

Patient information

Retinopathy of Prematurity (ROP)

If your baby was born before 32 completed weeks of pregnancy or weighed under 1500g, your doctor will ask an ophthalmologist (hospital eye specialist) to examine your baby's eyes for Retinopathy of Prematurity (ROP).

The premature baby's eyes

When growing in the womb, all of your baby's organs were developing in a protected environment. Even after 40 weeks (full term) of pregnancy the eyes are not fully developed and changes occur to improve the infant's vision over the first year of life.

The retina is the inner lining of the back of the eye which is sensitive to light and can be likened to the film of a camera. The retina receives its blood supply from the blood vessels. These vessels gradually grow during early pregnancy from the optic nerve at the back of the eye forward to supply the front retina just before full term of pregnancy. If the baby is born prematurely the blood vessels will not have reached the front part of the retina at birth, leaving it short of oxygen and nutrients.

What is ROP?

Retinopathy of prematurity (ROP) is the name of the disease that frequently affect the eyes of very small premature babies. We are not sure of all the reasons why,

but the blood vessels in the retinas of some premature babies develop abnormally and this is called ROP. The risk of developing ROP is higher the smaller and more premature the baby is, and is also increased if a lot of oxygen therapy has been needed. In spite of the best care that the neonatal unit can give, ROP still develops in some babies.

Most babies who are examined for ROP have very mild forms of the condition. These mild forms, called stage 1 and stage 2. Stage 1 and stage 2 usually get better by themselves, do not require treatment and do not cause any long term visual problems. A small proportion of babies however will develop a more severe form of ROP called stage 3. In this stage of ROP abnormal blood vessels appear on the retina, and if allowed to progress, can distort it or even pull the retina off the back of the eye. This is called retinal detachment and would require frequent eye examinations, and treatment for the ROP may be recommended.

Severe ROP

Babies who develop stage 3 retinopathy are at risk of serious loss of vision. Half of those babies who have severe stage 3 ROP will become blind due to retinal detachment and scarring, if treatment is not undertaken. Fortunately, treatment with laser or cryotherapy can prevent most babies with severe stage 3 ROP from becoming blind by stopping the scarring that leads to retinal detachment.

Screening for ROP

Since we are unable to predict which babies will develop the more severe form of ROP which needs treatment, babies whose birth weight is less than 1500g and/or those born before 32 weeks of pregnancy are examined regularly to check for the condition. The ophthalmologist will initially see your baby six weeks after delivery

and then re-examine your baby's eyes every week or fortnight after that until it is felt that your baby is no longer at risk.

The eye examination

The eye examination is carried out at the cot-side in the neonatal unit. Your baby is given some eye drops about an hour before the examination. This will dilate your baby's pupils to make it easier for the ophthalmologist to see the back of both eyes. The nurse looking after your baby will assist the doctor, by holding your baby still while the eye examination is performed. Just before the examination a numbing anaesthetic drop is put in each eye. It is necessary to use a small clip (speculum) to keep the eyelids open and a probe to move the eye into different positions so that the whole retina can be seen. The ophthalmologist may need to take some photographs of your baby's eyes.

Will the examination hurt my baby?

Premature babies are sensitive to any handling, and although the examination may be stressful its importance in preventing blindness means that the eye examination must be carried out. The ophthalmologist is trained to perform the examination quickly with minimal discomfort to your baby. Your baby may cry because he/she is being examined and it is a bit uncomfortable however as soon as the examination is over he/she will settle back to sleep. Following the examination your baby's eyes may be a little red or swollen, but this will usually settle within 24 hours.

What if treatment is necessary?

If your baby develops severe ROP then treatment may be recommended. The usual form of treatment is laser therapy. Laser therapy has been used for many years to

treat adult forms of retinal problems. During laser treatment the ophthalmologist directs a bright beam of laser light through the pupil of the eye. The laser light is used to treat the front part of the retina and results in the shrinking away of the abnormal blood vessels. Usually only one laser session is needed, however sometimes re-treatment is necessary.

If laser treatment is recommended for your baby the procedure is usually performed at Addenbrooke's Hospital in an enclosed room in the neonatal unit. Your baby will be sedated and given pain relief to keep him/ her comfortable. Treatment takes about 50 minutes for each eye. Adults who have had a similar procedure tell us that the eye does ache during treatment; however this usually passes quite quickly.

In some cases eye injections may be needed to stop the abnormal blood vessels from growing and bleeding.

Are there any risks to the baby?

Generally, the risks of this treatment are small and no more than the risks of any kind of surgery on a premature baby. The primary risk is from the general anaesthetic and ventilation required if cryotherapy is necessary. It may take time for the baby to breathe without the ventilator again especially if the baby has had breathing problems. Complications from general anaesthesia can occur but the risks are very low. These risks can be avoided if laser treatment is used, since this treatment does not require an anaesthetic. Some babies do require extra oxygen and, very occasionally, ventilation during the laser procedure.

Are there any risks to the eye itself?

The tissues around the eyeball may be quite swollen and red for several days after treatment- especially if cryotherapy has been used. Occasionally bleeding can occur at the back of the eye following treatment, however this usually resolves by itself without any treatment.

Cataract formation is a serious, but fortunately rare complication of laser treatment. A cataract is a cloudiness of the lens of the eye and if this occurs after treatment, surgery may be required to remove it. Laser works by destroying the front areas of the retina in order to preserve the sight of the more important central retina, and this may result in some reduction of the child's future side vision (visual field).

Other eye problems associated with prematurity

Children who are born very prematurely may develop other eye problems besides ROP. This includes a squint (misalignment of the eyes) and short sight (myopia). Some premature babies have injuries to the part of the brain which interprets visual signals from the eyes and this can lead to poor vision, known as cerebral visual impairment.

Babies who are born prematurely should be seen by a hospital eye specialist (orthoptist or ophthalmologist) during the first few years to ensure that their vision is developing normally.

Any other questions?

The ophthalmologist visits the neonatal unit on a weekly basis. If you have any questions regarding your baby's eyes or vision please ask the doctors or nurses

looking after your baby when this visit is due and the ophthalmologist will be pleased to discuss any concerns you may have.

If you wish to contact the Eye Department

Telephone 01284 713815 / 01284 712636

Monday - Thursday 9.00 am - 5.00 pm

Friday 9.00 am - 1.00 pm

At the weekend and out-of-hours

Telephone 01284 713000 and ask to speak to the 'on-call' ophthalmic doctor

West Suffolk NHS Foundation Trust is actively involved in clinical research. Your doctor, clinical team or the research and development department may contact you regarding specific clinical research studies that you might be interested in participating in. If you do not wish to be contacted for these purposes, please email info.gov@wsh.nsh.uk. This will in no way affect the care or treatment you receive.

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