Novel treatment for infantile hemangiomas

Christina Korownyk MD CCFP  David Ross MD CCFP  Loretta Fiorillo MD FRCPC

Clinical question
Are β-blockers effective in treating small infantile hemangiomas (IHs)?

Bottom line
One small RCT and several observational studies found that oral propranolol stops growth and induces regression of IHs by 4 weeks. Similar evidence suggests topical timolol stops IH growth and induces regression by more than 5% after 4 to 6 months for 1 in every 2 or 3 patients.

Evidence
Oral propranolol
• In an RCT (40 children, aged 9 weeks to 5 years, followed for 6 months),1 2 mg/kg of propranolol (divided 3 times daily) stopped IH growth by week 4 for all children and reduced IH volume at all weeks compared with placebo (eg, -48.5% vs 17.9% in week 12, P = .03). No significant hypotension, hypoglycemia, or Bradycardia were reported.
• In a systematic review of 40 observational studies and the 1 RCT2 (1264 children, mean age 6.6 months, treated for 6.4 months),2 98% of treated children showed at least some improvement, and serious side effects were rare.
Topical timolol
• In an RCT (41 children, median 9 weeks old),3 at 20 to 24 weeks, significantly (P < .02) more treated IHs decreased in size by more than 5% (vs normal size increase at this age) compared with placebo (number needed to treat [NNT] = 3). Limitations included small numbers.
• In a prospective clinical study (124 children younger than 12 months),4 at 4 months, significantly (P < .05) more IHs stopped growing or became smaller (92% vs 34%, NNT = 2) in the timolol group than in the observational group. No serious adverse events were reported.
• Smaller retrospective cohort and prospective clinical studies had similar findings.5-9

Context
• Use of β-blockers for IH was first reported in 2008 when 2 infants taking propranolol for cardiac reasons experienced dramatic involution of severe hemangiomas.10
• Often IHs develop in the first few weeks of life; they reach 80% of their final size by 3 months, and 80% complete growth by 5 months.11 By age 5 most lesions completely disappear without treatment.12
• The Food and Drug Administration has approved oral propranolol for severe IHs.13 Health Canada has not approved any β-blocker for IHs.

Implementation
Diagnosis of IH is primarily clinical. Biopsy, ultrasound, or magnetic resonance imaging might be required.14 Lesions that compromise the eyes, mouth, or airway; are on the midline of the lower back or the genital area; bleed or ulcerate; cause functional or cosmetic impairment; or fail to resolve by age 10 require further workup.15 As most uncomplicated IHs will resolve within 5 years, a wait-and-watch approach is reasonable. For parents who request treatment, options (although off label) include topical timolol (0.5%) twice a day for smaller, superficial lesions or 2 mg/kg of oral propranolol daily for thicker, larger lesions. For the latter, consider consultation with a dermatologist or pediatrician experienced in the use of propranolol in this young age group.

Dr Korownyk is Associate Professor and Dr Ross is Associate Professor, both in the Department of Family Medicine, and Dr Fiorillo is a pediatric dermatologist in the Division of Pediatric Dermatology, all at the University of Alberta in Edmonton.

The opinions expressed in Tools for Practice articles are those of the authors and do not necessarily reflect the perspective and policy of the Alberta College of Family Physicians.

References