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## Botox therapy for alternating strabismus in children

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**Introduction:** Strabismus causes a cosmetic defect, a violation of binocular vision, forms amblyopia. To date, there is no sufficiently effective therapeutic method for treating strabismus. Traditional surgical treatment is traumatic, and it is not always possible to achieve the desired result. The aim of the study was to study the effectiveness of Botox injections with a friendly strabismus in children. The inclusion criteria were an alternating strabismus. An exclusion criterion includes paralytic, non-accommodative strabismus and nystagmus.

**Material & Methods:** All patients with strabismus were under the supervision of ophthalmologists, pediatricians. This type of treatment was approved by the ethical committee of the Pirogov Russian National Research Medical University and the Scientific Council of the Voino-Yasenetski Scientific and Practical Center for Children's Specialized Medical Care. The written informed consent of the parents was also received. 121 operations were performed in 104 children between 2016 and 2018. 56 patients were girls (53.85%). 48 patients were boys (45.15%). The average age was 3.2 years. Divergent strabismus was diagnosed in 15 patients (14.42%). Convergent strabismus was diagnosed in 89 patients (85.58%). Three groups of patients: Group 1: 9 patients (8.65%) with a deviation angle of up to 15; Group 2: 30 patients (28.85%) with deviations with an angle of 15 to 25; Group 3: 65 patients (62.5%) with deviations with an angle of 25 or more; The average deviation angle in group 1 was 12.7; in 2nd groups - 22 and in 3rd group - 37.7 degrees. The examination was carried out before the injection, at 1, 2 and 3 days after the procedure. Further observations were carried out once every two weeks. Botulinum toxin injection was given to children in accordance with standard methods. The skin was treated with an antiseptic solution (octenisept), epibulbar applied antibiotics. Electromyography was used during the injection to make sure that the injection was made into an isolated muscle under mask anesthesia (Sevoflurane). After the injection of botulinum toxin and for 7 days all patients have access to antibiotics (Levofloxacin, 0.5%) and antiseptic (Picloxydine, 0.5 mg) 1-2 drops 4 times a day epibulbar in both eyes. The first injection of botulinum was carried out at a dose of 2.0 units for direct muscles and depending on the individual effect, for repeated application of 2.0 to 6.0 units in each muscle.

**Results:** Repeated injections of botulinum toxin were performed in 20 patients (20.8%). Complications were noted: scleral hemorrhage in 41 patients (39.4%); short-term ptosis in 74 patients (71.15%); contralateral alternating strabismus was noted in 98 patients (94.23%). All complications are reversible and predictable in the postoperative period. Horizontal strabismus (esophoria, exophoria) became less pronounced in 96 patients (92.31%), complete regression with restoration of binocular functions was noted in 54 patients (51.92%).

**Conclusions:** This method allows you to correct strabismus in children in a short period of time, with minor trauma and effectively create conditions for the formation of physiological binocular vision.

### Biography

Nikolas Manuel Roselo Kesada is a Postgraduate of the Department of Ophthalmology of Pirogov Russian National Research Medical University (RNRMU). He was graduated from Pirogov Russian National Research Medical University of Russia in 2017. He is working on PhD thesis entitled as: Further results of oculomotor disorders treatment with botulotoxin injections in children.