Novel treatment for infantile hemangiomas

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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 RCT[1] (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 ($P\leq.02$) 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.

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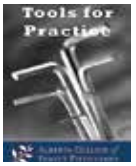

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