the injection site (30%), subfebrile fever (11%), flu-like syndrome (4%). These phenomena were not severe, did not require treatment and passed on their own. After BTA therapy, each child is shown wearing splints, physical therapy, massage, physiotherapy (except thermal procedures). It is recommended to undergo a rehabilitation course 2-3 weeks after botulinum therapy. The effect of the treatment was evaluated on the 7th day, as well as 1, 3 and 6 months after injections of the BTA drug. A decrease in spasticity in the injected muscles was found by an average of 1 point on day 7. The results achieved after 3 months are preserved in all children, after 6 months – in 75% of cases. In the treatment of cerebral palsy, it is recommended to carry out botulinum therapy 1 time every 6 months.

Results

The results of the study showed that the use of botulinum therapy drugs (BTA) can significantly improve walking for 2-12 months after injection, without causing serious side effects. Parents of children with cerebral palsy (cerebral palsy) have a positive attitude towards this type of therapy, not refusing treatment because of the visible positive result, despite the pain and duration of the procedure. Children receiving BTA become calmer, which allows for more intensive massage and physical therapy, which, in turn, contributes to increased movement volume and self-care. Unlike children who have not received BTA drugs, whose spasticity may temporarily decrease after completing the rehabilitation course, but then increases again, children undergoing BTA treatment achieve stable positive results

after 4-5 years, and in the future may be relieved of the need for this type of rehabilitation. At the same time, there were no statistically significant differences in the effectiveness of complex treatment depending on the age or degree of damage to the central nervous system (CNS).

The safety of using BTA drugs for cerebral palsy is based on the experience of their use for more than 20 years. Placebo-controlled, comparative studies of the safety of BTA drugs in cerebral palsy have been conducted, the results of which are systematized and published in special reviews [4, 6, 7].

Indications for discontinuation of botulinum therapy:

- lack of significant improvement;
- the effect of botulinum therapy on motor function, maintaining posture, balance, reducing pain, etc. In the absence of an antispasmodic effect, it is recommended to exclude technical errors first (see below);
- formation of contractures, pronounced fibrosis in the target muscle;
- the appearance of indications for orthopedic surgical treatment, neurosurgical treatment (including the installation of a baclofen pump). In all cases, after surgical treatment, indications for BTA injections into other target muscles should be considered;
- development of secondary resistance to BTA;

Ways to control the accuracy of BTA injections. BTA injections should be carried out under the supervision of navigation methods — ultrasound, electromyography (EMG), electrical stimulation [8-11].

Contraindications for the administration of BTA:

- atonic-astatic form of cerebral palsy;
- fixed contractures and joint dystopias
- myasthenia gravis;
- children under 2 years of age;
- severe malformations of internal organs;
- severe mental retardation, in which it is impossible to establish constructive interaction with the child;

To enhance the effect of botulinum therapy and the organization of new skills of the child's activity, the following methods are used:

- kinesotherapy;
- conservative orthopedic correction;
- proprioceptive correction;
- physical therapy;
- psychological and defectological correction.

Conclusions: the therapeutic efficacy of botulinum toxin is an irrefutable fact. But only a combination of drug treatment with methods of kinesotherapy, physiotherapy, orthopedic correction can lead to the success of rehabilitation.

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