



Great Ormond Street Hospital for Children NHS Foundation Trust: Information for Families

Treating haemangiomas with propranolol

This information sheet explains how haemangiomas can be treated with propranolol, a medicine traditionally used to treat high blood pressure. Not all haemangiomas are suitable for this form of treatment. Information about haemangiomas in general and other treatment options are detailed in our *Haemangiomas* booklet available from the Birthmark Unit, Pals Office or on our website.

What is a haemangioma?

A haemangioma is a collection of small immature blood vessels. They are sometimes called 'strawberry marks' because the surface of some haemangiomas look a bit like a strawberry. Haemangiomas can be superficial or deep in the skin. Some haemangiomas are a combination of the two, seen as a raised red area on the surface of the skin, and as a bluish swelling deeper in the skin. Very occasionally haemangiomas may occur internally.

Haemangiomas are not usually obvious at birth but become apparent within a few days or weeks. They grow rapidly in the first three months, increasing in size and sometimes in redness. It is unusual for haemangiomas to grow after six to ten months of age, when most haemangiomas tend to have a 'rest period' and then begin to shrink.

What is propranolol?

Propranolol is a beta-blocker. Some nerves release a chemical called noradrenaline when they are stimulated, which in turn stimulates 'beta adrenergic receptors'. These can cause a variety of effects. For instance, if the beta adrenergic receptors in the heart are stimulated, the heart pumps harder and faster than before, so more blood is pumped around the body. Beta-blocker medicines block the beta adrenergic receptors and stop them being stimulated.

How does propranolol help with haemangiomas?

By blocking the beta adrenergic receptors, propranolol can make blood vessels narrower, reducing the amount of blood flowing through them. This is particularly effective in haemangiomas, by reducing the colour and making them softer.

Growth of the haemangioma cells is also limited by propranolol so that the haemangioma starts to reduce in size. More research is needed to fully understand how propranolol works. The beneficial effects are usually seen very quickly.



Does propranolol have side effects?

Propranolol may be associated with a number of side effects, which happen very rarely. However, you should report any of the following to your doctor as the dose of propranolol may need to be altered or, on very rare occasions, stopped.

- Bradycardia (slow heart rate)
- Hypotension (low blood pressure)
- Bronchospasm (temporary narrowing of the airway, leading to wheezing and coughing)
- Peripheral vasoconstriction (reduced blood flow to the extremities, such as fingers and toes, making them feel cold and blue)
- Weakness and fatigue, showing as floppiness and disinterest in surroundings
- Sleep disturbance
- Hypoglycaemia (low blood sugar)
- Gastrointestinal disturbances such as constipation or diarrhoea

If you have any concerns about these side effects, please discuss them with your doctor, nurse or pharmacist.

Are any tests needed before starting propranolol treatment?

Occasionally we will suggest some tests to check that your child can safely take the medicine. These may include blood and urine tests, an electrocardiogram (ECG) and echocardiogram (Echo). If your child has multiple haemangiomas visible on the skin, we may also carry out an abdominal ultrasound scan to look for any haemangiomas in the liver.

What happens when my child starts treatment?

Some infants will be monitored for two hours after the first dose. This monitoring allows the doctors to be absolutely sure your child can tolerate the prescribed dose. The procedure is occasionally repeated after one week when the dose is increased, although the dose is normally increased at home.

What dose should my child take?

Your child's dose is worked out depending on their weight. This will mean that the dose may change over time as your child grows. At GOSH, we supply propranolol as a 5mg/5ml liquid - that is 5ml of liquid contains 5mg of the active ingredient.

In the UK, three strengths of propranolol oral solution are available: 5mg/5ml, 10mg/ml and 50mg/ml. Owing to incidents where propranolol 50mg/5ml has been dispensed by pharmacists instead of 5mg/5ml, parents are asked to check the dose before giving it to your child. Ideally any strength other than 5mg/5ml should be avoided to minimize any risk of giving the wrong dose.

- Propranolol is usually given three times a day, eight hours apart.
- We advise giving your child at least 2oz of milk with the evening dose. Babies must also have a milk feed during the night.
- Your child should not have the anti-wheezing medicine salbutamol (by inhaler or nebuliser) while taking propranolol as the two medicines have opposing effects.



- Teething gels containing lignocaine should not be given to babies taking propranolol. Some pharmacies sell teething powders that do not contain lignocaine and are safe.
- Paracetamol does not react with propranolol so can be given safely according to the instructions on the bottle.
- Always check with your doctor or pharmacist before giving your child any other medicine, including medicines on prescription from your family doctor (GP), medicines bought from a pharmacy (chemist) or any herbal or complementary medicines.

If you have any queries about propranolol, please talk to your nurse, doctor or pharmacist.

How long does treatment last?

In our experience, treatment with propranolol until 14 to 18 months of age is usually sufficient to reduce the haemangioma so that it does not cause any problems. Ideally, the dose of propranolol should be reduced gradually rather than stopped suddenly.

What happens next?

Most haemangiomas will have disappeared completely by the age of five to seven years. Large haemangiomas may continue to get smaller until your child is about 10 years old. Depending on the size and location of the haemangioma, there may be little sign it ever existed. For more information about the possible effects of a haemangioma, please see our *Haemangiomas* booklet available from the Birthmark Unit, Pals Office or on our website.

Where to get further information

Birthmark Unit

Tel: 020 7405 9200 ext 1113

Support groups

The Birthmark Support Group offers support and advice to parents of children with all types of birthmark. Telephone their helpline on 0845 045 4700 or visit their website at www.birthmarksupportgroup.org.uk

Changing Faces is another organisation that will be able to offer help and support to anyone living with a condition that affects their appearance. Visit their website at www.changingfaces.org.uk or telephone their helpline on 0845 4500 275.

Compiled by the Birthmark Unit in collaboration with the Child and Family Information Group

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