

PROPRANOLOL TREATMENT IN INFANTILE HEMANGIOMA

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Abstract

Infantile hemangiomas are the most common benign tumors of childhood and their management could be challenging, especially in those situated in areas with cosmetic impact or possibly complicated with functional impairment. We present five cases treated in our department with oral propranolol, with good and excellent results.

Key Words: hemangioma, propranolol, vascular tumors, treatment.

Introduction

Infantile hemangiomas are the most common benign tumors of childhood, with a very large spectrum of disease which make difficult to define a standardized approach to the management, mainly because of the unpredictability of the natural course: involuting or non-involuting. (Tan et al, 2011)

The incidence of these soft tissue tumors is about 5%, higher in girls and premature infants; usually, these tumors appear in the neonatal period, progressively grow in the first year of life and then stop growing or involute during the next years. (Bruckner et al, 2003) The spontaneous regression is unpredictable in terms of the final aspect of the lesion, sometimes the involution being very modest, with marks and scars in the end. Sometimes, complications such as ulceration, infection, bleeding, markedly growth, pain, functional impairment, can occur. (Enjolras et al, 1997) The psychological aspects of the cosmetic problem, even in simple cases and more important in cases with anatomical distortion, should also be considered. (Mulliken et al, 1982; Tanner et al, 1998)

The therapeutic arsenal includes systemic corticosteroids, vincristine, cyclophosphamide or local injection with interferon alpha 2 a, bleomycin, alcohol, corticoids, specialized dressings, pulsed-dye laser, cryosurgery, surgical excision. (Talaat et al, 2012) In 2008, Léauté-Labrèze observed the rapid involution of a large facial hemangioma when propranolol was used for the treatment of a steroid induced hypertrophic cardiomyopathy. (Léauté-Labrèze et al, 2008)

Propranolol is a selective β -adrenergic antagonist which competitively inhibits β_1 and β_2 receptors and due to its lipophilic properties has also membrane-stabilizing properties. The exact mechanism of action is still unknown,

but it was hypothesized that it interferes with vascular tone, angiogenesis, apoptosis of vascular endothelial cells. (Storch et al, 2010)

Patients and methods

We present a photo gallery of five cases with proliferative infantile hemangioma treated in the Emergency Children Hospital Iasi, Romania in the last two years. Before initiation of propranolol treatment, the regimens and potential risks were clearly explained to the parents and their informed consent for therapy and use of the photographs was obtained; a full medical history of the child was taken and then vital signs, physical examination, specific investigation were performed in order to rule out any contraindication for the treatment. The patients were initially treated with 1 mg/kg/day divided in two or three doses, the first dose being taken in the hospital and the baby monitored for glycemia, cardiac frequency and blood pressure. The first follow-up visit was scheduled after one month, when the dosage was adjusted with the weight and according to the clinically response. The next visits were scheduled at a three months interval the treatment being continued until the lesion completely involuted or the baby reached one year of age, or, for the older babies, when no regression seems to be evident between two visits.

Results

The results were good, with acceptable cosmetic of the lesion in the cases where the resolution was not complete. No complications were noticed during the follow-up.

Case 1: A 10 months old baby boy, first presentation for a periocular hemangioma (the pictures in the upper line). Propranolol treatment was initiated; the follow-up shows resolution of the hemangioma: 1 month (left, lower line) and four months (right, lower line) after the treatment was started (Fig. 1).

Case 2: An 3 months baby boy with an superior eyelid hemangioma, with visual axis impairment at the presentation (picture in the left upper line); from left to right, up to down pictures at one, two and six months after the treatment was initiated, with complete resolution of the tumor (Fig. 2).

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Case 3: A three months baby boy, prematurely born, with a tuberous hemangioma of the zygomatic area; on the left one month after the treatment was started, in the lower line left picture at three months after and right picture at one year (Fig.3).

Case 4: A three months girl with a lip hemangioma (upper line, left picture); follow-up at one, three and five

months later, with almost complete resolution of the tumor (Fig.4).

Case 5: An eight months old girl with ulcerated hemangioma of the labia and follow-up at one, three and six months after the treatment was started (Fig. 5).



Fig. 1. Case 1 periocular hemangioma.



Fig. 2. Case 2 superior eyelid hemangioma.



Fig. 3. Case 3 a tuberous hemangioma of the zygomatic area.



Fig. 4. Case 4 lip hemangioma.



Fig. 5. Case 5 ulcerated hemangioma of the labia.

Conclusions

Propranolol has shown excellent results in infantile hemangioma and will probably become the treatment of choice for these tumors in the future, especially in those with localizations and complications like above. Potential side effects include bronchospasm, bradycardia, hypotension, hypersomnolence, hypoglycemia, but all these could be avoided by correct monitorizing at the initiation of the treatment and parental education in order to recognize the adverse effects. Further trials are needed to determine

the right dose, administration frequency and the protocol of monitoring.

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