

Treatment for Retinopathy of Prematurity

The following information answers some of the questions you may have about treatment for your child's retinopathy of prematurity.

Why is treatment for retinopathy of prematurity needed?

Retinopathy of prematurity (ROP) is an eye disease caused by abnormal growth of blood vessels in the retina of premature babies. ROP can cause permanent damage to the retina if it becomes severe. Without treatment, severe ROP can seriously damage your baby's vision.

What does the treatment involve?

There are two options for the treatment of ROP: laser treatment to the peripheral retina, or injection of a medicine into the eye.

1. Laser treatment

Laser treatment is generally considered the gold standard treatment. It has been studied and successfully used to treat ROP for about four decades.

The laser works by heating the unhealthy retinal tissue (the retina that has no blood supply) in order to preserve the healthy central retina. Laser may therefore have a permanent adverse effect on your child's peripheral vision, depending on the size of the area that needs treatment. Other risks of laser treatment include nearsightedness (need for strong glasses), central visual loss from an inadvertent laser burn to healthy retina, inflammation inside the eye, bleeding, cataract (clouding of the lens), and treatment failure meaning that additional procedures may be needed to treat the ROP.

Laser treatment requires an anesthetic (being put to sleep), which presents additional risks.

2. Injection

Injection of a medicine (called *bevacizumab*) into the eye is a newer treatment that has been shown to be effective for ROP. This type of medicine was originally developed and approved to treat cancer, but it is now routinely used to treat eye diseases that involve abnormal blood vessels. Although it is not licensed for the treatment of ROP in Canada, these medicines have been widely used as an 'off-label' treatment for over a decade.

This medicine works by 'switching off' one of the signals in the eye that drives this disease. The abnormal blood vessels in ROP tend to improve very quickly after this treatment. One of the main benefits of injection over laser is that it does not damage the peripheral retina, so the retinal blood vessels have a chance to continue to develop normally. This treatment can usually be done at the bedside with an anesthetic eye drop and mild sedation (babies do not need to be given a general anesthetic for this treatment).

There are different risks with this treatment when compared to laser. The needle can cause unwanted damage to the eye such as cataract, bleeding inside the eye, and retinal tears or detachment. The injection can raise the eye pressure, which may interrupt retinal blood flow and cause permanent visual damage. Rarely, the needle may introduce bacteria inside the eye and cause a very severe infection inside the eye; this is difficult to treat and can lead to the loss of the eye.

The main concern with this injection, however, is the lack of long-term safety data. We know that small amounts of this medicine will get into the bloodstream where it may theoretically have harmful effects elsewhere in the body. There is no evidence at this time to prove that this happens, but the data is currently lacking.

Babies with ROP treated with injection need much longer follow-up with the eye doctor, and have a higher chance of needing additional treatment with laser compared to those treated with laser initially. This is because the ROP can come back many months after the injection. However, laser is much safer when it can be done on an older infant, as the anesthetic risks are lower. There will also have been time for the blood vessels to grow further across the retina, meaning that a smaller area of retina requires treatment with laser.

If you have any questions or concerns:

Please ask your nurse or the eye doctor when you see them.

Next Review: May, 2025

Children's Eye Clinic © 2000, 2020, 2021
Index # 134.21.01
Reproduction with permission only

This content is reviewed periodically and is subject to change as new health information becomes available. The information is intended to inform and educate and is not a replacement for medical evaluation, advice, diagnosis or treatment by a healthcare professional.