

Eyelights



The Newsletter of Glaucoma NZ
Volume 11 | Issue 2 | July 2014

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Round Up the Usual Suspects!

If you've been told you are a glaucoma suspect, you're in good company - there are millions of glaucoma suspects worldwide.

Many people have both structural injury to the optic nerve head inside the eye and functional damage measured in their visual field test, and that qualifies them as having glaucoma.



Glaucoma suspects, on the other hand, have some risk of the disease, but no proven damage (yet). The majority of suspects will never become damaged. But, once vision is lost, it can't be restored, so the key is to decide whom to treat among suspects.

There are 2 types of glaucoma, open-angle and angle-closure, and suspects for each are different. Open-angle suspects have one or more eye findings that suggest a higher risk of having or developing glaucoma than the average person. First, their measured intraocular eye pressure (IOP) can be higher than the average range.

Glaucoma damage happens when the IOP is too high for the continued health of the optic nerve. Each person has their own level at which damage can occur. While anyone is in danger at very high IOP, half of those with open-angle glaucoma are hurt by IOP within the average range. Previously, this was called "normal-tension" glaucoma, but we now know it's quite common, and simply means that a person can get glaucoma without high IOP.

Suspects with higher than average IOP, but no damage, are called **ocular hypertensive**. In some eyes, the real IOP is lower than what's measured because the cornea (the clear front of the eye) is thicker than average.

Risk Calculation

A large clinical trial study found that ocular hypertensives develop true glaucoma at a rate of about 2% per year. The

Continued over page

rate was only half as fast if eye drops to lower IOP were taken. **So the risk is small, but it's cut in half by IOP-lowering treatment.** How do you and the doctor decide then whether to treat ocular hypertension? It depends on a risk calculation that includes life expectancy, IOP level and other reasons that you can be a suspect. These include:

- having a blood relative with glaucoma damage
- having optic nerve or visual field findings on the border between glaucoma and normal
- African ethnicity
- being myopic (near-sighted)
- having a thin cornea
- having conditions called exfoliation or pigment dispersion that increase the risk of developing high IOP
- increasing age

Neither the suspect who chooses treatment nor the one who stays off treatment is making a bad choice. It should be a shared decision between doctor and patient, depending on actual risk and individual risk tolerance.

If you are someone who accepts risk easily, no immediate treatment is fine if risk is average. But, some people would lose sleep over possible damage, and for them trying treatment is a good option. Others are more worried by possible side effects of treatment - for these, the low level of worsening in untreated eyes is not that scary and no treatment is the right choice. Life expectancy is part of the decision - if you have significant risk and are relatively young, your chance of becoming damaged during life is greater, and treatment makes more sense. **Treatment or not, suspects need detailed monitoring of disc and field every year.**

If glaucoma is caught when the signs are very early and treatment begun at that time, the risk of developing serious visual loss is quite small.

Source: Dr Harry A. Quigley, MD – Wilmer Eye Institute at Johns Hopkins, Baltimore, Maryland.

For New Readers

To those of you who have joined Glaucoma NZ since the last issue of Eyelights, we welcome you!

For your information here are some basic facts about glaucoma:

People of all ages can get glaucoma.

There are different types of glaucoma, but they all involve damage to the optic nerve, the nerve of sight, which is at the back of the eye.

Glaucoma is not curable. If you have glaucoma it must be monitored for the rest of your life.

A family history of glaucoma means you are at much greater risk of developing glaucoma.

Current treatments for glaucoma aim to lower eye pressure.

Medication in eye drops can have side effects on other parts of your body. Tell your eye specialist if you notice any change in your general well-being since you started the eye drops.

If you have glaucoma tell your relatives, especially those close relatives like sisters, brothers and adult children. They have an increased risk of developing glaucoma so advise them to have an eye examination.

Glaucoma NZ is a registered charitable trust which receives no government funding. We rely solely on donations, sponsorship, grants and fundraising. All the information available to you from Glaucoma NZ is free.



Eye Drops - Part 1



Over the last 150 years we have developed a large number of eye drops to stop people losing vision from glaucoma. The mysterious Calabar bean provided the first extract which could be used for glaucoma in the middle of the 19th century and since then we have been searching for medications which have maximum effect while minimising side effects. It is a truism however, that if a medicine can work then it can also have side effects (Interestingly this also applies to placebos). If you start an eye drop and notice something untoward with your eye, or more generally, then it is a good idea to mention it to your doctor. In this article we will look at the two most common types of glaucoma eye drops.

Hysite, Travatan, Lumigan.
(The Prostaglandin Analogues)



These medications were developed initially over 30 years ago. The first one out of the blocks was Xalatan (now known as Hysite in New Zealand) and became one of the best-selling medicines in the world in the late 1990s (a happy coincidence for the drug company of a great new medicine and great marketing)

These medications have become the most popular first line drops in New Zealand and Australia for a three main reasons: They are usually very effective at reducing eye pressure, they only need to be used once a day, and for most people they have very mild side effects if any. Most people will find that their eyelashes become much longer when taking these eye drops (for all you people disabled by puny eyelashes and not taking eye drops, fear not, the cosmetics industry is aware and is rushing to your rescue). Like all eye drops they can sting (usually only a little, but sometimes more). They commonly cause redness of the eyes initially but in most people this fades. These drops can cause darkening of the rings under the eyes and of the iris colour.

This bothers some people enough to stop the medication. The darkening of the rings under the eyes usually fades if the medication is stopped. However, the darkening of eye colour does not. Interesting, the eye colour darkening does not normally affect blue eyes - so blue eyes do not change colour. The most commonly affected eye colours are green or hazel.

These eyes go darker and appear brown in colour. This takes many months and years of using the drops to happen. The reason for this is that these drops can increase the amount of pigment in *melanocytes*, the pigmented cells of the iris. Blue eyes do not have many melanocytes so do not change colour.

More recently it has also been found that this group of eyedrops may cause the eyes to look sunken into the sockets. This is a common appearance with ageing but may occur sooner and more prominently in people taking these drops. More serious side effects such as allergy may also occur with these medicines as with all medications.

Timolol, Betagan etc. (The Beta Blockers)

The beta blocker class of medicines began their development over 100 years ago but didn't become clinically useful until the 1960s. These eye drops as a group are probably the



Beta Blockers

second most popular in New Zealand and Australia. They are usually very effective at lowering the eye pressure. They are now often used only once a day but historically it was felt they needed to be used more than once a day which did make them a little less user friendly. Most people taking these eye drops experience no side effects but some people can have significant problems.

The beta blockers are so called because they block the effects of adrenalin beta receptors in your body. Adrenalin is a powerful hormone with many and varied effects. Reducing its effects can be very useful. From treating heart attacks and blood pressure to tremor and anxiety, beta blockers have been a very useful class of drugs.

As well as these general effects they were also found to lower the pressure in your eye and are therefore useful in glaucoma. Timolol was the first of these drops to be approved for use in the USA in 1978.

Even as eye drops they can sometimes affect the blood pressure and heart rate causing faintness. They can cause some people to be more short of breath because of their effects on the lungs. These drops can also occasionally cause impotence in men. If this is a problem for people it is important to mention it to the doctor so that another drop can be tried. Don't just stop taking your drops all together.

The most common side effects are the usual ones common to all eye drops which is that they may cause soreness and/or grittiness of the eyes. Other less common side-effects with this family of drops include: nightmares or vivid dreams, depression, light-headedness

and decrease exercise tolerance. However, if the drops are installed appropriately and the technique of blocking the tear ducts is implemented, these side-effects may be significantly minimised.

So with these two classes of medications we have covered most people in New Zealand who are using eye drops for glaucoma. Many people will be on one of these or a combination of both. Over the last few decades these medicines have stopped thousands of people from going blind from glaucoma.

In the next issue of Eyalights, we will discuss some other classes of drops which will include a return to the Calabar bean from tropical Africa where its main use seems to have been identifying witches. Who would have guessed it would help with glaucoma?

Eye Drop Tips

Prescription eye drops for glaucoma help maintain the pressure in your eye at a healthy level and are an important part of the treatment routine for many people.

Some things to remember:

- Follow the advice of your doctor.
- Be sure your doctor knows about any other drugs you may be taking (including over-the-counter items like vitamins, aspirin, and herbal supplements) and about any allergies you may have.
- Wash your hands before putting in your eye drops.
- Be careful not to let the tip of the dropper touch any part of your eye.
- Make sure the dropper stays clean.
- If you are putting in more than one drop or more than one type of eye drop, wait a couple of minutes before putting the next drop in. This will keep the first drop from being washed out by the second before it has had time to work.
- Store your drops as recommended by the manufacturer.

Steps for putting in eye drops:

Start by tilting your head backward while sitting, standing, or lying down. With your index finger placed on the soft spot just below the lower lid, gently pull down to form a pocket.

Look up. Squeeze one drop into the pocket in your lower lid. Don't blink, wipe your eye, or touch the tip of the bottle on your eye or face.

Close your eye. Keep closed for two to three minutes without blinking. You can also gently press on the inside corner of your closed eyes with your index finger and thumb for 2 to 3 minutes (to keep the drops from draining into your throat and getting into your system).

Blot around your eyes to remove any excess.

If you are still having trouble putting eye drops in, here are some additional tips that may help:

If your hands are shaking:

Try approaching your eye from the side, so you can rest your hand on your face to help steady your hand.

If shaky hands are still a problem, you might try **using a light wrist weight (300-500grams)**. These can be purchased from a sporting goods store. The extra weight around the wrist of the hand you're using can decrease mild shaking.

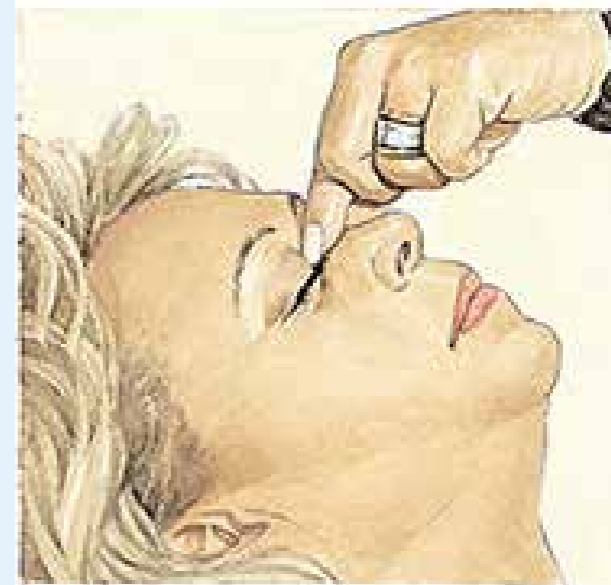
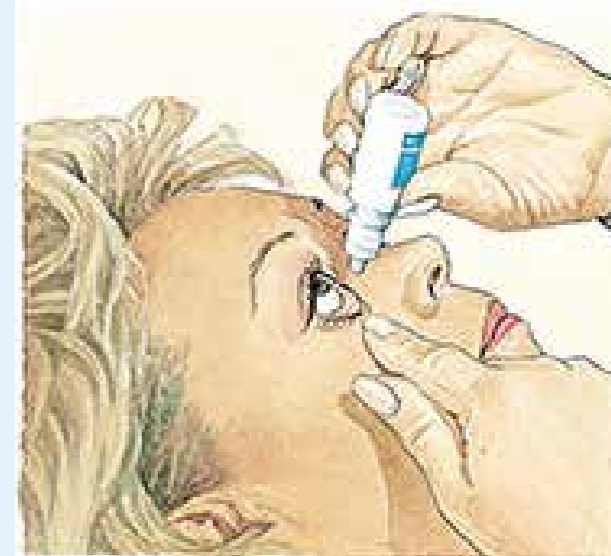
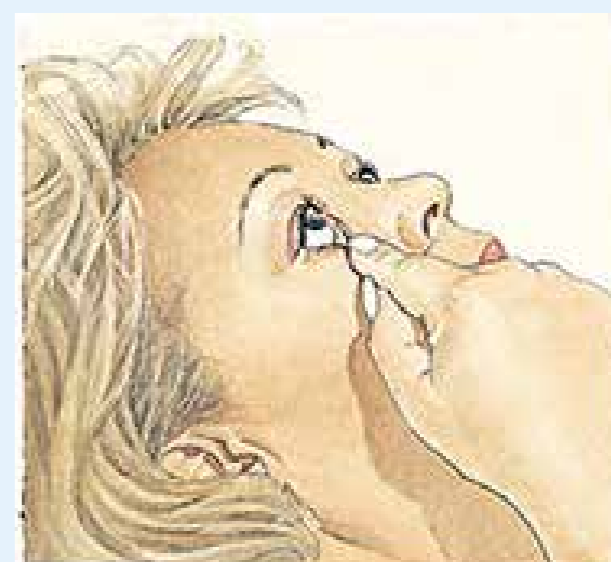
If you are having trouble getting the drop into your eye:

Try this: With your head turned to the side or lying on your side, close your eyes. Place a drop in the inner corner of your eyelid (the side closest to the bridge of your nose). By opening your eyes slowly, the drop should fall right into your eye.

If you are still not sure that the drop actually got into your eye, put in another drop. **The eyelids can hold only about one drop**, so any excess will just run out of the eye. It is better to have excess run out than to not have enough medication in your eye.

Having trouble holding onto the bottle?

If the eye drop bottle feels too small to hold (in cases where a dropper is not used and the drop comes directly from the bottle), try wrapping something (like a paper towel or tissue) around the bottle.



You can use anything that will make the bottle wider. This may be helpful in some mild cases of arthritis in the hands.

July is Glaucoma Awareness Month

Beat Invisible Glaucoma Campaign

July is Glaucoma Awareness Month, and this year it's going to be bigger than ever.

Glaucoma NZ is organising a **B.I.G. (Beat Invisible Glaucoma) Breakfast** to take place in downtown Auckland. **Masterchef winners** including Brett McGregor, and Aaron Brunet will participate in a **"breakfast cook-off"**.

As well as the **B.I.G. Breakfast cook-off**, the public is invited to host their own breakfasts during this month with family, friends or work colleagues (visit www.glaucoma.org.nz for further details).

"It's all about raising the awareness of glaucoma and funds for GNZ to continue our work. I am sure the Masterchefs will be demonstrating the value of good eye sight in the kitchen to create taste and sight sensations" says Helen Mawn, Executive Manager.

Former international cricketer, Sir Richard Hadlee, is once again GNZ's ambassador for this year's campaign. In the 70s and 80s, Sir Richard represented New Zealand in 86 test matches and 115 one-day internationals, facing cricket balls at 150kph and delivering them at up to 140ph.

"Good eyesight is so important whether you're facing a cricket ball or driving a car. That's why it's important to get checked," Sir Richard says.

Glaucoma is the "silent thief of sight". Most people experience no symptoms until

late in the disease – damage occurs slowly and progressively, getting worse over a long period of time.

While it is estimated 68,000 New Zealanders over the age of 40 currently have glaucoma, by the year 2031 it is anticipated this will grow to 76,000. It is a significant health issue.

What concerns health professionals is that with early detection, blindness from glaucoma is preventable. A glaucoma eye examination can pick up the disease very early and appropriate treatment can halt its progression and preserve sight.

Yet, it is estimated around 50% of New Zealanders with the disease, don't know they have it. With the population ageing, and people living longer, more New Zealanders face the possibility of developing glaucoma.

Research shows one of the things people fear most in life is going blind. It is right up there with cancer and heart disease, probably due to the devastating effect blindness can have on quality of life.

Studies have shown sight loss is likely to lead to depression, as well as accidents in the home, sometimes resulting in hospitalisation.

Then there are the day-to-day changes like the loss of a driver's license, or the ability to read, watch movies, or see grandchildren grow up.

Early detection is the first step to saving your precious sight. Glaucoma can't be cured. Once vision is gone, you can't get it back. However modern treatments like eye

Glaucoma NZ's key message for all New Zealanders is that early detection of glaucoma is vital when it comes to preventing blindness.

That means an eye examination for glaucoma every five years from the age of 45 and every three years from the age of 60. However, at any age, if you notice changes in your eyesight, then you should have your eyes examined at that time.

For example, don't rely on hobby glasses. It is a good idea to have your eyes checked by an eye health professional, just in case there is an underlying problem. In addition if you have risk factors for glaucoma, such as family history, then you may need your eyes checked more frequently.

drops can halt its progression and preserve the sight that is left.

The good news is that 98% of those who comply with their prescribed treatment for glaucoma will not go blind. That could mean putting in eye drops every day for the rest of their lives – it's a simple thing to do to **save precious sight.**

Throughout July be on the look-out for our donation boxes containing GNZ pens at all ASB branches and participating optometrists,

ophthalmologists and pharmacies around the country. Many of the optometrists and ophthalmologists have also chosen to donate \$2.00 from each eye examination undertaken during the month. Support has also come in the form of donations directly to GNZ in lieu of taking a donation box. **Thank you!**

APPEAL SPONSORS, THANK YOU



New Developments

Smart contact lenses

Glaucoma and the pressure within the eye are intimately linked, and reducing the pressure is often our only modifiable risk factor in slowing the progression of this silent disease.

Unfortunately a craftsman is only as good as his tools, and our tools for measuring pressure within the eye are not perfect. We can only take snapshots of the eye pressure at each appointment, and it is difficult to predict what is happening the rest of the time.

There is also variability in the different methods used, as well as between operators of the devices. Other factors such as the time of day and head position are also known to affect the eye pressure. Sometimes a series of recordings is performed over a single day to help give us better information.

A new technology just around the corner shows significant promise in the accurate monitoring of eye pressure.

Sensimed (Lausanne, Switzerland) have developed a contact lens (called the Triggerfish) embedded with an electronic circuit that can continuously record the eye pressure over a 24 hour period. The lens contains a strain gauge, measuring the change in shape over the clear window of the eye and calculating the eye pressure from these subtle variations. As there is no physical manipulation of the front of the eye (like some other tests), the recordings are independent of the patient and the doctor.

This amazing wireless contact lens transmits its recordings to a receiver attached near the face, but there are no physical wires involved. Over a 24 hour period it is able to take a reading every 5 minutes, (which itself is made up of an average of 300 readings over 30 seconds). This is an amazing number of data points, giving never seen before insight



into the fluctuations in eye pressure during a typical day.

This technology has great potential, especially in providing real life data on changes in eye pressure. This can be used to evaluate the effectiveness of treatments, or in correlation with other parameters such as blood pressure to evaluate a potential link. Human studies are currently underway and the results eagerly awaited.

As with any new technology, there are some limitations to be aware of. This sensor measures electrical change, and formulates an eye pressure in relation to that. There is still some work to be done in optimizing this relationship, and improving the accuracy of the readings. Also, as with any contact lenses, there are always risks of infection and damage to the eye surface, however a 24 hour monitoring period should mitigate most of these risks. The cost of the Sensimed is approximately \$1200.

The diagnosis and management of glaucoma is sometimes a difficult path, however exciting advances in science, and innovative thinking are paving the road ahead. The future sure looks bright.

Link: <http://www.sensimed.ch/en/products/sensimed-triggerfishr.html>

Community Fundraising

Getting dirty for glaucoma

Strength. Endurance. Camaraderie. These were the essential qualities that Dr Sid Ogra needed to complete the inaugural "Tough Mudder" event in support of Glaucoma NZ.

"Stopping the onset of preventable vision loss is something that Glaucoma NZ prides itself on, and therefore I wanted to acknowledge their work by fundraising for this amazing charity while putting myself through Tough Mudder", says Sid.



Dr Sid Ogra, third from left.

Held at Hampton Down racetrack on 26-27 April, Tough Mudder is a military designed obstacle course over 20km, which includes a variety of obstacles; a freezing bath full of ice, an electrified gauntlet of 10,000 volts, and countless pools of mud.

"The day was beautiful and we were released in waves of about 300 people to attack this challenging course. It all started well; with us having to traverse some muddy obstacles and dip into cold muddy pools. However our first shock came at the ice bath, aptly named "arctic enema". This was a bath of pure ice up to neck deep which left us numb for about 5 minutes. Further challenging obstacles ensued, and we got our first taste of the electric shocks halfway in. These shocks were much more violent than we expected and resulted in many groans of pain and words unfit for publication. Our team soldiered on and finally completed this exhausting yet satisfying event in a time of 3 hours and 20 minutes. One thing is sure – this was not a race but the goal was just to finish. These obstacles could not have been completed without teamwork, and there was a lot of help on offer with everyone helping each other regardless of age or gender" was Sid's account of the day.

Sid's mammoth efforts – above and beyond the call of duty - as GNZ's Education Fellow, raised over \$1,000 to help us continue our work around the country. Our thanks to everyone who supported Sid with a donation via the "givealittle" website.

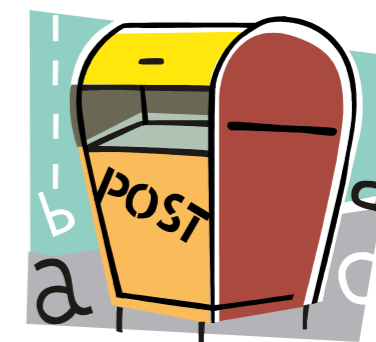
Well done Sid!!

Is refractive LASIK surgery safe for glaucoma patients?

If there are good reasons for a glaucoma patient to undergo laser vision correction, this can now be performed on glaucoma patients with minimal risks.

LASIK laser vision correction involves the use of an instrument to create a thin corneal flap. LASIK surgery has become safer for glaucoma patients with the introduction of a blade-free femtosecond laser to create the LASIK corneal flap because the femtosecond laser causes less IOP elevation, and it only lasts for 30seconds. If people have blindspots close to the centre of their vision - this may be a concern.

So, in summary, modern refractive surgery can be performed safely in the majority of glaucoma patients with minimal risks, but it is important that the patient informs their refractive surgeon about their glaucoma so that the safest vision correction procedure can be planned.



**Public
Mail
Box**

Laser treatment in Glaucoma

Along with medication (eye drops) and surgery, laser has a very important role to play in the treatment of glaucoma. There are different kinds of lasers available and the one used depends on the type of glaucoma. Not all patients are suitable for laser treatment and there are several factors your clinician will consider before recommending this treatment. The two most commonly used laser procedures today are selective laser trabeculoplasty and laser peripheral iridotomy.

Selective laser trabeculoplasty (SLT)

SLT is a very effective laser procedure used for patients with open-angle glaucoma. This is the type of glaucoma where the drainage part of the eye (called the drainage angle) is open but not working properly. SLT involves applying gentle laser to this drainage area to improve the flow of fluid out of the eye - 'unclogging the drain' so to speak (figure 1).

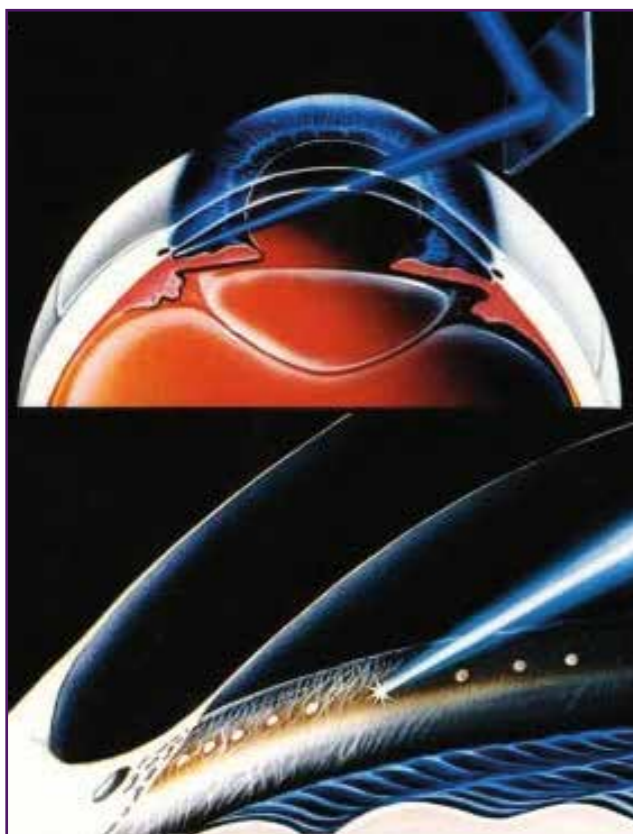


Figure 1

This results in a lower eye pressure that helps to stop the glaucoma getting worse.

It is often used when eye drops are not effective or cause troublesome side effects. It can also be used as an initial treatment for open angle glaucoma in suitable patients. Sometimes this procedure also helps to prevent the need for surgery.

SLT has an estimated success rate of 75-90% and typically lowers eye pressure by about 20-30%. This effect is similar to the best eye drops and is usually sufficient for most patients. The effect can last anywhere from 1 to 5 years and sometimes longer. Commonly the laser is only applied to half the drainage area at a time, as often this is all that's needed. SLT may need to be repeated if the effect wears off over time. Eye drops may still be needed for some people.

The procedure is performed in clinic and usually only takes a few minutes. It is painless and you can get back to your normal routine afterwards. The advantage of SLT is that it is very safe with no risk of vision loss or damage to the eye. Side effects are uncommon but are mild redness and temporary increase in eye pressure (5%) that usually resolves in a few hours.

Laser peripheral iridotomy (LPI)

This is a laser procedure for patients with angle closure glaucoma (ACG) or narrow drainage angles.

ACG occurs when the iris bulges forwards blocking the drainage part of the eye. This stops fluid leaving the eye - like having a plug in the sink with the tap still running. This leads to a very rapid (hours) rise in eye pressure and is an emergency as vision damage occurs in a very short time. An attack of acute glaucoma causes severe eye pain and redness, nausea and vomiting, blurred vision and/or halos around lights. Urgent laser surgery is needed to treat this condition.

The laser creates a tiny hole in the iris, which causes the iris to move backwards thereby

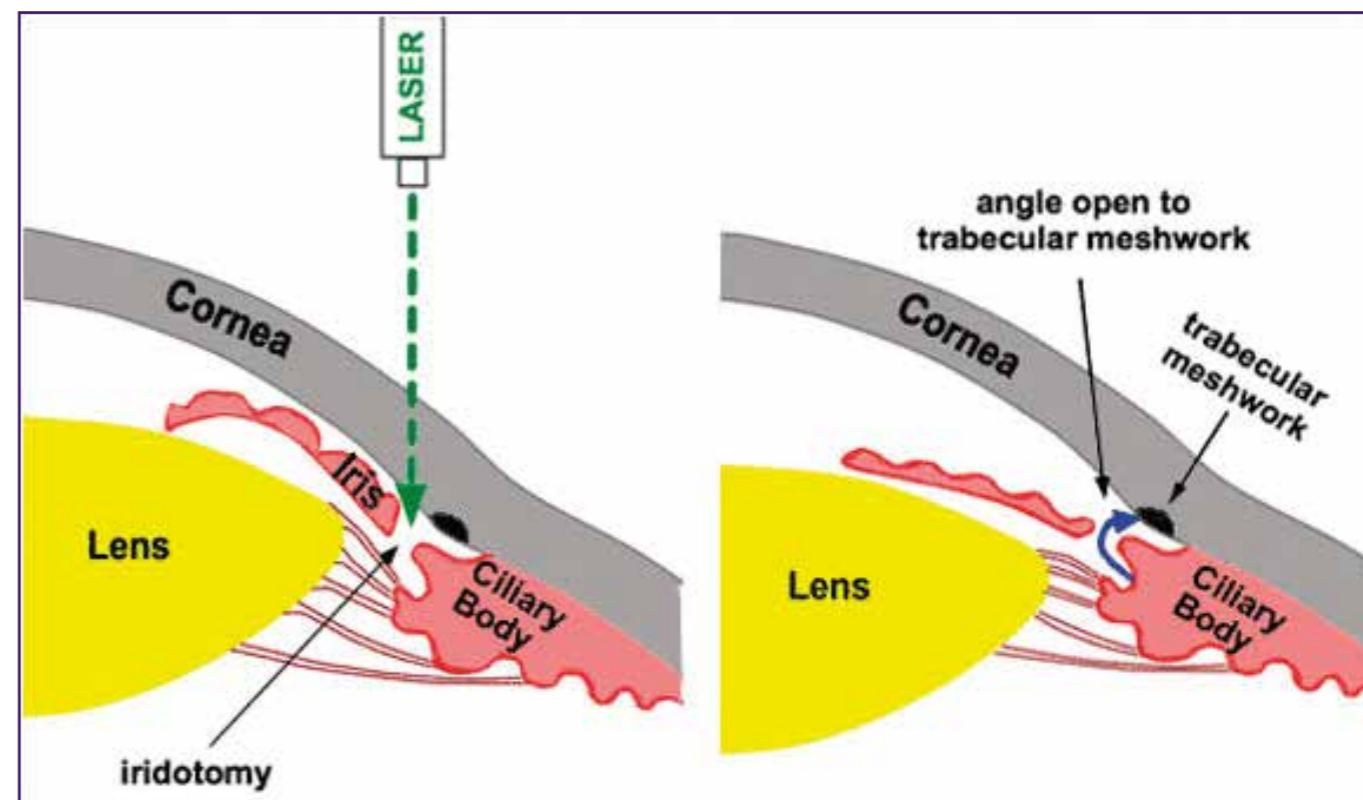


Figure 2

unblocking the drainage angle allowing normal flow of fluid out of the eye to resume (figure 2). The laser procedure is very quick only taking a few minutes and patients experience minimal discomfort. It is a safe procedure with a low risk of mild side effects.

People who have a very narrow drainage

angle due to the shape of their eye are at risk of acute glaucoma and require a LPI to be performed to prevent an attack of ACG. An eye specialist will be able to confirm if you are at risk or not of this occurring by examining the eye with a special lens.

Make a lasting gift

Including a gift to Glaucoma New Zealand in your Will is a powerful way to make a positive difference to the outcomes of those with glaucoma and their families, far beyond your lifetime.

Some initial steps to consider:

- Talk to your family. Help them understand why you want to support Glaucoma NZ into the future, as well as look after your own family and loved ones.
- Seek advice from your solicitor. People leave bequests of all sizes and no gift is too small to make a difference. Ask about adding a codicil rather than writing a new Will.
- Decide how you wish to share your estate. Whatever the size of your bequest, please be assured it will make a real difference to those with glaucoma, and the services Glaucoma NZ provide.

For more information and to download a Bequest Form that you can discuss with your solicitor, please visit www.glaucoma.org.nz.

Alternatively phone our office 0800 452 826, or email info@glaucoma.org.nz.


July Annual Awareness Appeal

WE NEED YOUR HELP. Please support us in our mission to eliminate unnecessary blindness from glaucoma in New Zealand. An estimated 68,000 New Zealanders over the age of 40 currently have glaucoma. 50% of these people don't know they have it.

We have reached thousands of New Zealanders with our programmes but there is still much more to be done to beat invisible glaucoma.

Public Meetings	Workplace/Community Seminars
Educational Resources	0800 Advisory Service
Eyelight Publication	Health Professionals Education Programme
Research	Advocacy

It is vital that we continue to maintain and extend our nationwide initiatives but we can't do it without your help. Your support is important to us.

 **THANK YOU** for your generosity - every donation counts!

YES! I would like to make a donation to the July Annual Appeal.

\$200 \$100 \$50 \$20 \$_____ (other)

Name _____

Address _____

Postcode _____

Phone No _____ Email _____

I enclose my cheque made payable to Glaucoma NZ

Please debit my credit card Visa Mastercard

Name on Card _____

Card No _____ / _____ / _____ / _____

Expiry Date ____ / ____ Signature _____

Donations of \$5.00 or more are tax deductible and will be receipted.

YES! I would like to receive more information about:

Donating on a regular basis by Automatic Payment

Leaving a bequest in my Will to Glaucoma NZ

I have already included Glaucoma NZ in my Will

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