

Description: VAC meds: propranolol inpatient initiation guidelines

Inpatient initiation of propranolol: Suggested for infants <8weeks of gestationally corrected age or with co-morbid conditions

Ensure appropriate indication

Review contraindications and ensure no contraindications

Confirm normal cardio-respiratory exam or ECG and baseline vital signs

Initiate propranolol 0.33mg/kg PO q8hrs (1mg/kg/day)

Check BP and HR at 1 and 2 hours after first 1-3 doses

IF NOT TOLERATING - reduce starting dose by one third to one half and gradually increase to 0.33mg/kg PO q8hrs

If tolerated, increase dose to 0.6mg/kg PO q8hrs (2mg/kg/day)

Check BP and HR at 1 and 2 hours after first 1-3 doses

IF NOT TOLERATING:

EITHER

Escalate at slower rate of 0.5mg/kg PO q8hrs

Gradually increase to target dose of 0.66 mg/kg

OR

Plan to discharge on 1mg/kg/day and assess dose efficacy

PLEASE CONTACT PEDIATRIC DERMATOLOGY TO DISCUSS THIS DECISION

If tolerated, prepare for discharge:

Counsel parents to:

1. Ensure minimum of 6 hours between doses
2. Recognize signs of hypotension, bradycardia, and hypoglycemia
3. Feed regularly and hold medication if PO intake compromised
4. Advise them to contact pediatric dermatology with any signs of symptomatic hypotension, hypoglycemia, or bradycardia

Discharge to home

From

Pediatrics. 2013 Jan;131(1):128-40. doi: 10.1542/peds.2012-1691. Epub 2012 Dec 24.

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Alternative start from World Congress of Pediatric Dermatology 2017:

At risks infants:

< or equal to 5-8 weeks corrected age

Small for gestational age or < or equal to 2.5-3.5kg

Infants with other clinical/social concerns

Initiate therapy as an inpatient

23 hours observation (but may need more)

- HR and BP hourly x3
- glucose at hour 3 with first dose and with dose increase (of note, not all practitioners check glucose, but if not checking, monitor for symptomatic hypoglycemia)

Lower initial dose (e.g., 0.5mg/kg/day or less)

3+ doses in house

More gradual dose increase

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Notes on cardiovascular monitoring from pediatrics article:

The peak effect of oral propranolol on HR and BP is 1 to 3 hours after administration. Patients should be monitored with HR and BP measurement at baseline and at 1 and 2 hours after receiving the initial dose, and after significant dose increase (>0.5 mg/kg/day), including at least 1 set of measurements after the target dose has been achieved. If HR and BP are abnormal, the child should be monitored until the vitals normalize. Dose response is usually most dramatic after the first dose; therefore, there is no need to repeat cardiovascular monitoring multiple times for the same dose unless the child is very young or has comorbid conditions affecting the cardiovascular system or the respiratory system including symptomatic airway hemangiomas. Bradycardia is important to recognize because the accurate measurement of BP in infants may be challenging. HR is simple to measure, and normative data for inappropriate bradycardia have been established as follows:

- Newborns (<1 month old), <70 beats per minute
- Infants (1-12 months old), <80 beats per minute
- Children (>12 months old), <70 beats per minute

Systolic BP varies significantly between 1 month and 6 months of age, so normative data are difficult to interpret. Moreover, most pediatric normative BP tables were designed to evaluate for hypertension, not hypotension, and are based on auscultatory measurements. Oscillometric devices are convenient and minimize observer error, but they do not provide measures that are identical to auscultation. Obtaining accurate BP measurements in neonates and infants may be challenging, and BP measurements should be obtained by experienced personnel. The infant should be in a warm room and in a resting state, awake or asleep. The use of an appropriately sized infant cuff is essential. The inflatable portion of the cuff should encircle >75% of the limb circumference, and the length of the cuff should be at least two-thirds of the length of the upper limb segment. Specific age-based normative parameters for identification of systolic hypotension in infants are difficult to provide; as a general guide, we would describe systolic BP that is below normal (less than fifth percentile oscillometric or <2 SD of normal auscultation)¹¹⁹ as follows:

Newborn: <57 mm Hg (<5th percentile oscillometric) or 64 mm Hg (2 SD auscultation)
6 months: <85 mm Hg (<5th percentile oscillometric) or 65 mm Hg (2 SD auscultation)
1 year: <88 mm Hg (<5th percentile oscillometric) or 66 mm Hg (2 SD auscultation)
Patients who have HR and systolic BP measurements below these values during propranolol initiation/dose escalation warrant careful evaluation for additional evidence of cardiovascular compromise and should be considered at higher risk for continued propranolol use at that dose/continued dosage escalation.

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Contraindications to Propranolol Therapy

Cardiogenic shock
Sinus bradycardia
Hypotension
Greater than first degree heart block
Heart failure
Bronchial asthma
Hypersensitivity to propranolol hydrochloride

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Pretreatment ECG

Routine ECG screening before initiation of propranolol for hemangiomas has been advocated, although the utility of ECG screening for all children with hemangiomas before initiation of propranolol therapy is unclear. In the future, a more indication-driven ECG strategy is likely to develop because the incidence of ECG abnormalities that would limit propranolol use in children with IH appears low. For example, congenital complete heart block is rare, with an estimated prevalence of 1 in 20,000 live births, and this is most commonly associated with maternal connective tissue disease. Consensus was not achieved on the use of ECG for all children with IH, but ECG should be part of the pretreatment evaluation in any child when the HR is below normal for age:

- newborns (<1 month old), <70 beats per minute,
- infants (1-12 months old), <80 beats per minute, and
- children (>12 months old): <70 beats per minute.
- there is family history of congenital heart conditions or arrhythmias (e.g., heart block, long QT syndrome, sudden death), or maternal history of connective tissue disease.
- there is history of an arrhythmia or an arrhythmia is auscultated during examination.

Because structural and functional heart disease have not been associated with uncomplicated IH, echocardiography as a routine screening tool before initiation of propranolol is not necessary in the absence of abnormal clinical findings.