



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

Treating subglottic haemangiomas with propranolol

This information sheet explains how haemangiomas in the airway can be treated with propranolol, a medicine traditionally used to treat high blood pressure. Propranolol has been used successfully in France and the United States and is now being used at Great Ormond Street Hospital (GOSH). Not all of the haemangiomas are suitable for this form of treatment. Information about haemangiomas in general and other treatment options are detailed in the Haemangioma booklet available from PALS office or our website.

What is subglottic haemangioma?

A haemangioma is a collection of small blood vessels that occur under the skin, sometimes called 'strawberry marks'. Similar collection of blood vessels can occur in the air passage beneath the vocal cords. These are called "subglottic haemangiomas". Nearly half of the patients with a subglottic haemangioma also have a skin haemangioma.

In general, haemangiomas are not usually obvious at birth, but become apparent within a few weeks of birth. They grow rapidly in the first three months and can cause symptoms. Children with subglottic haemangioma usually will have noisy breathing, but normal cry. Subglottic haemangiomas are diagnosed using a microlaryngoscopy and bronchoscopy (MLB) test. An MLB allows the doctor to look into your child's airway (larynx and bronchi) using a small telescope. This telescope is contained in a piece of equipment called an endoscope. Further information about MLB is available in another information sheet, so please ask for a copy.

Usually haemangiomas grow up to six to ten months of age, then tend to have a rest period and then begin to shrink.

How are subglottic haemangiomas treated?

The treatment options for subglottic haemangiomas include medical treatment (steroids or propranolol) or surgery to remove the haemangioma, depending on its size and position.

The traditional medical treatment has been steroids. The steroid treatment usually needs to be given for five to six months and then gradually stopped.

Propranolol is now being used as an alternative to steroid treatment or if steroids have not worked very well previously. Propranolol is not suitable for everyone and children started on propranolol treatment have to be monitored closely, before, during and after treatment.

What is propranolol?

Propranolol is a beta blocker. Nerve endings release a chemical called noradrenaline which stimulate beta adrenergic receptors. Beta blocker medications block the beta adrenergic receptors and stop them being stimulated.



How does propranolol help with subglottic haemangioma?

By blocking the beta adrenergic receptors, propranolol can tighten the blood vessels, reducing the amount of blood flowing through them. This is especially helpful in haemangiomas, as it reduces the blood flow through them. Also the cells that cause the growth of the haemangioma are also affected by propranolol so the subglottic haemangioma starts to reduce in size.

What are the side effects of propranolol treatment?

Propranolol is associated with some side effects which happen rarely. These include

- 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 fingers and toes, making them feel cold)
- Weakness and fatigue
- Sleep disturbance and sometimes nightmares
- Hypoglycemia (low blood sugar)

You should report any of these to your doctor as the dose of propranolol may need to be altered or maybe stopped.

What tests are needed before starting propranolol treatment?

Before your child is started on propranolol treatment, we need to do a range of tests including blood and urine tests, electrocardiogram (ECG) and an echocardiogram (Echo). Other investigations may also need to be done.

What happens when my child starts treatment?

For the first few hours after starting treatment, your child will be closely monitored. We need to check your child's pulse and blood pressure every half hour to ensure that they have not dropped too low. This close monitoring allows the doctors to be sure that your child can tolerate the dose prescribed. For the first two weeks after starting treatment, your child's blood pressure needs to be checked twice a week. After that, they will need weekly blood pressure checks for the duration of the treatment.

What dose should my child take?

The dose of propranolol is worked out depending on your child's weight. At GOSH, propranolol is supplied as a 5mg/5ml liquid, that is, 5ml of liquid contains 5mg of the active ingredient. The British Society for Paediatric Dermatology has highlighted that there are three strength of propranolol oral solution: 5mg/5ml, 10mg/ml and 50mg/ml. Following incidents where propranolol 50mg/5ml has been dispensed by pharmacists instead of 5mg/5ml, parents are asked to check the dose with your pharmacist before giving it to your child. Ideally any other strength should be avoided to minimize any risk of the wrong dose being given to your child.

How long does treatment last?

In general, treatment with propranolol up to 12 months of age is usually sufficient to reduce the subglottic haemangioma. Propranolol treatment should not be stopped suddenly so your child's medicine will be reduced gradually over a period of weeks.



What happens next?

Your child's subglottic haemangioma will be monitored regularly, using MLB as before. The first MLB is carried out six weeks after starting propranolol to check whether it is shrinking. Follow up MLB tests are carried out every three months until the subglottic haemangioma has resolved completely.

Where to get further information?

Great Ormond Street Hospital

Peter Pan Ward

Tel: 020 7829 8825

Out of hours, please call 020 7405 9200 and ask to speak to the ENT doctor on call.

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