

Propranolol for Treatment of Infantile Hemangiomas

What is Propranolol? Propranolol is a medicine that is commonly used to treat high blood pressure and other medical conditions. Since 2008, it has also been used to treat infantile hemangiomas that are causing problems. Propranolol can cause the hemangioma to shrink in some patients.

How does Propranolol work in infantile hemangiomas? Propranolol can help to stop the growth of blood vessels and shrink existing blood vessels within the hemangioma.

When can Propranolol be used? Not all hemangiomas need to be treated with medicine. Propranolol may be used if your baby has hemangiomas that are:

- In the airway
- Around or near the eye
- Around the mouth or on the lips
- In or near the ear canal
- On the tip of the nose
- On the face and likely to leave a scar if untreated
- In diaper area
- In skin creases
- Bleeding or have open sores (ulceration)
- Very large

How effective is Propranolol at treating infantile hemangiomas? Propranolol works best when started during the time when the hemangioma is growing in babies up to 6 months of age. The medicine works very quickly and most families notice improvement within 24 to 48 hours. If the medicine is working you should see the following signs within a week:

- Decreased growth rate
- Fading color
- Softening of the hemangioma

Propranolol may also be helpful if it is started after the hemangioma has grown, even if the child is over 12 months old. It may help the hemangioma get smaller faster and eventually disappear. Some extra skin changes such as enlarged capillaries (telangiectasia), scarring, or fibrofatty tissue may remain.

How long will my baby need treatment? Treatment is usually between 6-12 months. It may be longer depending on the size and location of the hemangioma and how the hemangioma responds to treatment. We will meet with you and your baby in clinic every 2-4 months during treatment. This will allow us to make sure the medication is working for your baby. We may adjust how much medicine your baby needs as your baby gains weight. The medication should not be stopped without a slow decrease in the dose over a few weeks. Near the end of treatment, we will slowly lower the amount of medicine your baby is taking until they completely stop. We will watch to see if the hemangioma begins to return. If it returns, we may have the baby take the medicine for a few more months.

How do we start treatment? Because Propranolol can affect your baby's heart rate and blood pressure, your baby will have a full exam by a heart doctor (cardiologist) before starting this medicine. At this appointment, we will check your baby's blood pressure and heart rate. We will also do an electrocardiogram (ECG or EKG) to test the electrical pathway of your baby's heart. Once the heart doctor says your baby has been approved to start using Propranolol they will write a prescription for the medication and tell you on how much medicine to give. Your baby will begin on only half the amount of the medication. This allows us to see how well your baby will tolerate the medicine. You will receive a phone call 1-2 weeks after you start giving your baby the medication to see how your baby is doing. We will then give you instructions on how to increase to the full dose of medication. We will also make sure you have an appointment to be seen in our hemangioma clinic in 1-2 months.

Most of the time, Propranolol treatment can be started outpatient. However, sometimes, it is necessary to admit your baby to the hospital to start this medication. This is a special precaution we take to monitor your baby for any significant side effects from the medication. This hospital admission is usually 3 days/2 nights long. During this hospital stay, your child will get an EKG and echocardiogram (ECHO) which is an ultrasound of the heart. Your child will also be seen by a cardiologist before starting the medication. We will monitor your child's blood sugar, heart rate, and blood pressure while he/she starts on a low dose of Propranolol. Your baby will go home if he/she tolerates 2 full doses of Propranolol without any significant side effects.

Your baby will need to be admitted to start Propranolol treatment if he/she has one or more of the following:

- Is less than 3 months of age
- Was born premature (36 weeks or less)
- Has a history of hypoglycemia (low blood sugar) during the neonatal period
- Has other underlying medical issues

How should I give it? Propranolol comes in a liquid form and is given by mouth. It may be given with or without food. We recommend giving it one hour after feeding. The medication is usually given twice a day. Your child should be awake and alert when taking any medicine.

Instructions to give the medicine include:

- Shake well before using
- Draw up the correct amount in the medicine dropper or syringe
- Give a small squirt of medicine inside the cheek
- To avoid choking, let your baby swallow each squirt before giving more

If your child has trouble taking the medicine by itself, you may mix the medicine with a small amount of formula or breast milk and give it with a bottle nipple before feeding. Do not add the medicine to a whole bottle because if your baby does not finish the whole bottle you will not know how much of the medicine was taken. Do not mix the medicine into hot drinks, because the heat may harm the medicine.

Are there any precautions about food or other medicine?

Propranolol may not work well with other medications. Tell your child's doctor if your child is taking any other medicines, especially any of the following:

- Medicines to treat heart rhythm problems
- Blood pressure medication
- Asthma medication
- Blood thinners
- Corticosteroids (e.g. Prednisone)

What should I do if a dose is missed? If a dose of the medication is missed, give it as soon as you remember, unless it is less than 9 hours until the next dose. If it is less than 9 hours until the next dose, skip the missed dose and continue with the regular schedule. **Never give two doses or give doses too close together.** If your baby throws up within 30 minutes after receiving the dose, give it again. If your baby throws up the second dose, do not repeat it again.

What are the risks and side effects? Propranolol is generally safe. Side effects are uncommon, and more likely to happen in low birth weight babies. Side effects may include:

Occasional

- Diarrhea
- Gassiness/spitting up
- Sleepiness
- Irritability and fussiness
- Cool hands/feet

Rare

- Low blood pressure (hypotension)
- Slowed heart rate (bradycardia)
- Low blood sugar levels (hypoglycemia)

When should I call the hemangioma/vascular anomalies clinic? Call the clinic if:

- Your child is sleeping more
- Your child is unable to fall asleep or sleeping less than usual
- Your child is not feeding well
- The hemangioma is growing
- There is ulceration (open wound) or bleeding from the hemangioma
- Signs of allergic reaction: rash or hives, wheezing, or trouble breathing- **call 911**