

Eyelight

The Newsletter of **GLAUCOMA NZ**
TO SAVE SIGHT

About Glaucoma New Zealand

Glaucoma NZ is very pleased to be able to inform you that your public membership is now free. When we launched GNZ in early 2003 we had to charge for membership to cover the services we offer and to provide a secure base for GNZ.

We very much appreciate the support all of you have given to GNZ with your initial membership.

Our sponsors have noted the success of GNZ over the past year. They have generously decided to now provide you with free membership for 2004.

Our Free Members Sponsor Group includes Pfizer, Alcon, Allergan, and Merck-Sharp-Dohme. We sincerely thank them all for their superb support.

Public Meetings and Support Groups

Public meetings have been held in Rotorua and New Plymouth with guest speakers, Dr Marc Gimblett and Dr Mark Donaldson. The local Lions Clubs continued to assist us with these meetings. Thank you Lions Clubs!

Meetings will be held in Whangarei, Kaitia, Taupo, Auckland, Wellington and throughout the South Island this year.



In addition our first Glaucoma Support Group was started in Tauranga.

To help or support these activities please contact the

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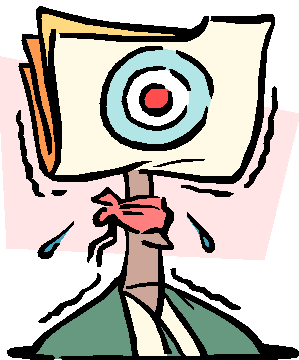
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What is Intraocular Pressure?

Glaucoma has been intimately connected with the concept of elevated pressure inside the eye (also known as intraocular pressure, IOP). A detailed explanation of IOP, how it is used in the management of the disease, and our present concepts of the origin of damage caused from glaucoma are warranted.

The average IOP ranges between 14 and 20 millimeters of mercury (mmHg). A pressure of 22 is considered to be suspicious and possibly abnormal. However, not all patients with elevated IOP develop glaucoma-related eye damage. The choice of 22 mmHg as the dividing line between normal and abnormal



was based solely on statistics. Population studies in the 1950s found an average IOP of about 15.5 mmHg. It was statistically determined that only 2.5% of people will have IOP above 21mmHg and hence this was called 'abnormal'. Studies in

the late 1960s and early 1970s showed that only about 10% of people with an IOP of 22 mmHg or more would develop damage to their optic nerves from glaucoma. The higher the IOP, the greater the chances of developing damage.

People with an IOP of 22 mmHg or more came to be termed ocular hypertensives. Ocular hypertension merely means that a person has an elevated IOP of 22 mmHg or more but no detectable damage on optic nerve or visual field examination. If a person with ocular hypertension develops damage, he or she then becomes diagnosed as having glaucoma.

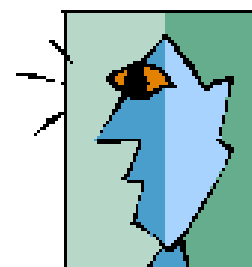
Once a sufficient number of nerve cells are destroyed, "blind spots", or scotomas, begin to form in the field of vision. These scotomas usually develop first in the peripheral field. Later, the central vision, which we experience as "seeing", is affected. Once visual loss occurs, it is irreversible because once the nerve cells are dead, nothing can restore them at the present time.

What is a Normal 'IOP'?

Practically speaking, a "normal" IOP is one that does not result in damage to the optic nerve. Because not all eyes respond similarly to a particular IOP level, a normal pressure cannot be represented as a specific measurement. Each person will have a different range of IOP that will be considered 'normal' for them. So that a high pressure for one eye is not necessarily too high for another eye.

How can the Pressure Result in Damage to my Eye?

Sometimes, when the fluid reaches the angle of the eye, it passes too slowly through the meshwork drain. As the fluid builds up, the pressure inside the eye rises to a level that may damage the optic nerve. Other factors may also result in damage to the optic nerve, but elevated pressure is the important one. Damage to the optic nerve may result in permanent visual loss. Early diagnosis and treatment can help prevent this from happening. Other risk factors will be discussed in future issues.



A Personal Story

Glaucoma NZ has been holding public meetings around the country to raise public awareness of glaucoma. At one meeting a personal story was told to Glaucoma NZ.

Eighteen years ago Pat walked into her local optometrists to have a routine eye check and to get a new pair of spectacles. Pat had not noticed anything wrong with her eyes. There had been no symptoms or anything to suggest a problem. Pat was diagnosed with glaucoma in both eyes by her optometrist. It was devastating and unexpected news. With no support at that time and with very little understanding her inevitable thoughts were that she was going to go blind. Her glaucoma has required a big effort from Pat over the years. She has now had years of eye drops 2-3 times per day, several laser treatments and operations in both eyes. The diagnosis changed her life. Pat's commitment to medication and regular check-ups under the

guidance of an ophthalmologist has been an ever-present reality for her. Fortunately Pat still has useful vision. Without the early diagnosis, regular monitoring and all the treatment, Pat's worst fear would be true and she would be blind.

The good news is that with early detection and treatment and good education, those with glaucoma can retain excellent eyesight for their entire lives.

With the on-going support now offered through Glaucoma NZ including newsletters, public lectures, a video, and meeting others with glaucoma, Pat has a much better understanding of her disease. She is currently setting up a Support Group for people with glaucoma in the Te Puke area. If you would like to be part of this group please contact Glaucoma NZ (see front page for contact details).

Focus on Research

Pascal Dynamic Contour Tonometer

Research is in progress to improve the measurement of the pressure within our eyes. Recently a new device for measuring intraocular pressure called the Pascal Dynamic Contour tonometer became available. The advantages of the Pascal tonometer are that the pressure measurements are not influenced by corneal thickness and that there is a disposable film used at point of patient contact. This removes the need for sterilisation of the tonometer between patients. A New Zealand study recently confirmed that the pressure measured by this device is independent of the thickness of the cornea.

Why is corneal thickness so important? Since corneal laser refractive surgery became

popular 10 years ago there has been concern that the traditional method of measuring intraocular pressure underestimates the pressure in eyes that have had refractive surgery. Now that many people are undergoing laser refractive surgery such as LASIK to correct their myopia (short-sightedness) reliable assumptions cannot be made regarding corneal thickness. Corneas treated with laser are unpredictably thinner. New ways of measuring intraocular pressure are required.

Unfortunately the new device costs \$10,000 and each disposable film \$3. It is also quite a performance to use it. Until a new tonometer can match the convenience and cost of a Goldmann tonometer (see issue 3) it is unlikely to widely available. The search continues...

Glaucoma Treatments

Medications That May Do Harm

Some medications can be harmful to individuals who have glaucoma or are predisposed to developing it: first, cortisone (steroids) or cortisone-like drugs, second, drugs that lower blood pressure or affect blood flow, and third, drugs that make the pupil dilate. The word “can” is very important here, since the risks posed vary depending on the drug, how the drug is used, the type of glaucoma, and the individual involved.

Cortisone

An important class of medications of potential concern to glaucoma patients is cortisone, (steroids). Many cortisone-like drugs are widely used to treat a variety of conditions such as asthma, reaction to poison ivy; arthritis, and other inflammatory conditions.

When these agents are applied to the skin or are taken by mouth or by injection, they usually pose little risk to people with glaucoma. This is because the amount of pressure rise is usually slight and the duration of treatment with these medications usually brief. Most people with glaucoma do not need to see their ophthalmologist or have their intraocular pressure checked simply because they are using these products for a short period. In contrast, if a person’s glaucoma is unstable or advanced, or if treatment with cortisone products lasts for more than a month you should tell your ophthalmologist. Any pressure rise may be harmful to an eye with advanced glaucoma. It is often people with asthma or chronic skin disorders that require long periods of cortisone treatment.

Steroids are most likely to cause glaucoma when they are administered in the form of eye drops. Some people will have a significant

increase in their IOP after the use of steroid eye drops. People who have glaucoma are at greatest risk for this reaction. Around one third of those who have glaucoma will develop a rise in pressure in response to a cortisone eye-drop when used four times a day for a month.

Medications Taken to Lower Blood Pressure

Sometimes glaucoma damage can develop if the optic nerve is deprived of the nourishment it needs, causing the nerve cells to die. In people with glaucoma, sudden lowering of blood pressure, for example, can deprive the optic nerve of needed blood, decreasing the nourishment of the nerve, and causing damage to the optic nerve.

Patients with glaucoma should let their general practitioners know they have glaucoma, and also make sure their ophthalmologist knows if they have high blood pressure that is being treated. It is not just medications that affect blood pressure that are of concern. Anything that deprives the nerve of nourishment may make glaucoma advance more rapidly. Thus, nutrition, the viscosity or “thickness” of the blood, anaemia, and other factors can affect the progress of glaucoma damage.

Medications that may Dilate the Pupil

Angle closure glaucoma may be triggered in susceptible eyes when the pupil dilates. Only eyes at risk can develop this form of glaucoma. The eye is often long-sighted (see in this Eyelights) because it is short in length. The structures within the eye e.g. the iris and lens are tightly packed in the front compartment of the eye. When the pupil dilates in these



eyes there is a resistance to fluid flow within the eye and the angle that normally drains may close. The pressure rises dramatically causing an intensely severe pain in the eye. The vision will blur and haloes may be seen. Sometimes the attacks are mild and resolve without treatment but can still harm the eye.

There are many medications that may dilate the pupil including tablets, sprays and eye

drops. Some of these can be purchased over the counter without a prescription.

Information provided with the medication often mentions the risk of glaucoma. An eye examination can determine if your eye is at risk of angle closure glaucoma. If your eye is not at risk of angle closure then these medications will not cause glaucoma.

Short and Long Eyes

Short-sight

“Short-sight” and “Long-sight” are part of the English language and have accrued much more meaning than technical terms usually do. There is a lot of misuse of these words. Both are used to describe wearers of spectacles.

Short-sight: folk with short-sight are able to see to read and do close work with their specs off but are unable to see into the distance clearly without glasses. In days gone by short-sighted people made good jewellers because of their natural ability to see fine detail and do demanding tasks at close range such as illuminating and scribing sacred texts.



Today short sighted people can be identified by the type of glasses they wear – usually specs with minimising lens which pull the edge of their faces inwards. Short-sighted people are still over-represented in the ranks of the bookish and one wonders whether too much reading at an early age can bring on short-sight. Short-sight is called myopia and is a risk factor for several eye diseases including open-angle glaucoma.

Short-sighted people have eyes which are longer than most eyes. Most eyes are about 22mm long but those with myopia may have eyes which are 25-28mm long.

Long-sight

Long-sighted people can see well in the distance especially in youth. By and large the long-sighted require reading glasses earlier in life (35-45) and then later on need specs for seeing into the distance. The type of lens required for the correction of hyperopia is a magnifying lens. So the spectacles make the eyes look larger. Long-sighted eyes are often on the small side: 20-22mm in length. Long-sightedness is a risk factor for a special type of glaucoma: closed angle glaucoma.

Behind the iris of the eye is a lens for focussing light onto the retina. The lens is about 3 mm thick and continually and gradually enlarges with increasing age. In people with small eyes this leads to an “overcrowding” problem which worsens with age – principally because of lens enlargement. The iris is crowded into the drainage angle of the eye and rubs against the trabecular meshwork. With time damage to the trabecular meshwork accrues which prevents normal drainage of fluid from the eye and the eye pressure elevates. Usually this happens slowly but in some there can be a sudden blockage of the drainage of fluid and the development of painful acute glaucoma.

Eye Care Practitioners

Glaucoma NZ is often asked about the different professionals involved in eye care. We provide a brief summary here for you.

Who is an Ophthalmologist?

Ophthalmologists are specialist medical practitioners. They are also referred to as ophthalmic surgeons. It takes a minimum of 14 years to train an eye surgeon, from the time of entry to medical school to being a specialist. Ophthalmology is one of a number of sub-specialities which include orthopaedics, psychiatry, obstetrics & gynaecology to name only a few. To train as an eye surgeon a doctor becomes a registrar in a hospital and a trainee of the Royal Australian and New Zealand College of Ophthalmologists for a period of five years. After passing exams a trainee will go abroad for one or more years to gain further experience in overseas centres where the caseloads and expertise differ to New Zealand.



Who is an Optometrist?

Optometry is a University degree course of 5 years duration that can be entered on leaving high school. During this time modern optometrists are taught how to diagnose and screen for common eye diseases including glaucoma and diabetic eye disease. Optometrists prescribe and dispense spectacles and contact lenses and usually have a street shop presence. Optometrists are often the first port of call for those with eye problems and may refer cases directly to ophthalmologists. Some optometrists share the care of glaucoma patients with ophthalmologists. In the UK the term optician is used instead of optometrist.

Who is an Optical Dispenser?

An optical dispenser has less training than an optometrist. They are technicians skilled at fitting lenses to spectacles and dispensing them appropriately. A client requires a spectacle prescription for the dispenser to work with.

Six Strange Requests.....

Don't be surprised if your eye specialist asks you to...

1. Put drops in one eye only

"He said I have glaucoma in both eyes and now he wants me to put drops in only one eye. Why?" This is called a one-eye trial and is done so that the effect of an eye drop can be assessed at the next visit. Eye pressure varies throughout the day. When you are seen next time your eye pressures may be higher or lower on account of natural fluctuation. This is called diurnal variation. A one-eye trial will allow the

effect of the eye drop to be assessed more accurately by comparing the IOP in each eye.

2. Lie down face towards the floor in a dark room for 15 minutes

"He asked me to lie face down in a pitch black room for 15 minutes. I hoped he would not forget me ... There was a rise in IOP and he said I needed a laser iridotomy". This is called the dark prone test. If the eye pressure is high after this test then it is a sign that the drainage angle is overcrowded and that a laser iridotomy is warranted. The problem is the test

may be spuriously negative. If the test is positive it will reassure both patient and ophthalmologist that the laser iridotomy is needed but if the test is negative and the pressure does not rise it is not helpful. Therefore many specialist do not do this test anymore.

3. Measure your eye pressure every hour for a whole day.

Thirty percent of patients with glaucoma have normal eye pressures! Diurnal variation means that eye pressure fluctuates throughout the day. This is more pronounced in glaucoma patients. Someone with a normal pressure at 10am may actually have a very high pressure at 3pm. In order to gather this important information an ophthalmologist may request you have your eye pressure measured throughout the day. Other ophthalmologists get around this by scheduling return visits for different times of the day. In the old days some would admit glaucoma patients to hospital overnight so that the resident staff could do the measurements around the clock. This is still called “phasing”.

4. Suggest you have a cataract operation when you don't have a cataract.

In eyes that are small the lens within the eye may by its size contribute to “overcrowding” and partial or complete obstruction of the drainage angle. In such cases removal of the lens and its replacement with a thin plastic lens creates more space within the front of the eye and can in some cases cure angle closure glaucoma. This is a cataract operation because ninety-

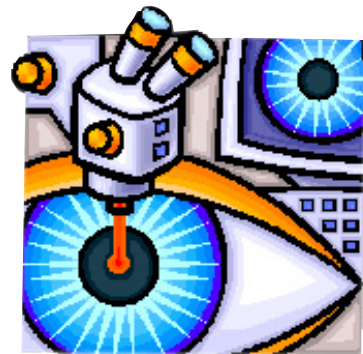
nine percent of the time it is done because the lens has lost its transparency (i.e. a cataract) and vision is reduced. But the same operation has other uses.

5. Suggest you have a head scan

Sometimes an ophthalmologist will request a head scan to exclude any other sinister cause for the eye changes that have been observed. E.g. a small tumour pressing on the optic nerve behind the eye. Usually the tests are negative but it is a great reassurance to both doctor and patient that the problem is purely glaucoma.

6. Suggest you have a laser operation when you do not have glaucoma

This is another situation caused by small eyes. If the drainage angle is very narrow there is a risk that the patient may develop sudden painful



“acute glaucoma”. (Not at the time of the examination or even the same day but at some future time) Acute glaucoma can be prevented by laser peripheral iridotomy, which is a simple office procedure with a very minimal complication profile. Such patients may have no evidence of damage to the optic nerve but have the potential for this very painful type of glaucoma.

Contact Us with Your Questions & Comments

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YES, I would like to help **GLAUCOMA NZ** TO SAVE SIGHT

I would like to become a member of Glaucoma NZ at no cost (previously \$40.00 p.a.)

I would like to donate \$ _____

I enclose my cheque for \$ _____ made payable to Glaucoma NZ or please debit my

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Donations of \$5.00 or more are tax deductible

I am interested in becoming a volunteer for Glaucoma NZ

I would like information on leaving a bequest for Glaucoma NZ

Ray Charles 1930-2004

Musician Ray Charles died this month, after a recording career spanning over half a century. His music is best categorised as rhythm and blues, although it has a marked gospel influence and he experimented with different styles from jazz to rock. His fusion of soul with R&B became extremely influential, and his compatriots used to call him "The Genius". His first big hit was recorded in 1959, and his best-known songs are "Hit the Road, Jack" and his version of "Georgia".

Ray Charles was well known for being blind, but what's less well-known is that the cause of his blindness was glaucoma. He started losing his sight by the age of 5 and was completely

blind by 7, and attended the St. Augustine School for the Deaf and the Blind in Florida. He has given assistance to the Glaucoma Research Foundation, including recording public service announcements for them, which can be found on their website.

Charles was a great musician who has left his indelible mark on popular music, and his life serves as an example that impaired sight needn't mean an impaired life.



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