

## **Outpatient Monitoring Of Treatment with Propranolol among Children with Infantile Haemangiomas**

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### **I. INTRODUCTION**

Infantile hemangiomas are the most common benign vascular tumors in infancy and early childhood. They have a proliferative course and are suitable for treatment in early infancy. Dr. Christine Leaute-Labreze's discovery of treatment for infantile hemangiomas with Propranolol set up a new era in their treatment and prognosis with very good therapeutic results.

### **II. MATERIAL AND METHODS**

Included in the presented clinical observation are children with a proven diagnosis of infantile haemangioma by a dermatologist. In these children, treatment was initiated in a daily care out-patient medical center and monitored for a period of 6-9 months, which includes: clinical observation, a reversal process of hemangioma, treatment tolerance and side effects of the therapy. All children, prior to the initiation of treatment underwent the following investigations: hematology tests, blood glucose, electrocardiogram (ECG) and cardiology consultation, brain and abdominal ultrasound and also a full clinical examination. Treatment monitoring included a 2-hour steady-state monitoring with clinical examination, blood pressure (BP) measurement, heart rate (HR) and respiratory rate (RR), saturation of oxygen and blood glucose at 0 min and 120 min. The outpatient daily care unit is equipped with all the necessary devices to monitor the treatment and to cope with the side effects of this therapy. The dose of Propranolol was gradually increased from 1 mg/kg/day up to 2-3 mg / kg/day every week, after which the children were followed up for a period of 6 months monthly at a dose of 3 mg / kg /day. An appropriate photo documentation and analysis of the results were made.

### **III. CLINICAL CASES AND THERAPEUTIC RESULTS:**

Patient 1: A girl at the age of 13 months today, started therapy at 4 months of age. The child was born from a pathological pregnancy in gestational week 25 with a birth weight of 760g, in depressive condition. Mechanical ventilation was performed for 2 months, surfactant therapy and there was a follow-up clinic of bronchopulmonary dysplasia (BPD). The child was sent for treatment due to established facial haemangioma with a diameter of 25/30 mm on the left cheek. The patient started therapy with Propranolol on June 2016 with 1 mg / kg /day for a weight of 4.66 kg, HR 128 / min, BP 90/60 mmHg, RR 38-40 / min, oxygen saturation 97%. After a week the dose was increased to 2 mg / kg/daily (2x4.8 mg) and after one more week to 3 mg / kg/day at body weight 5.02 kg, HR 126 / min, RR 32 / min, saturation of oxygen 98% and BP 92/60 mmHg. The haematological parameters of the child, blood sugar at 0 min and 120 min, echocardiography, abdominal echography, ECG did not detect pathological abnormalities. The treatment lasted for 6 months at a dose of 3 mg / kg/day with monthly consultations at the clinic. No side effects of treatment were observed during the indicated period. After 6 months of treatment, the left cheek haemangioma is almost fused with the skin, faded and flattened (photo-documented).



June 2016



December 2016



January 2017

#### **IV. PATIENT 2 - ST.M.M.**

A boy of 8 months of age to date, who started therapy at 4 months of age. Born from a first pregnancy in gestational week 31 with a BW of 1.9 kg, mechanical ventilation, surfactant therapy. Established haemangioma on the back with size 45/35mm, that is growing and bleeding with superficial necrosis. An additional haemangioma on the right hip. Consulted with a dermatologist and treatment with Propranolol was suggested. November 2016 the treatment with Propranolol was initiated at a dose of 1 mg / kg/day for body weight 6.3 kg, BP 80/40 mm Hg, HR 132 /min, RR 30 /min, saturation of oxygen 100%, normal haematology results and blood sugar. In a week interval the dose was increased to 2 mg / kg/day and 3 mg / kg/day, which has been adapted monthly to date. No side effects of therapy were seen for the indicated period. The hemangioma size underwent a significant change in size, surface, discoloration, lack of bleeding and necrosis (photo-documentation is applied).





November 2016



January 2017



February 2017

#### **V. PATIENT 3 - EJN**

A 7-month-old girl to the current period, who was born with body weight 1.78kg from the 4-th pathologically pregnancy, born in a depressive condition. After the delivery a hemangioma on the back part of the head was detected by a dermatologist, who suggested a treatment with Propranolol. Starting therapy at 3 months of age with Propranolol 1 mg / kg/day in November 2016 at body weight 5.5 kg, HR 122 /min, RR 32 /min, BP 80/50 mmHg, 98% oxygen saturation and normal lab results in initialization. The haemangioma was located in the occipital area with 30/30 mm size in diameter and cavernous appearance, with no bleeding. In a week interval the dose was increased to 2 mg / kg/day and 3 mg / kg/daily with excellent tolerance. On the last dose of Propranolol, the child is already in its third month of treatment without any side effects and a good therapeutic response: the hemangioma is smaller in size, flattened and discolored (photodocumentation is applied).



November 2016



February 2017



March 2017

Conclusion: We demonstrate the excellent clinical effect of Propranolol for the treatment of infantile hemangiomas and the ability to start and monitor this therapy in outpatientclinicswith a well-trained team.

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