More than 60 million people will be affected by glaucoma by the year 2010, a recent study estimates. More than eight million people will be blind in both eyes from either open angle or angle closure glaucoma. This makes Glaucoma the second leading cause of worldwide blindness.

Glaucoma is a sneaking and tragic disease. Even in developed countries, as many as half the people with glaucoma don’t know that they have it, research suggests.

World Glaucoma Day is part of the struggle against avoidable blindness being waged by the World Glaucoma Association and the World Glaucoma Patient Association, of which New Zealand is a member.

A website for the Day is available at www.wgday.org

How can we all help? This Eyelights newsletter goes out to nearly 6,000 readers. If we all made a small effort on World Glaucoma Day it would make an impact.

If we have glaucoma, are our family members aware of the need for them to have glaucoma tests? Do we have friends who need regular eye tests? Do we know elderly folk who complain of their “poor old eyes”? - A glaucoma eye check is necessary more frequently as we get older.

Now is the time to remind people of the “45 Plus 5” message – regular examinations for glaucoma are needed by all, by the age of 45 and every five years after. And why not pass on a copy of Eyelights where you think it might be useful?

World Glaucoma Day will build in influence over the years. Let’s give it a great start here.
New Format Eyelights

Glaucoma NZ is proud to bring you a bigger and better Eyelights newsletter. The size has been increased from 8 pages to 12.

Eyelights will now arrive in your letterbox three times a year instead of four. We won’t be scrunching it up to fit inside a small envelope, and with 36 pages of articles over the year there’ll be more to read than ever.

We need your feedback. Brickbats and bouquets are invited. What would you like to read more of? Would you consider submitting an article of your own? Questions to answer in Eyelights are always welcome.

Please email your feedback and suggestions to the editor, Heather Hyland, at info@glaucoma.org.nz or drop us a line at the address below.

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Dr Geoff Wallace

Dr Geoff Wallace, an eye specialist in Whangarei, drowned tragically in the Whangarei Harbour last October. On that day Glaucoma NZ lost a wonderful supporter and friend.

As a partner in The Eye Specialists Whangarei, Geoff contributed to Glaucoma NZ financially and in practical ways.

In 2006 Geoff rode in the Lake Taupo Cycle Challenge to raise funds for Glaucoma NZ through sponsorship. Geoff was always happy to give his time to speak at Glaucoma NZ public meetings in Northland. A few short weeks before he died, he spoke to an appreciative audience at the public meeting at Forum North.

Thanks go to all those who have made donations to Glaucoma NZ in Geoff Wallace’s memory. All the staff of Glaucoma NZ are deeply saddened by this tragic event and extend sincere sympathies to Geoff’s wife and family.

Rotary Regatta

Glaucoma NZ has been chosen as a beneficiary of the annual Rotary Charity Regatta organised by the Rotary Club of East Coast Bays. On Friday March 7th boats will set sail on the Hauraki Gulf for Glaucoma NZ.

For more details see www.charityevents.org.nz

The support of the East Coast Bays Rotary Club is much appreciated. Glaucoma NZ would also like to thank Keith Rogers, District Governor of Rotary District 9910 for his work in championing glaucoma awareness and Glaucoma NZ during his governorship.
News

Appreciation Award

Gael Wright has been presented with a Glaucoma NZ Appreciation Award for Outstanding Service. Gael was Glaucoma NZ’s first administrative manager.

Between 2003 and early 2006 she established from scratch all aspects of Glaucoma NZ’s work. Since that time Gael has been travelling the world, most recently lecturing at a University in China. When she returned to Auckland recently the Board of Trustees was pleased to recognise her contribution to Glaucoma NZ with a well-deserved award.

Gael Wright (left) receives her award from current Glaucoma NZ Manager, Heather Hyland.

Hamilton Meeting to Lead in World Glaucoma Day

The first Glaucoma NZ public meeting for 2008 will be held in Hamilton on March 1st, just prior to World Glaucoma Day. The guest speaker will be glaucoma expert Dr James Stewart. Dr Stewart will explain everything you ever wanted to know about glaucoma and more! And then he’ll answer your questions if you still have any.

All are welcome at The Bryant Centre, Hilda Ross Building, Waikato Hospital, at 10am on Saturday March 1st. The slide presentation is a new one for 2008.

Glaucoma NZ’s Professional Members

We are pleased to include with this issue a list of names of eye health professionals who studied with Glaucoma NZ in 2007 and passed the final examination.

One of Glaucoma NZ’s core aims is to educate eye health workers to assure the highest quality glaucoma services in the community. Glaucoma NZ provides an online Professional Education Package which includes seminars based on case studies and scientific literature.

Since 2004 hundreds of optometrists across the country have studied glaucoma with Glaucoma NZ in this way. In 2007 ophthalmic nurses, orthoptists and ophthalmic technicians also took up the opportunity of extra glaucoma education.

The list enclosed is in geographical order from north to south.

Congratulations to all who achieved success in the professional exam, and a special thank you to all the eye health professionals who supported Glaucoma NZ throughout 2007.

GP’s and Glaucoma

In recent months Glaucoma NZ has established a Professional Education Support Programme for General Practitioners. By means of presentations authored by prominent eye specialists and delivered by email, GP’s can keep up to date with the issues concerning glaucoma for the benefit of their patients. So far more than 700 GP’s have opted to join Glaucoma NZ’s GP Education Programme.
Glaucoma and Eye Drops

Glaucoma, eye pressure and eye drops

Many of you reading this will be asked by your eye specialist (ophthalmologist) to take eye drops. You will be asked to remember to take these regularly, every day, and yet some may experience side effects from them.

You may also be changed from one drop to another, even though everything may seem fine from your point of view. You may also have friends or family with glaucoma who are on completely different drops. Why is this? What are these drops for? How do they work? Why are they changed? Hopefully this article will answer some of these questions.

Why are eye drops used in glaucoma?

The answer is to help prevent the loss of vision from glaucoma. The exact cause of glaucoma is not known, but we know age, family history and raised pressure in the eyes (intraocular pressure) are risk factors. Of these, only the eye pressure is modifiable, and lowering it slows the loss of peripheral, and then central, vision in glaucoma.

Eye drops are the commonest and preferred way of achieving this. Applying the drug right where it needs to work avoids many side effects that tablets can have. The drugs in these drops work on the ciliary body which makes a fluid called aqueous, and/or on the trabecular meshwork and other drainage pathways for this fluid from the eye. (See diagram). The balance of the flow in and the flow out, determines the intraocular pressure.

Types of eye drops

Beta blockers  (Examples: Betagan, Apotimopt, Timoptol XE)

"Beta blockers" are named after the type of nerve receptor that they affect. They are found throughout the body, but in the eye, blocking the beta receptors mainly decreases production of aqueous, but also increases outflow slightly.

Side effects may include shortness of breath, or some loss of energy. Anyone with breathing problems or heart conditions should always ensure their ophthalmologist is aware of these.

Prostaglandin analogues  (Examples: Xalatan, Travatan, Lumigan)

Prostaglandins are chemicals naturally active in the body generally, which increase drainage of aqueous in the eye. Prostaglandin analogues now available are man-made versions of these.

These prostaglandin analogues have essentially no side effects to the body as a whole. They can, however, cause irritation and redness of the eyes particularly for the
first 6 weeks of use, and with prolonged use can give longer and darker eyelashes, and a darker coloured part of the eye (iris).

**Alpha agonists** (Examples: Alphagan, AFT, Iopidine)

These drugs are named after the type of nerve receptor they affect. Like beta receptors, alpha receptors are also found throughout the body. Stimulating these receptors means less aqueous is made, and to some extent the drainage is improved.

They can cause irritation, and some patients can develop an allergic reaction to the drug after prolonged use, causing significant eye irritation, often with itching, redness and swelling of the eyelids as well. Other side effects sometimes include a dry mouth and possibly some loss of energy. This drop should not be used with some antidepressant tablets, so make sure your ophthalmologist always knows which medications you are on.

**Carbonic anhydrase inhibitors** (Examples: Azopt, Trusopt)

Carbonic anhydrase is an enzyme chiefly responsible for the production of aqueous in the eye. Therefore, inhibiting it will lower the intraocular pressure.

Side effects from these drugs include a dry mouth, some stinging of the eyes, and possibly some tiredness or headache (generally short-lived).

**Miotics** (Example: Pilopt)

Miotics are so named because they ‘miose’ the pupil, or make it smaller. This allows more aqueous to drain from the eye. These drops are not widely used now.

**Combination drops**

Drug companies have made several drops containing combinations of different medications. This obviously has the advantage of getting the benefit of two drops, whilst only having to remember to take one!

In New Zealand only two combinations are funded:

- Cosopt which is dorzolamide (Trusopt) combined with timolol.
- Combigan which is brimonidine (Alphagan/ AFT) combined with timolol.

**The ophthalmologist’s challenge**

As ophthalmologists, we have a wide variety of ways to attempt to lower someone’s intraocular pressure. The aim is to have the pressure controlled satisfactorily on one drop without side effects. However, because none of us are the same, that ‘one drop’ may be different for different patients, or may not exist at all. We are all individuals, and our bodies all respond differently to illnesses and medications.

Sometimes a single drop cannot be found which satisfactorily lowers the pressure without side effects, requiring more than one drop to be used. Occasionally an eye specialist will find that a drop which had been working well for years will lose its effectiveness for that patient, requiring a change in medication. Indeed for some patients no combination of drops works satisfactorily, and surgery may be recommended to maintain the eye pressures at a level that is thought safe and will prevent further visual field loss.

The key message for patients with glaucoma is that it is an insidious thief of vision, taking the peripheral vision slowly and irreversibly, often causing no symptoms until the central vision is lost and one is left with blindness. Therefore, all patients with glaucoma need to use their drops diligently and regularly, so as to hopefully halt, or at least slow, the loss of peripheral vision so that good, useful vision is maintained throughout one’s life.
Sometimes glaucoma comes about as a result of an eye injury. This kind of glaucoma can be very challenging to treat.

One of our members who has traumatic-induced glaucoma is happy to share his story in Eyelights.

Every case is different, and while surgery has worked out well for John, it is no panacea. Your eye specialist is your best advisor regarding the best treatment options for you.

My Trip Down Glaucoma Road

In 1985 I had an accident receiving a black eye. My doctor referred me to a nearby Eye Clinic. It was there that they found I had the early stages of glaucoma. The result – eye drops morning and night.

About a week later the headache was such that the only mode of survival was to hold head in hands. I was rushed to Auckland Hospital to be put on a drip to dissolve a clot which had developed in the eye. Once the clot was dissolved I was discharged into the care of my eye specialist. Now I was on drops three times daily and six monthly visits to the Eye Clinic.

Over a period of time the pressures increased and the drops were changed, but with little effect. Next step was laser treatment at a private hospital. This allowed fluid to drain from the eyes and worked for a short while although drops were still necessary. I was told that I might need an operation at some stage.

My right eye had developed a cataract which meant no sight in that eye and the left eye had high pressures. My eye specialist referred me to a colleague who specialised in glaucoma and trabeculectomy.

On a visit in 2002 my new doctor found that the pressure was dangerously high and the only hope was surgery and she would do it the NEXT DAY! The choice was surgery or blindness as I had only one sighted eye. This was the scariest day of my life.

However, my surgeon did a brilliant job! My vision was blurred after the surgery, which is apparently to be expected, but it was still quite frightening. I saw the eye specialist the next day and for weekly follow-ups for a while, and at first had to use special drops 8 times a day. But before long sight was restored and I could manage without the help of eye drops and had normal pressures!

Now I wear glasses with no eye drops and have normal sight in the left eye – none in the right because of the damage done by the original clot. There is no point in removing the cataract. I visit my eye specialist once a year for a check. I cannot speak highly enough of the treatment I have received.

If surgery is suggested get over being afraid. I know that I am one of the lucky ones and that I don’t miss eye drops!

by John Jury (Auckland)
Those Eye Drops ...

The article about eye drop instillation in the previous issue of Eyelights prompted feedback. Some people were concerned that the method shown differed from advice given to them. As explained at the top of the article the technique described was one found by the contributors to work well. First and foremost you should always follow your doctor’s instructions.

If you are at all uncertain about whether your eye drop technique is effective ask your eye specialist or eye clinic nurse to watch you put your drops in. They will be able to show you what to do and give you the best advice taking into account your own circumstances.

The principle is always the same. You are trying to get the drop in contact with your eye long enough to do its work. Researchers have identified the optimum way to do this which is as follows:

Putting Your Eye Drops In
1. Wash your hands.
2. Start by tilting your head backward while sitting, standing, or lying down. It is a good idea to stand in front of a mirror, or lie down and look directly at the ceiling. With your index finger placed on the soft spot just below the lower lid, gently pull down to form a pocket.
3. Let a drop fall into the pocket.
4. Slowly let go of the lower lid. Close your eyes but try not to shut them tight or squint. This may push the drops out of your eye.
5. Gently press on the inside corner of your closed eyes with your index finger and thumb for two to three minutes. This will help keep any drops from getting into your system through the tear duct, and will keep them in your eye, where they are needed. Do not pinch, since pinching could squeeze out the drops.
6. Blot around your eyes to remove any excess.
7. If you have more than one drop prescribed wait at least 5 minutes before putting in the second one.

Helpful Hints
• Have a daily routine and stick to it. Try storing your eye drops near your toothbrush or coffee pot.
• If you don’t see well but need to distinguish between different eye drop bottles use rubber bands to distinguish them.
• If you are unsure about whether the drops are getting in your eye, store your drops in the fridge. You will feel the coolness.
Your Glaucoma Eye Examination: Part 1

Your Eye Pressure

What role does your eye pressure really play in glaucoma care?

Do you consider your eye pressure solely responsible for your glaucoma? Do you believe that eliminating “eye pressure” would prevent glaucoma? Many people may well say “Yes” to both these questions. However both are common misconceptions about high pressure.

Eye pressure is but one risk factor for developing glaucoma, albeit a most important risk factor, and the main one that can be modified.

A healthy eye must have some pressure within it. Without any pressure it would collapse like a balloon with a puncture. So the eye has a pump that produces a very small amount of fluid. That fluid circulates from behind your iris to the drainage channels in front it. If the fluid drains readily then the eye pressure will be low, but if there is resistance to drainage the eye pressure will rise. (See Diagram p4)

Some eye pressure is essential for good “eye health”, but excessive pressure causes glaucoma.

Glaucoma is diagnosed by detecting the damage to the optic nerve either directly by looking at it or indirectly by testing the visual field.

The eye pressure level is not essential to a diagnosis of glaucoma. But it is the most important risk factor for developing glaucoma.

Many studies have shown that as the eye pressure rises the risk of glaucoma is much greater. And many clinical studies have shown that reducing the eye pressure is very effective in controlling glaucoma damage.

How is the eye pressure measured?

Eye pressure has been recognised for many centuries, as very high pressure can be felt with the fingers through the upper lid.

The gold standard device to measure the intraocular pressure accurately was developed in the 1950’s and is called the Goldmann applanation tonometer. This device measures the eye pressure by the force needed for the instrument to flatten the cornea by a precise amount. All readers of Eyelights should have experienced tonometer readings being done to measure your eye pressure.

Many other devices have been developed to measure eye pressure more simply without using anaesthetic or touching the eye. These other devices are good at detecting very high pressures but the values may vary from those measured on a Goldmann.

The accuracy of all pressure measuring devices relies on good technique. All eye care professionals should be capable of accurately taking the eye pressure with a Goldmann tonometer.
Why does my eye pressure change?
Eye pressure in a normal eye varies with the pulse of the heart, varies during the day and varies over seasons. It also generally rises with advancing age. In an eye with glaucoma the variation is greater and there is the additional effect of your glaucoma medication. Your blood pressure essentially has no bearing on your eye pressure.

Variation in pressure during the day is called diurnal fluctuation. For most normal eyes the pressure is highest in the early morning between 6am and 8am. This daily fluctuation is a hormonal effect on the eye.

There are more long-term fluctuations during the year that we do not understand.

In addition the eye pressure does slowly increase with age as tissues harden to cause an increased resistance to the flow of fluid out of the eye.

In eyes with glaucoma a wider variation in eye pressure occurs during the day and throughout the year. But large variations in eye pressure usually indicate that glaucoma medications are not always being used correctly.

What do you do that might raise your eye pressure and harm your eye?
Firstly eye pressure varies with posture. It is higher when we lay face down compared to sitting. This effect is greatly accentuated if we stand on our heads! Many studies have looked at the effect of yoga posture on glaucoma. We now recommend people with glaucoma not to subject their eye to the very large increase in pressure that occurs with a head down body posture.

Secondly drinking a large volume of water will increase the eye pressure. This is used as a provocative test to assess the ability of an eye to drain fluid. The person drinks one litre of water over 15 minutes and the eye pressure is measured frequently over the subsequent 90 minutes. Normally the eye pressure elevates by up to 50% but returns to normal by 90 minutes.

In the glaucoma eye the pressure rise is much more dramatic and lasts longer because the extra fluid created by the bolus of water cannot drain quickly. So if you have glaucoma it is wise not to drink large volumes in a short time period e.g. three cups of tea or a couple of pints of beer in a quarter hour!

Thirdly the eye pressure can elevate when we strain like exhaling with our mouth shut! This is called the Valsalva manoeuvre. It occurs in activities like straining at stool, and blowing wind instruments. This will cause a temporary but pronounced rise in eye pressure. When undertaken frequently it may significantly stress the optic nerve and accentuate glaucoma damage.

How frequently should eye pressure be measured?
Eye care practitioners balance the logistics of pressure measures with the risk to your sight and the effectiveness of glaucoma medications in deciding just how often you should have your pressure measured.

Accurate measurement of eye pressure assesses this important risk factor and shows how effectively your glaucoma medications are working. For best comparison of measurements the time of day and the time from last use of glaucoma medications should be recorded.

Frequent measures of eye pressure would detect peak levels and fluctuation. There is an ongoing quest to develop a means to continuously monitor eye pressure or self-monitor eye pressure. Unfortunately, despite extensive research, there is no such device.

What eye pressure doesn’t tell you is whether the glaucoma damage to your optic nerve is stable or progressive. That can only be determined by assessing the optic nerve head or testing the visual field.

These two topics will be covered in Eyelights during 2008.
For New Readers

Welcome to everyone who has joined Glaucoma NZ since the last issue of Eyelights! Here are some basic facts about glaucoma:

- Glaucoma is not curable. Vision lost cannot be regained.
- With proper treatment less than 2% of glaucoma patients will go blind.
- Glaucoma is the sneak thief of sight. There may be no symptoms.
- It is estimated that half the number of people affected by glaucoma do not realise they have it.
- ‘Glaucoma’ is a term commonly used for a range of different conditions – the glaucomas.
- What is common to the glaucomas is damage to the optic nerve at the back of the eye.
- The optic nerve carries visual messages from the eye to the brain.
- People of all ages can get glaucoma.
- If a close relative has glaucoma the risk of developing glaucoma is increased by as much as ten times.
- If you have glaucoma you must be monitored for the rest of your life.
- Glaucoma NZ is a charitable trust which receives no government funding. It relies solely on donations, sponsorship, grants and fundraising.

The ‘45 Plus 5’ Message

Glaucoma NZ recommends that everyone has an eye examination by the age of 45, every 5 years after that until age 60, then three-yearly after that.

Those with risk factors for glaucoma such as a family history of glaucoma or steroid use should be examined earlier and more frequently.

Your Questions

What should one do if one forgets to pack one’s eye drops on a trip overseas?

The short answer to this one is don’t do it! Don’t ever jeopardise your sight by going away without your drops! The Glaucoma NZ ID card has space for recording details of your medication and treatments as well as the phone numbers of your eye health professionals in New Zealand. If you carry that in your wallet you will have information at hand if you need to seek a replacement prescription while overseas. Another good idea is to carry a brief summary letter from your ophthalmologist with you when you travel overseas. If you are a frequent traveller why not keep such a letter with your passport, so it travels with you. Who knows, seeing the letter might even serve to remind you to check that your drops are packed before you go!
Research

Dicing with Sight

Up to 25% of glaucoma patients take none of their medication. Many others use their eye drops only intermittently.

Yet research shows that a rise in eye pressure by even a small degree is the biggest factor in the progression of glaucoma. If you let lapse the treatment which will keep your eye pressure down you risk losing your sight.

In the USA it is possible to track the use of glaucoma medications through health insurance and prescription records. Large scale studies have used this information to investigate how long people continue with their glaucoma drops.

Here’s what researchers in one such study found:

• Nearly half the people who collected a glaucoma prescription from their pharmacist had discontinued all eye drop treatment within six months.
• Three years after the first dispensing only 37% were still collecting repeat prescriptions.

Another study analysed pharmacy records of new glaucoma patients and found that just 69% of people were still collecting repeat prescriptions after a year. As for regularly putting in the required dose of eye drops, this study concluded that patients had the drops in their possession and available for use only 76% of the time!

Sometimes researchers use electronics to help find out what’s actually going on. Amongst patients who tell their doctor they use their drops 100% of the time, electronic monitors have recorded usage as low as 65%.

Research published last year used electronic monitoring via a device attached to eye drop bottles to study how often people used their drops. This research involved a group of glaucoma patients who all knew they were being monitored. Results showed that 90% of people who had to use glaucoma medication just once a day generally succeeded in adhering to their treatment with no or few misses or extra doses. However, when patients’ treatment required two different drugs they were much less consistent.

It’s always a challenge for people to stick to treatment with any chronic disease. Glaucoma brings with it the added challenge of being symptom free, so you don’t notice any immediate bad effect when you skip a dose.

It’s important to be honest with your doctor if you are having trouble sticking to your eye drop regime. There is a risk that your eye specialist might opt for an unnecessary change of medication or even surgery if they misunderstand how much medication you have been using to achieve the result shown.

If you are experiencing unpleasant side effects say so. A different medication might be available for you. If you have trouble putting the drops in ask your doctor or eye clinic nurse for a lesson, or for an eye dropper aid. If it’s simple forgetfulness buy and set an alarm clock!

You want your sight to last you the rest of your lifetime. If you have glaucoma, to preserve your vision it is essential to lower eye pressure. This is not going to happen just because your eye specialist signs a prescription form. It will only happen when you put your drops in – day after day, year after year, without fail.

Moving House?
Don’t forget to include Glaucoma NZ when you are doing your change of address cards. Remember, we have no way of knowing your new address if you don’t tell us!
Public Meetings 2008

At the time of going to press the following glaucoma information presentations had been confirmed. More meetings are in the planning stages. Come along and see a new slide presentation and learn more about glaucoma. There will be time for questions and a cup of tea will be served at the conclusion of each meeting. Admission is free and all are welcome.

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<th>Date</th>
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<tr>
<td>Saturday March 1st</td>
<td>Hamilton</td>
<td>10am The Bryant Centre, Waikato Hospital</td>
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<td>Saturday March 29th</td>
<td>Tauranga</td>
<td>10am Hotel Armitage, 9 Willow St</td>
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<td>Saturday June 7th</td>
<td>Christchurch</td>
<td>10am Venue to be advised</td>
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<td>Saturday June 21st</td>
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<td>10am NZICA Centre, 27 Ohinerau St, Greenlane</td>
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I would like to help

☐ I would like to become a member of Glaucoma NZ at no cost
☐ I would like to donate $_________(Optional)

I enclose my cheque for $__________ made payable to Glaucoma NZ, or please debit my

☒ Visa ☐ Amex ☐ Mastercard

Name on Card______________________________
Card No __________________________ Expiry ___/___
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Donations of $5.00 or more are tax deductible
☐ I would like information on leaving a bequest for Glaucoma NZ

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