

# Hemangioma Propranolol Care Guideline - Inpatient



**Inclusion Criteria:** Children diagnosed with symptomatic Infantile Hemangioma (IH) or Hemangioma of Infancy (HOI); with underlying comorbidities (e.g. history of cardiac conditions (personal or family), blood sugar abnormalities, blood pressure issues, or a history of an extended NICU stay).

**Exclusion Criteria:** Severe cardiac abnormalities or disease that would contraindicate propranolol, along with bronchospasm or central nervous system (CNS) vascular abnormalities unrelated to hemangioma.

## Interventions

- Admit to Hematology service.
- If underlying cardiac history – obtain Cardiology consult and initiate cardio/respiratory monitoring.
- Obtain ENT consult if the hemangioma is in the beard distribution or involves the airway.
  - Consider PICU Admission, if needed.
  - Ensure close follow-up post-discharge.
- Consult Ophthalmology if there is any eye involvement.
- Labs may be ordered at the discretion of Hematology, includes DIC panel, CBC with diff/platelets and CMP.
- Based on clinical judgement, further imaging may be ordered (e.g., EKG, ECHO, ultrasound, Doppler, MRI, MRA).
- Propranolol dosing:
  - Start at 0.5 mg/kg/dose PO every 12 hours
  - if tolerated with no adverse effects for 24 hours, increase to 1 mg/kg/dose PO every 12 hours
- Measure blood pressure, heart rate, temperature and blood glucose level before each dose of propranolol and one hour after each dose.
- Diet: As appropriate for age
- Activity: As tolerated by the patient
- Ensure accurate intake and output (I+O) monitoring
- Maintain saline lock peripheral intravenous (PIV) access

## Recommendations/Considerations

- Monitor for adverse effects of propranolol, include lethargy, hypotension, bradycardia, hypoglycemia, restlessness, difficulty breathing/bronchospasm, cool clammy skin, delayed capillary refill, congestive heart failure, sleep disturbance, diarrhea, hyperkalemia and decreased appetite. If any of these occur, notify Hematology physician/medical provider.
- Abdominal ultrasound may detect visceral lesions or dilatation of the hepatic artery or portal vein (indicative of early cardiac compromise) and is recommended when there are 5 or more cutaneous hemangiomas.
  - Ultrasound may also be used to measure lesion maximal thickness and resistivity.
- May evaluate for segmental hemangiomas (suggestive of PHACE syndrome) with transcranial Doppler, magnetic resonance imaging (MRI) and magnetic resonance angiography (MRA) of head and neck.
- Consider LUMBAR syndrome if lesions are large and involving lower body; evaluation should include ultrasound/MRI of the spinal canal and renal ultrasound.

## Discharge Criteria

- Discharge when vital signs are stable and patient is tolerating propranolol.
- Instruct family to take weekly photos of the lesion(s). Email photos to [VAC@choc.org](mailto:VAC@choc.org)
- Contact Information for follow-up appointments:
  - Call the Vascular Anomalies Center - (714) 509-7985.

## Continued Recommendations/ Considerations

- Propranolol hydrochloride is a non-selective beta blocker and is associated with reducing the size and color of hemangiomas of the head and neck. It is considered the first-line treatment of hemangiomas of the orbit and larynx.
- Duration of therapy is determined by the location of the hemangioma and the patient's response to treatment.
- Healthy children > 3 months of age, may have propranolol therapy as outpatients if they have no history of cardiac conditions (personal or family), blood sugar abnormalities, blood pressure issues, or a history of an extended NICU stay.
- Admission for initiation of therapy is at the discretion of the provider.

## Patient Education

- Propranolol often causes reflux. Call Vascular Anomalies Center if reflux is concerning.
- Education on the potential side effects such as lethargy, poor feeding, loose stools, and bronchospasm.
- Ensure parents receive education materials on recognizing side effects of propranolol, reflux management, and when to seek medical attention.

## *Hemangioma Propranolol Care Guideline – Inpatient References*

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- Frongia, G., Byeon, J. O., Mehrabi, A., & Günther, P. (2021). Recurrence rate of infantile hemangioma after oral propranolol therapy. *European Journal of Pediatrics*, *180*(2), 585-590. <https://doi.org/10.1007/s00431-020-03872-5> (Level III)
- Tan, X., Guo, S., & Wang, C. (2021). Propranolol in the treatment of infantile hemangiomas. *Clinical, Cosmetic and Investigational Dermatology*, *14*, 1155-1163. <https://doi.org/10.2147/CCID.S332625> (Level V)
- Tiemann, L., & Hein, S. (2020). Infantile hemangioma: A review of current pharmacotherapy treatment and practice pearls. *The Journal of Pediatric Pharmacology and Therapeutics: JPPT: The Official Journal of PPAG*, *25*(7), 586-599. <https://doi.org/10.5863/1551-6776-25.7.586> (Level V)