Novel treatment for infantile hemangiomas

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),3 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.

References