Propranolol for infantile haemangioma

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Sri Lanka Journal of Child Health, 2012; **41**(1): 46-47

(Key words: Propanolol; haemangioma; infant)

Infantile haemangiomata (IH) are the most common benign tumours of infancy. Although 85ï 90% of IH regress spontaneously, some may become life- or function-threatening requiring immediate treatment[1]. Previous therapeutic options, including physical measures (laser surgery, cryosurgery), systemic corticosteroids and in severe cases vincristine, α-interferon or cyclophosphamide, all have the risk of serious side-effects[2,3]. Oral propranolol is a recent therapeutic option for complicated IH with impressive efficacy and good tolerance[2]. Very little is known about its mechanism of action in IH[3].

Twenty infants with cutaneous haemangiomata were treated with oral propranolol in a dose of 1mg/kg/day in 2 divided doses for 6 months. All experienced a change in the haemangioma from intense red to purple associated with a palpable softening of the lesion. Informed written consent was obtained from the parents of the 20 infants and the study received approval from the ethical review committee of the Association of Mumbai Paediatricians. Routine investigations, electrocardiogram, echocardiogram and baseline blood pressure were obtained in all patients. All were followed up initially after one week and thereafter monthly for 6 months. After initial colour changes, the haemangiomata continued to improve until they were nearly flat, with residual skin telangiectasia. All patients showed near complete to complete regression of the cutaneous haemangiomata. No patient suffered intra- or post therapy drug side effects or complications. Appearances before and after propranolol therapy are shown in Figures 1-3.

Propranolol interferes with endothelial cells, vascular tone, angiogenesis and apoptosis[3,4]. Early effects (brightening of the haemangioma surface within 1ï 3 days after start of therapy) are attributed to vasoconstriction due to decreased release of nitric oxide. Intermediate effects are due to the blocking of proangiogenic signals (vascular endothelial growth factor, basic fibroblast growth factor, matrix metalloproteinase) and result in growth arrest. Long-term effects of propranolol are characterized by induction of apoptosis in proliferating endothelial cells, and result in tumour regression[5,6,7].

Very infrequently propranolol is associated with side effects such as hypotension, bradycardia, bronchospasm, peripheral vasoconstriction, sleep disturbance and hypoglycaemia[6,7]. Propranolol should be used as first line therapy for complicated infantile cutaneous haemangiomata.

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(Received on 26 October 2010. Accepted on 17 December 2010)

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Figure 1: Before and after treatment

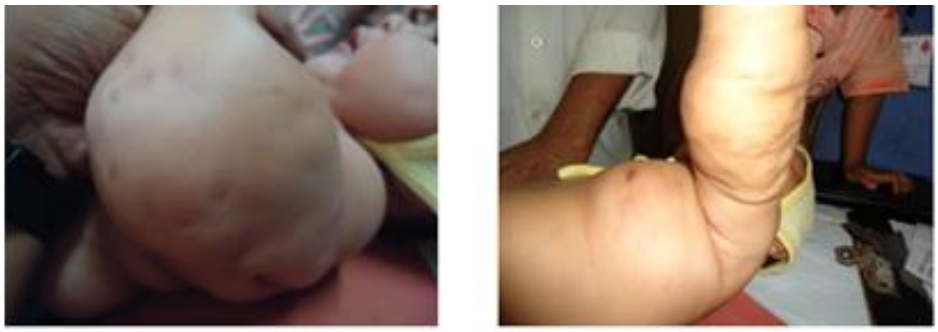

Figure 2: Before and after treatment

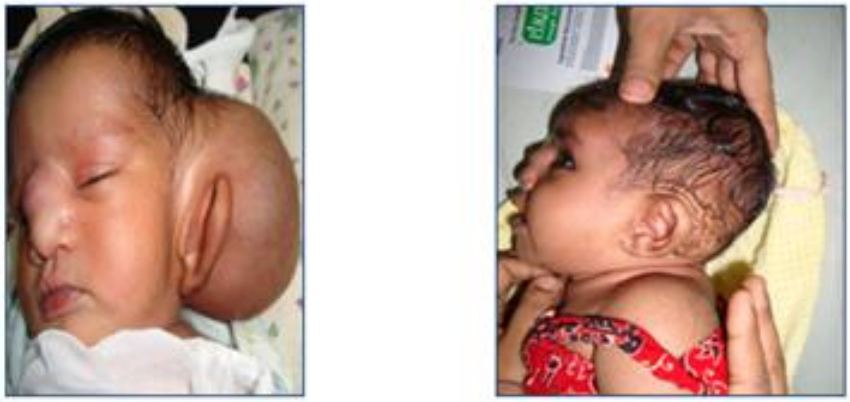

Figure 3: Before and after treatment