



Treating Glaucoma – how low does your eye pressure need to be?

Having a high eye pressure (also called intraocular pressure or IOP) is one of the main risk factors for the most common type of glaucoma – Primary Open Angle Glaucoma (POAG). An eye pressure of above 21 mmHg is generally considered to be above normal (*the normal range is 10 to 21 mmHg*). If you have a high eye pressure and changes to your optic nerve (*the nerve that connects your eye to the part of the brain responsible for vision*) and corresponding loss of your side vision (*termed peripheral vision*) you will likely be diagnosed with POAG.

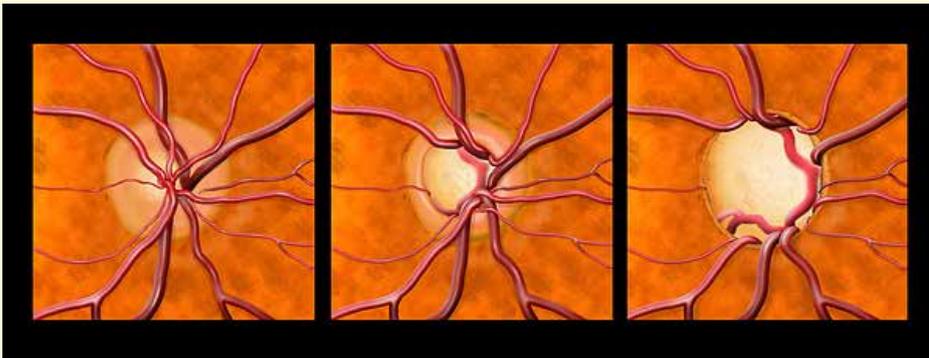


Fig 1

getting worse (*unfortunately we can't cure glaucoma or recover vision already lost*). Treatment is usually with eye drops, but sometimes laser treatment or surgery is needed.

For many people, having an eye pressure back into the normal range (*21 mmHg or less*) will be sufficient. However, if you have more advanced glaucoma, sometimes a very low eye pressure will be needed to stop your glaucoma from getting worse. Hence once you have been diagnosed with glaucoma and a decision made to start you on treatment, the next step is to work out how low your eye pressure needs to be. This is called setting the target IOP – this is an eye pressure level at which further worsening of your glaucoma is unlikely to occur. Setting a target IOP can be one of the most important steps in treating glaucoma.

Your target eye pressure will depend on the severity or 'how bad' your glaucoma is as well as how high your eye pressure is before

Once you have been given a diagnosis of POAG you will likely then be started on treatment to lower your eye pressure to a safer level. Lowering eye pressure is the only clinically proven way that glaucoma can be stopped from

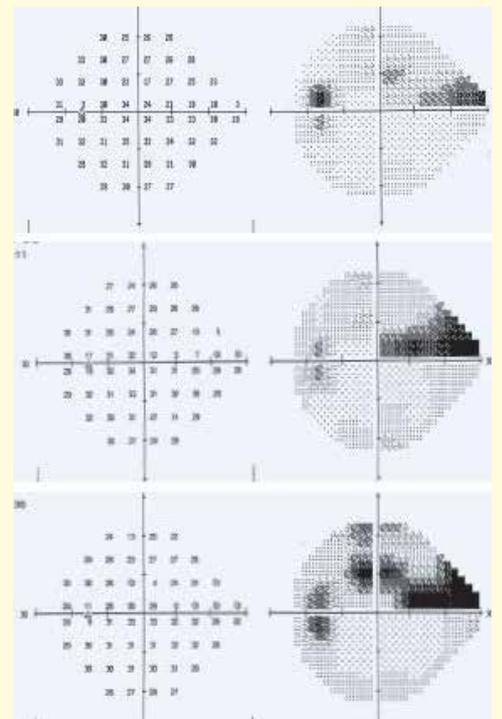


Fig 2

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treatment. Your glaucoma will be graded as being early/mild, moderate, or advanced. This is worked out based on the amount of cupping (or 'hollowing') of your optic nerve, the main sign of glaucoma – (see figure 1 shown as top pic on the previous page) as well as the amount of vision you have lost – detected by performing a visual field test (see figure 2- shown at bottom right on the previous page).

The target eye pressure may be adjusted depending on the thickness of your cornea (the front surface of the eye), your age and life expectancy, quality of life, and other risk factors for worsening glaucoma. After starting treatment your eye pressure will be checked again in about 4 to 6 weeks to see if the target eye pressure has been reached.

If your eye pressure is at the target or lower and you are having no side effects the treatment will be continued.

If your eye pressure is still above the target level then additional treatment will be needed.

Most patients will be followed up every 6-9 months for mild/moderate glaucoma and every 4 months for advanced glaucoma.

At each visit the target eye pressure is reviewed again and may need to be adjusted depending on how stable your glaucoma is.

Figure Legends

Figure 1:

Severity of glaucoma is determined by the amount of cupping of the optic nerve (central pale area/hollowing). Here we have a normal optic nerve (left), an optic nerve with moderate cupping (central) and a nerve with advanced cupping (right).

Figure 2

Visual field test results demonstrating increasing loss of peripheral vision until eventually the central vision is involved (advanced glaucoma).

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 and receives no government funding. We rely solely on donations, sponsorship, grants and fundraising. All the information available to you from Glaucoma NZ is free. To donate please go to donation coupon on the back page of the Eyelights newsletter.

To donate online visit www.glaucoma.org.nz

Glaucoma Across the Globe



Part 1 - Glaucoma in Asian Populations

East Asians experience the highest rate of blindness in the world from one of the two most common types of glaucoma.

Primary angle-closure glaucoma (PACG) is a major cause of world blindness today, and it is expected to become an even more serious problem as the world population and longevity increases.

The other major glaucoma type is primary open angle glaucoma (POAG), which is more prevalent among people of European and African descent.

For Chinese living in urban areas, the ratio of those with PACG to POAG is 2 to 1 — twice as many Chinese living in bigger cities have angle-closure glaucoma than the open angle type. PACG is a more aggressive form of glaucoma and accounts for 90 percent of all cases of blindness from glaucoma in China.

There is great racial diversity among Asian populations, and these differences are represented in the presentation of disease among Asian patients. Studies have found that South Asians, ethnic Chinese, and

Inuit Eskimos are at significantly higher risk for angle-closure glaucoma, whereas a study of a population of Japanese patients found ACG incidence to be much lower than in their Asian counterparts.

Normal Tension Glaucoma affects Japanese

Japanese populations, however, have a substantially higher incidence of normal tension glaucoma (NTG), a form of glaucoma where optic nerve damage occurs even though pressures in the eye are not elevated (high eye pressure is the most significant risk factor for open angle glaucoma). In fact, a Japanese study found NTG accounted for 92 percent of open angle glaucoma cases in Japan.

A study published in the February 2009 Archives of Ophthalmology looked at a large Japanese American patient group in San Francisco and found that the proportion of patients with normal tension glaucoma was 4 times greater than those with high tension glaucoma.

More studies need to be conducted for us to better understand why Japanese patients are more prone to normal tension glaucoma, and how we can treat the disease more effectively in this population.

Angle-closure Prevalent in East Asia

So why is primary angle-closure glaucoma so much more prevalent in East Asian populations? One reason is that Asians may be anatomically predisposed to PACG.

In Asian eyes, the iris (the coloured part of the eye) attaches to the sclera (the eye's

white, protective covering) in such a way as to form an anatomically narrower angle with less trabecular meshwork exposed.

Angle-closure glaucoma occurs when the iris blocks the trabecular meshwork, the eye's drainage system, which leads to increased intraocular pressure (IOP). The increased IOP eventually causes damage to the optic nerve, which transmits visual signals from the retina to the brain. If the angle closes suddenly, there can be a sharp increase in eye pressure. Symptoms of acute angle-closure may include headaches, eye pain, nausea, rainbows around lights at night, and very blurred vision.

How do you know if you have narrow angles?

Your eye doctor can examine the angle of your iris with an eye exam called gonioscopy. The doctor examines the angle under a microscope with a special contact lens.

For patients who are at risk for angle-closure glaucoma, the doctor can treat the eye with a laser procedure called laser peripheral iridotomy. An iridotomy creates a drainage hole in the iris so that eye pressure is less likely to build up and cause an acute angle-closure.

If you are Japanese or may be at risk of normal tension glaucoma, a thorough dilated examination of the eyes is warranted and additional tests such as visual field and optic nerve imaging can help to diagnose this condition.

Just as people are different everywhere, so are eyes. Anatomic and genetic differences have much to do with why there are so many different forms of glaucoma.

Source - **Shan C. Lin, MD**, Associate Professor, Glaucoma Service at the University of California San Francisco.

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.

If you continue 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.



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 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.

Eye Drop Aids

There are some assistive devices "AutoDrop and AutoSqueeze" available to help you put in your eye drops. These devices have been developed to make self-administration of your eye drops as easy as possible – designed to overcome such obstacles as:

- Missing the eye with the drop
- Blinking as the drop is delivered
- Difficulty in squeezing the bottle to deliver the drop

For more information AutoDrop and AutoSqueeze can be viewed and ordered online at www.eyecaresolutions.co.nz

Alternatively, you can enquire about these aids at your local optometrist.

Glaucoma NZ Professional Education Programme 2017

Open for Enrolments!

The online web-based Professional Education Programme is approved by the NZ Optometrists & Dispensing Opticians Board CPD Accreditation Committee for a maximum of **10.5 Clinical Diagnostic (CD) Credits**.

- The Programme consists of 7 cases – each with a case history, questions and answers for self-directed learning, followed by an associated web-based examination.
- Successfully passing all 7 cases awards the maximum of 10.5 CD credits.
- While mainly directed at optometrists, the Programme is open to any of those in the Eye Health field, including orthoptists, nurses and technicians.

Visit www.glaucoma.org.nz for further information and enrolment options.

Contributors to Eyelights

We would like to thank the following people for contributing to the April 2017 Eyelights publication.

Prof. Helen Danesh-Meyer
Dr Hussain Patel
Assoc. Prof. Gordon Sanderson

Glaucoma New Zealand Symposium 2017

Registrations now open

The Glaucoma New Zealand Symposium will be held in August 2017. This is a one day education event for optometrists and other eye health professionals.

- **Where:** Alexandra Park Function Centre, Green Lane West, Epsom, Auckland
- **When:** Sunday 13th August 2017, 8.15 am – 5.00 pm
- **Conference Programme:** The overall theme of the Symposium is 'Glaucoma – from Diagnosis to Management'. It will be an exciting one day conference with rapid-fire presentations on a wide range of glaucoma topics, including Glaucoma Diagnosis, Special Issues in Glaucoma, Glaucoma Treatment and Challenging Cases. The scientific programme is being overseen by Professor Helen Danesh-Meyer and presentations will be given by glaucoma specialist ophthalmologists and optometrists.
- **Cost:** \$120 per delegate for a full day of glaucoma education
- **Professional Education:** Application for up to 6 clinical diagnostic points
- **Registration:** For more information and to register for the Symposium, visit www.glaucoma.org.nz

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Public Meetings 2017

Glaucoma NZ's **free** public meeting programme commences in April with the following meetings confirmed:

Meetings start at 10.00am

29th April – New Plymouth, Quality Hotel Plymouth International, 220 Courtenay Street, New Plymouth.

25th June – Whangarei, Forum North, 7 Rust Avenue, Whangarei.

1st July – Auckland Central, venue to be confirmed.

8th July – Tauranga, venue to be confirmed.

5th August – Havelock North, Havelock North Function Centre, 30 Te Mata Road, Havelock North.

14th October – Gisborne, Emerald Hotel, 13 Gladstone Road, Gisborne.

Other locations on the 2017 itinerary include Auckland North, Lower Hutt, and Dunedin in early 2018.

Visit www.glaucoma.org.nz for updates.

These meetings are extremely popular and informative so plan to attend when there is one in your area.

Glaucoma NZ members will receive personal invitations for meetings in their area.

These meetings are open to any member of the public wanting to know more about glaucoma – invite your family and friends to attend.

New Year Appeal

WE NEED YOUR HELP to enable us to extend our vital work in the community.

An estimated 91,000 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 nationwide programmes but we want to do more. Our aim in 2017 is to build on our community programmes, and our work with eye health professionals.

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

Your support is important to us - we can't do it alone.

THANK YOU for your continued generosity - every donation counts!



YES! I would like to make a donation to the **New Year Appeal**

\$300 \$100 \$50 \$20

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Please debit my credit card Visa Mastercard

Name on card _____

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

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