Propranolol for extensive hemangiomas of infancy: two case reports

Hemangiomas extensos da infância tratados com propranolol: relato de dois casos

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Abstract

Hemangiomas are the most common benign tumors of childhood. They show rapid growth, followed by a regression phase that culminates in the partial or total disappearance of the lesion. Therapeutic options should be evaluated for extensive cases. Systemic glucocorticoids are the therapy of choice; however, there are reports that propranolol offers better and faster results. We report two cases of large volume infantile hemangioma associated with functional limitation and aesthetic disfigurement, treated successfully with propranolol, a drug that comes as a therapeutic option providing satisfactory and maintained results, with few side effects.

Keywords: Hemangioma; propranolol; therapeutics; adrenal cortex hormones.

Introduction

Hemangiomas are the most common benign tumors of infancy, with an incidence varying from 1% in newborns to 12% in children in the first year of life. They develop by the uncontrolled proliferation of vessels, grow fast during the first months of life and have a regression phase which ends in partial or total disappearance¹². Although spontaneous regression makes expectant management an option, other therapies must be considered in cases of large infantile hemangiomas that cause compression of vital structures, present visceral involvement, disfigurement, or are located at a body orifice³⁴. In such cases, systemic glucocorticoids are the treatment of choice: oral prednisone or prednisolone 2 to 4 mg/kg/day or pulse methylprednisolone¹. However, some reports state that propanolol may provide better and faster results in the treatment of extensive hemangiomas³⁵. In this paper, we describe two cases of infantile hemangioma that responded significantly to propranolol treatment.

Case report

Case 1

A three-month-old female infant presenting cleft lip and cleft palate. Dermatological examination showed extensive erythematous scaly lesions extending over the right hemiface, bilateral mandibular and cervical regions.
Due to the involvement of the right periorbital region, the patient was unable to open her eye, and the lesions on the cervical region were obstructing the upper airways (Figure 1). She was treated with prednisone 1 mg/kg/day for one month, but without improvement. After cardiology assessment, propanolol 2 mg/kg every 8 hours was introduced with rigorous monitoring of arterial blood pressure, heart rate and glycemic levels. The patient presented significant improvement after one week of treatment; The lesion showed regression and became more plane, which enabled the patient to open her right eye normally (Figure 2). Despite clinical improvement of hemangioma, the patient died of septic complications.

**Case 2**

Four-month-old female infant presenting with erythematous papules on the right preauricular regions, that had appeared at 20 days of life. The lesions had progressive growth and similar ones appeared. Dermatological examination showed erythematous scaly lesions of smooth consistency on the right frontal, right periorcular, preauricular, mandibular and inferior lip regions (Figures 3A-B). After cardiologic assessment, she was given propanolol 2 mg/kg every 8 hours, with dosage increase one month later, to 3 mg/kg every 8 hours. The lesions disappeared after four months of treatment (Figures 4A-B). Laboratory exams did not show alterations.

**Discussion**

It is believed that only 10 to 20% of hemangiomas require treatment. Indication of treatment is made in case of eye, upper airways and auditory canal obstruction, as well as those that cause heart failure and hemorrhage, and those that may turn into ulcers and disfigure the patient. Systemic corticoids are the treatment of choice for extensive hemangiomas. They are usually given to patients in high dosages and for long periods, which makes the patient more prone to adverse effects such as hirsutism, cushingoid facies, hypertrophic cardiomyopathy, gastrointestinal, sleep and growth disorders. Propanolol, a nonselective beta-blocker, has been pointed out as an alternative in more aggressive cases, for its effects include: vasoconstriction immediately perceptible as a color alteration associated with palpable softening of the lesions, decrease in vascular endothelial growth factor expression (VEGF) and basic fibroblast growth factor (bFGF) due to protein kinase inhibition, which explains the progressive improvement of hemangioma; and capillary endothelial cell apoptosis deflagration. This drug should be used in the proliferative phase, in which pro-angiogenic factors, VEGF and bFGF are involved. There is no consensus in literature about the right dosage. It is recommended to initiate the treatment with 0.16 mg/kg every 8 hours, which may be increased to 2 mg/kg/day. The use of this medicine is not risk-free, and the patient may hypotension, bradycardia and asymptomatic hypoglycemia, so the patient must be previously assessed as to cardiologic features and have their arterial blood pressure, heart rate and glucose levels closely monitored. The patients of the
Figure 3 - Erythematous scaly papules of smooth consistency on the right frontal, right periocular, preauricular, mandibular and inferior lip regions (A and B).

Figure 4 - Lesion aspect after propanolol (A and B).
cases described had no adverse effects to the drug, hence it may be considered a promising alternative for extensive hemangioma treatment with fast response.

References


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Statistical analysis: N/A
Overall responsibility: MJSB

*All authors have read and approved the final version submitted to J Vasc Bras.