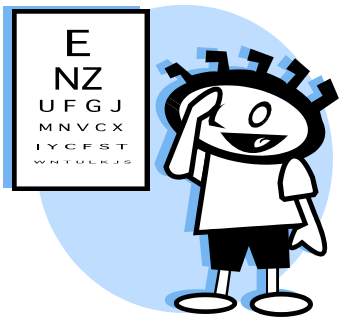
CHALLENGES OF PREMATURITY

PART II

ROP



Retinopathy of prematurity (ROP) is another serious medical challenge that premature infants may face. ROP was formerly known as retrolental fibroplasia and is characterized by the development of abnormal blood vessels and scar tissue over the retina. These abnormal blood vessels occur when the growth of normal blood vessels is stopped suddenly at birth and then starts again. It is thought that lack of oxygen in areas of the retina that haven't developed blood vessels results in the release of chemicals that promote the growth of new, abnormal blood vessels. The main risk factor for ROP is premature birth. All infants younger than 30 weeks gestation or weighing less than three pounds are screened for this condition. The first examination is done four to nine weeks after birth. ROP is most common in infants less than 28 weeks old and/or those weighing less than 1250 grams.

The retina is the tissue at the back of the eye that is directly responsible for our vision. The retina is relatively like the film in a camera and is responsible for the formation of the images that we see. The retina transmits this image through the optic nerve and on to the brain for processing. The normal development of the retinal blood supply starts at 16 weeks of pregnancy and is completed at 36 weeks.

The exact cause of ROP is not completely understood. Clearly, birth before complete development of retinal vasculature is a risk factor. The more premature the infant is, the greater the risk of developing the disorder. The largest external factor contributing to ROP is the use of supplemental oxygen. Almost all premature require supplemental oxygen to support their premature lungs, but long term use of high flow oxygen predisposes an infant to developing ROP since the oxygen promotes the growth of the abnormal blood vessels in the retina. Other risk factors may include: apnea, heart disease, infection, and transfusions.

These abnormal blood vessels that develop in preemie's eyes are more fragile than normal blood vessels and may leak blood into the baby's eyes. Scar tissue formation is common with ROP. Both of these problems may stretch the retina, causing it to detach from the back of the eye and leading to permanent blindness. Babies that have had ROP are also at greater risk for glaucoma, nearsightedness, and cataracts. ROP has five stages with Stage I showing mildly abnormal blood vessel growth and Stage V showing total retinal detachment. The disease is also staged by dividing the back of the eye into three circumferential rings. The diagnosis is made by examining the dilated eye with an indirect ophthalmoscope.

Milder forms of ROP resolve spontaneously. The mainstay of treatment is called peripheral retinal ablation. Lasers are used to destroy avascular areas of the retina. By destroying the retina, the stimulus for abnormal blood vessel growth is removed. This procedure is usually very successful. If the disease has progressed to retinal detachment, surgery may be performed at one of the few centers in the world that specialize in this.

The first two states of ROP do not lead to blindness. Stage III with extension of blood vessels into the zones surrounding the optic disc has a 50% chance of leading to retinal detachment. The last two stages generally result in partial to total blindness. ROP is becoming more common as younger and younger