CASE REPORT

USE OF ORAL PROPRANOLOL FOR TREATMENT OF INFANTILE HEMANGIOMAS: A CASE REPORT

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Abstract

Four infants with infantile hemangioma were treated with oral propranolol 2mg/kg in two divided doses. Propranolol was continued upto one and half year of life. Significant improvement was noted in all infants in the first 2 months of therapy with slow and continuous effect throughout the follow up period. No serious complication were observed. We conclude that oral propranolol should be considered as a first-line agent given in the treatment of infantile hemangiomas.

Keywords : infantile hemangioma, oral propranolol

Introduction

Infantile hemangioma (IHS) are common vascular tumors with a characteristic natural history of rapid growth during the first 3 to12 months of age, followed by slow and spontaneous involution from 3 to 7 years of age. (1) Whilst most haemangioma are non-problematic, requiring no treatment, approximately 10% cause significant morbidity predominantly through airway obstruction, ocular compression, functional impairment or ulceration.(2) Until recently treatment options for problematic haemangioma have included intralesional and systemic steroids, chemotherapeutic agents including vincristine and interferon-alpha, laser therapy or surgical intervention.(3)

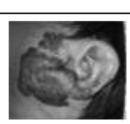
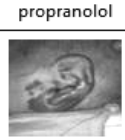
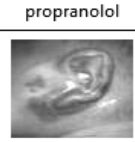
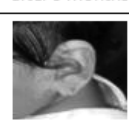
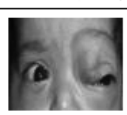
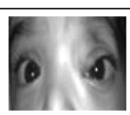
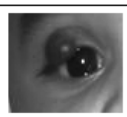
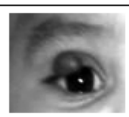
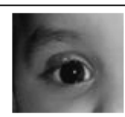
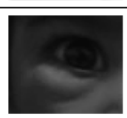
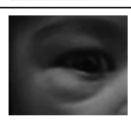
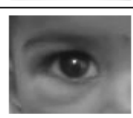
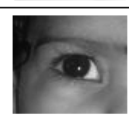
Propranolol is a non-selective beta blocker; currently licensed for treatment of arrhythmia, hypertension,Tetralogy of Fallot, thyrotoxicosis in children and migraine prophylaxis. (3) In 2008 regression of a facial haemangioma was noted in a child being treated with propranolol for obstructive hypertrophic myocardiopathy. (4) Since then propranolol has been introduced as a primary treatment for complicated haemangioma. Herein we report the results of oral propranolol on infantile hemangioma in four patients who were treated in Pediatric Department, Dr Shroff Charity Eye Hospital.

Case Report

We describe four infants with infantile hemangioma who received oral propranolol treatment from the age of 3-4 months up to the one and half year of life. A careful patient history and physical was performed to ascertain risk factors or contraindications to using propranolol. Propranolol was initiated at a dose of 2mg/kg/day divided in two doses. Parents were told to feed their infant every 2-3 hourly in order to prevent drug induced hypoglycemia. They were followed regularly for change in colour and size of hemangioma. Parents were told about potential side effect of oral propranolol therapy and advised to have telephonic conversation or to visit Pediatric OPD, SCEH in case of any complaints.

Case 1 was a four and half month old female infant with hemangioma surrounding lower part of left ear and pinnae. (Table 1) Hemangioma site was oozing and there were episodes of bleeding after trivial trauma. Child was started on oral propranolol and after one week, hemangioma was reduced in size as well as in colour.By one month, lesion had reduced to half of their original size. By 5months, hemangioma had reduced almost completely, hence oral propranolol was stopped at the age of 10months and was reassessed for any changes. There were no changes at hemangioma site after stopping oral propranolol.

Case 2 was a 4 month old female child with left orbital hemangioma which was increasing in size causing left eye proptosis with amblyopia hence received one dose of intralesional steroid by ophthalmologist. We started her on oral propranolol, Child responded well to oral propranolol and hemangioma size has regressed over period of time. After 5 months on oral propranolol treatment, hemangioma size has reduced markedly and her proptosis has improved. (Table 1) Child is still

	Pretreatment.	After one week of oral propranolol	After one month on propranolol	After completion of treatment after 5 months
Case 1				
Case 2				
Case 3				
Case 4				 (After 3 1/2 months)

on oral propranolol and following up regularly.

Case 3 was a 2months old male child with right upper lid hemangiomawhich showed gradual reduction in size as well as colour of hemangiomaon oral propranolol (Table 1). Child is still on oral propranolol and following up regularly.

Case 4 was a 4 months old female child with right eye deep capillary hemangioma involving inferior part of orbit that showed gradual response on oral propranolol. Child is still on oral propranolol and following up regularly.

Discussion

Propranolol has been used for decades in the practice of pediatrics for various cardiovascular diseases. In 2008, Leaute Labreze et altreated a child with propranolol at a dose of 3 mg/kg of body weight per day because of its obstructive hypertrophic myocardiopathy. Simultaneously the child had a nasal haemangioma. (4) This showed a coincidental impressive improvement during this therapy. Since then propranolol has been introduced as a primary treatment for complicated hemangioma. Dose regimen for oral propranolol have varied from series to series. Most have called for 1-3mg/kg/day of propranolol divided into 2 or 3 doses. (5) Results from our case series indicates that propranolol at a dose of 2mg/kg/day in two divided dose is effective in promoting regression and reducing morbidity from problematic cutaneous infantile hemangiomas. This dose (2mg/kg/day) has been reported as effective in other centres also.(5-8)

Indication for treatment of infantile hemangioma include extensive ulceration, cosmetic disfigurement with presence of deep component, obstruction of airway,visual axis or other vital structures. (9) In our case series, extensive ulceration (case 1), ptosis with amblyopia (case2), cosmetic issues(case 3 and case 4) were the indication for starting treatment.

Infantile hemangioma may improve as early as one week after treatment initiation. (8-10) Similar effect was noticed in our case series as all 4 patients showed noticeable changes within one week of starting propranolol treatment and the change was more pronounced at four weeks of treatment.

Treatment with oral propranolol has been well tolerated in most of the cases of infantile hemangioma published to date. The most common serious adverse effects of propranolol are bradycardia and hypotension. Other reported adverse effects include bronchospasm, congestive heart failure, hypoglycemia, hypothermia, somnolence, sleep disturbance, nightmares, depression, nausea, vomiting, diarrhea,hyperkalemia, gastroesophageal reflux, psoriatic drug rash, and respiratory syncytial virus exacerbation. (5,8,11,12) No adverse effect was reported by parents of our four infants.

Conclusion

Oral propranolol therapy was found clinically effective in treating infantile hemangioma. It also demonstrated better tolerance and with minimal adverse effects.Therefore, oral propranolol should be considered a first-line agent given its safety and efficacy in the treatment of infantile hemangiomas.

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