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## Experience Of Treatment Of Infantiles Hemangiomas Of The Maxillo-Facial Area Of The Children With The Help Of Propranolol.

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### ABSTRACT

In this article, the questions of the efficacy and the safety of treatment of children with infantile hemangiomas of the maxillofacial region with non-selective  $\beta$ -adrenoblockers have been studied. Hemangiomas occupy the first place in the frequency of occurrence among benign neoplasms of children. We should clinically identify the infantile hemangiomas, mainly consisting of immature endothelium of the vessels, which can be treated with non-selective  $\beta$ -adrenoblockers. Therefore, the selection of patients should be thorough and deliberate. The article reflects the experience of complex treatment of 13 patients with infantile hemangiomas of their face and neck. Everybody has achieved an improvement in their local status and lack of serious complications. During the course of treatment, pediatric care, self-sustaining (monitored by parents at home), pulse control, blood pressure monitoring, monthly blood glucose monitoring, ECG and cardiologist consultation are required.

**Keywords:** Infantile hemangioma, propranolol, treatment, children.

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## BACKGROUND

The number of children with vascular neoplasms on the face and neck who seek medical help remains large. Tumors of children often arise as a result of tissue defect in the embryonic period. First of all, they include infantile hemangioma. This is a benign tumor, the parenchyma of which consists of the immature endothelium of the vessels. The tumor is characterized by proliferative, infiltrative growth and it does not have a capsule. The most commonly affects the skin and subcutaneous tissue, less often - paremycosis organs and very rarely bone tissue. The maxillofacial area is involved in 78.8% of cases and diagnosed immediately after the birth of the child or during the first month of life. It grows actively during the first year of life, then it stops its development. The only tumor that can disappear (undergo regression). However, spontaneous regression is observed in no more than 5-6.5% of children and we shouldn't rely on the possibility of spontaneous cure. Localized hemangiomas are treated successfully by standard methods: surgical removal, cryodestruction, diathermocoagulation, photothermolysis, etc. Hemangiomas occupying 2-3 anatomical areas, complex anatomical facial formations, such as the nose, lips, tongue, put the surgeons in front of a complex choice of the optimal method of treatment. The question of voluminous surgical intervention has being solved, the cosmetic results of which should be satisfactory. Conservative therapy of hemangiomas in the form of glucocorticosteroids, interferons or vincristine cause serious side effects.

The new information about the new medication treatment tool made a real breakthrough in the field of tactics of treating children. Since 2008, in various countries scientists began to conduct researches on the treatment of hemangiomas with the help of Propranolol and our country has not become an exception.

## MATERIALS AND METHODS

During 2014 - 2017, 13 patients with infantile hemangiomas of the maxillofacial area were examined and medicated on the basis of the Maxillofacial Surgery Department of the Regional Children's Clinical Hospital No.2. The average age at the start of the course of conservative therapy was 2.5 months (10 children), also there were two children of a monthly age and one four months old. There were 5 boys (38.5%) and 8 girls (61.5%).

The algorithm was that The patient was hospitalized in a hospital, the parents of the child gave an informed voluntary consent to the use of the medication for indirect purposes. Within a few days, a standard examination was conducted: a general blood test, a general urine test, a standard biochemical blood test, an ultrasound scan of the education, an ECG with cardiologist advice. Three patients with common neoplasms underwent CT examination with the introduction of intravenous contrast, to clarify the prevalence of neoplasm. As a medicinal product was used the original Propranolol and some medicine with the active substance "propranolol" in the composition of Inderal, Obsidan, Anaprilin. The starting dose of treatment was 1 mg / kg with a frequency of reception 2 times a day, in the absence of side effects, the dose was increased to a therapeutic dose and corresponded to 2 mg / kg - 3 times a day. After the first dose of the medicine, the blood pressure and pulse were monitored every hour for 12 hours. Then, these indicators were measured every day after taking the medicine in the hospital - by doctors, during outpatient treatment- by parents. Within a few days of conservative treatment, there was a decrease in the filling of the hemangioma and the cessation of its growth. The average period of hospitalization was 7-10 days, during which daily local status and hemodynamics were assessed. After that, the child was discharged to an outpatient observation to the pediatrician at the place of his residence. Once a month the patient gave a general blood test, a general urine test, capillary glucose, an ECG along with a pediatrician's examination, weighed, after which he was examined for the maxillofacial surgeon. Once a month the patient gave a general blood test, a general urine test, capillary glucose, an ECG along with a pediatrician's examination, weighed, after which he was examined by the maxillofacial surgeon. In each visit, the tumor was measured and taken a photo, the dose was adjusted, depending on the addition of weight. Ultrasound was performed every 3 months. Upon the achievement of satisfactory therapeutic results, the absence of the dynamics of regression, the formation of the dose gradually decreased until the medicine was completely discontinued.

## RESULTS

The minimum course of treatment was 6 months (the child got out of the observation), the average - 9 months, the maximum - 13. Two children were withdrawn from treatment. One was noted having an individual intolerance to taking the medicine, there was a side effect in the form of indomitable diarrhea.

the second, except for the hemangiomas of the face and neck, was outlined vascular structures in the trachea, and the child was transferred to the ENT department. To assess their results is not possible, despite the marked stopping of the growth of formations. 10 children's treatment was carried out in full, taking the medicine was completed a year ago and more. One child is still receiving the medicine, the course of his treatment is not completed. All children have a decrease in the size of the hemangioma. It was also noted that more rapid results were achieved in children who started treatment from an earlier age (1-2 months). In older children (4 months), the dynamics took longer time and the final results were worse. In addition, it was noted that the result depends on the use of medicine from different manufacturers. The first place in terms of effectiveness is taken by the medicine under the trade name Propranolol (manufactured in Germany, France), and parents had to acquire it independently in Europe. At the second place is Obzidan (produced in Iceland), when we began to introduce this method in our city, we started with this medicine but then Obzidan disappeared from the Russian market. And the third place is occupied by Anaprilin (produced in Russia). The final results of ten children who have fully received a course of treatment and are still in our dispensary observation so far are presented below. Four patients did not need any additional treatment after a conservative course. The disappearance of education was noted. One child was operated after increasing the volume of healthy soft tissues around the formation, using a standard surgical technique. Photothermolysis of the remaining capillary network with a good cosmetic result was carried out on five children in a year after the discontinuation of the medicine and a dynamic observation of the local status.

## CONCLUSIONS

Diagnosis of vascular tumors does not cause difficulties, the choice of the method of treatment depends on the prevalence and localization of the tumor. Treatment with propranolol as an independent medicine is not the gold standard, but it rather refers to the method of choice, if it is impossible (for several reasons) to treat surgical, or it is a part of a combination treatment. Conservative treatment of children with infantile hemangiomas requires parents' and a doctors' patience and responsibility. It is inadmissible to shorten the duration of treatment. The selection of patients should be thorough and deliberate, based on additional and laboratory research methods. It is also important to understand the necessity of parents' self-monitoring of the pulse and blood pressure throughout the course of treatment.

## REFERENCES

- [1] Azzopardi S. Novel strategies for managing infantile hemangiomas: a review/S. Azzopardi, T. C. Wright//Ann. Plast. Surg. -2012. -Vol. 68 (2). -P. 226-228.
- [2] Chen T. S. Infantile hemangiomas: an update on pathogenesis and therapy/T. S. Chen, L. F. Eichenfield, Sh. F. Friedlander//Pediatrics. -2013. -Vol. 131 (2). -P. 99-108.
- [3] Dickison P., Christou E., Wargon O.A. Prospective study of infantile hemangiomas with a focus on incidence and risk factors//Pediatr. Dermatol.-2011.-Vol. 28 (6).-P. 663-669.
- [4] Drolet B.A., Frommelt P.C., Chamlin S.L., Haggstrom A., Bauman N.M. et al. Initiation and use of propranolol for infantile hemangioma: Report of a consensus conference. Pediatrics. 2013; 131 (1): 128-140.
- [5] Ionescu G. Hemangiomas and vascular malformations, an overview and new perspectives. A 15 year experience with 800 cases/G. Ionescu//Abstract Book of III World Congress of Pediatric Surgery. -New Delhi, India. -2010. -P. 50-51.
- [6] Fette A. Propranolol in use for treatment of complex infant hemangiomas: literature review regarding current guidelines for preassessment and standards of care before initiation of therapy//Scientific World Journal. -2013 May 20. -850193, DOI: 10.1155/2013/850193
- [7] Leaute-Labreze C., Dumas de la Roque E., Hubiche T. et al. Propranolol for Severe Hemangiomas of Infancy. New England Journal of Medicine. 2008; 358 (24): 2649–2651.
- [8] Leaute-Labreze C., Prey S., Ezzedine K. Infantile hemangioma: part II: Risks, complications and treatment. Journal of the European Academy of Dermatology and Venerology. 2011; 25: 1254–1260.



- [9] Michel J.L., Patural H. Response to oral propranolol therapy for ulcerated hemangiomas in infancy//Arch. Pediatr.-2009.-Vol. 16 (12).-P. 1565-1568.
- [10] Storch C.H. Propranolol for infantile haemangiomas: insights into the molecular mechanisms of action/C.H. Storch, P.H. Hoeger//Br. J. Dermatol. -2010. -Vol. 163, No 2. -P. 269-274.