Treatment of Infantile Hemangiomas
A. Yasmine Kirkorian MD
Clinical Assistant Professor of Dermatology
Disclosures

• I have no conflicts of interest or relevant financial relationships to disclose.

• I will be discussing off-label uses for certain medications.
Objectives

(1) Evaluate which infantile hemangiomas require treatment.

(2) Identify the role for propranolol in treating infantile hemangiomas.

(3) Identify the role for the use of topical timolol in treating infantile hemangiomas.
### Benign vascular tumors

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>See Details</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Infantile hemangioma / Hemangioma of infancy</td>
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<tr>
<td></td>
<td>Congenital hemangioma</td>
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<tr>
<td></td>
<td>Rapidly involuting (RICH) *</td>
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<td></td>
<td>Non-involuting (NICH)</td>
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<td>Partially involuting (PICH)</td>
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<td>Tufted angioma *</td>
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<td>Spindle-cell hemangioma</td>
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<td>Epithelioid hemangioma</td>
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<td>Pyogenic granuloma (aka lobular capillary hemangioma)</td>
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<td>Others</td>
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#### Locally aggressive or borderline vascular tumors

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Kaposiform hemangioendothelioma * o</td>
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<td>Retiform hemangioendothelioma</td>
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<td>Papillary intralymphatic angioendothelioma (PILA), Dabska tumor</td>
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<td>Composite hemangioendothelioma</td>
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<td>Kaposi sarcoma</td>
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<td>Others</td>
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#### Malignant vascular tumors

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<th>Description</th>
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<tbody>
<tr>
<td>Angiosarcoma</td>
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<tr>
<td>Epithelioid hemangioendothelioma</td>
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<tr>
<td>Others</td>
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</tbody>
</table>
Who gets IH?

- 5-10% of all children
- Females
- Premature babies
- Multiple gestation babies
- Low birth weight babies
  - Most predictive
What are some potential complications of IH?

- Ulceration
- Disfigurement
- Cervicofacial ("beard") hemangiomas → can be a marker for subglottic and upper airway IH
- Orbital IH → visual impairment, amblyopia
- Proximity to Nose/Mouth → airway obstruction
- Association with underlying syndromes
  - Typically with segmental IH
Why are outpatient pediatricians on the frontline for prevention of complications of infantile hemangiomas?
Key Observations

- 65% of children in this study had a precursor lesion present AT BIRTH.
- Most rapid growth between 5.5-7.5 weeks.
- Other studies have shown that infants with IH are referred to specialists between 3-5 months of age.
- This study supports referral by 4 weeks of age.

Key Point: Consult vascular anomaly experts early for proliferating vascular lesions.
How do we treat IH?

A. Treatment is unnecessary, they will involute on their own in time
B. Propranolol
C. Hemangeol™
D. Prednisolone
CORRESPONDENCE

Propranolol for Severe Hemangiomas of Infancy


Christine Léauté-Labrèze, M.D.
Eric Dumas de la Roque, M.D.
Thomas Hubiche, M.D.
Franck Boralevi, M.D., Ph.D.
Bordeaux Children's Hospital, 33 076 Bordeaux, France
christine.labreze@chu-bordeaux.fr

Jean-Benoît Thambo, M.D.
Haut-Lévêque Heart Hospital, 33 600 Pessac, France

Alain Taïeb, M.D.
Bordeaux Children's Hospital, 33 076 Bordeaux, France
Hemangeol™

• First FDA approved drug for treatment of IH. Approved March 2014.
• Active ingredient is propranolol.
• FDA-approved with BID dosing for infants > 5 weeks of adjusted age.
Propranolol Initiation

• Admission criteria and monitoring are institution dependent
• General agreement that neonates and babies with comorbid conditions should be admitted for inpatient initiation
• All others started as outpatient
What are potential adverse effects of propranolol?

- Bradycardia
- Hypotension
- Hypoglycemia
- Acral cyanosis
- Sleep disturbances
- Diarrhea/GI symptoms
- Cognitive concerns (memory formation)
At what age should I refer a patient for evaluation for propranolol?

- AS EARLY AS POSSIBLE
- Maximal proliferation has taken place by 12 weeks of age
- Size of IH should be considered within the context of age of patient → a large IH in a 2-week-old is more likely to be problematic than in a similar lesion in an older child
Is there a treatment option for infantile hemangiomas that do not require systemic propranolol?

Topical Timolol Gel for small IH


RCT of timolol maleate gel for superficial infantile hemangiomas in 5- to 24-week-olds.
Chan H¹, McKay C, Adams S, Wargon O.
Timolol Application

• Timolol Gel Forming Solution 0.5%
• Apply 1 drop BID to the infantile hemangioma
• Do not apply to mucosal surfaces or ulcerated infantile hemangiomas
• Pediatricians could consider prescribing timolol for small, superficial non-ulcerated infantile hemangiomas

Note: This is an off-label use of this medication.
Summary

• Infantile hemangiomas (IH) are the most common vascular tumor of infancy.
• The majority of the proliferation in an IH has taken place by 12 weeks of age → early referral to a vascular anomalies specialist.
• Propranolol is now FDA approved for IH.
• Topical timolol gel is an alternate treatment option for small, focal superficial IH.
Questions?

A. Yasmine Kirkorian MD
akirkori@childrensnational.org