Blood flow in low tension glaucoma

In this type of glaucoma we believe not enough blood reaches the tiny arteries in the optic nerve, the nerve at the back of the eye. However, we do no know why this is. Treatment, drops in older patients, surgery sometimes in younger patients, is aimed at letting more blood reach these tiny vessels.

To do this, the treatment needs to lower the pressure in the eye so more blood can flow in.

Blood flow into the eye

Blood from the heart flows towards the head, and then to the eye. Behind the eye the blood flows in a small artery, and just behind the eye a small blood vessel enters the optic nerve itself.

Inside the nerve this small artery provides even smaller tiny branches that reach the tissues of the



A side view of an eye showing showing where the blood enters the optic nerve: the nerve is the 'electric wire' that takes signals from the eye to the brain so you can see. nerve. Without its blood supply, the nerve becomes damaged, and your sight will be reduced. Only rarely does the nerve become badly damaged.



How does the treatment work?

Treatment is aimed at lowering the pressure in your eye, so more blood can flow into the optic nerve. Normally, fluid (a little like water, called 'aqueous humour') is made in the middle chamber of your eye. It then flows through the pupil to the front chamber, and then out of the eye through small drainage channels.



Eye drops containing drugs can 'switch the tap' off that makes the fluid. Less fluid in the eye leads to a lower less pressure (like a tyre that is not pumped up as much). This results in more blood to entering the eye, protecting the optic nerve.



In younger patients an operation may be necessary. At the operation a small hole is made to let more fluid out of the eye. Your



ophthalmic surgeon will discuss the pros and cons of the operation if it is necessary.

How is your sight affected?

Usually your sight is not greatly affected in this condition. In younger patients (30-60y), your sight may get worse over many years.



This can cause variable sight that changes during the day. Alternatively, your sight may be patchy, with clear areas and fuzzy areas.

Do you become blind?

Only if you were very unlucky will your sight become very poor. Hardly anyone becomes



blind in that they cannot see anything at all, and only occasionally will your sight become very bad.

Do you have to use the drops?

If the ophthalmic surgeon recommends the drops, you should use them (unless you get side effects). Often the drops can make all the difference between keeping your sight and loosing it. The same applies to an operation if your ophthalmic surgeon advises you strongly you should have one.

What tests do you need in the eye clinic?

- visits to the clinic every 6 months if the pressure is controlled, or more often if the pressure is higher
- a pressure test each visit: ideally the presure is about 12mmHg for younger patients
- a visual field test every 12-18 months, to test for patchy vision as mentioned
- an examination of the optic nerve each visit: the nerve looks 'deeper' if it gets damaged (see diagram on front page)

What can you do to help?

The main thing is to use drops if your doctor has advised you to. Exercise 30 minutes a day, walking or swimming may help a little, not smoking, and a healthy diet low in animal fat products and salt, with lots of vegetables and fruit helps your circulation. Because we do not know what causes low tension glaucoma, we do not know what else you can do. A few people have low blood pressure at night; ask you general practitioner if this is likely. There are no tablets and there is no magic cure though.

This leaflet is designed to accompany the 'Glaucoma' leaflets available in the Eye Clinic; ask for one if you have not seen one.

Low (or 'normal') tension glaucoma

This leaflet explains:

- what low or 'normal' tension glaucoma is
- what the treatment is
- how your sight is affected
- the tests you need in clinic
- what you can do



This leaflet is designed to be photocopied in black and white. Print out page one and two in colour. For outpatient use is easier to photocopy than print out double sided copies. Photocopy page one, and two, as 'double sided'. The leaflet can then be folded as shown and is easy to read and display. Make sure one of the pages is not upside down...this may require experimenting how pages feed into the photocopier.

