

Eyelights

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

About Glaucoma New Zealand

In this edition of Eyelights we bring you another selection of articles about glaucoma. Glaucoma is a chronic disease. It often has a long period during which it can pass unnoticed. When it is diagnosed there are many options for treatment and control of its blinding process. Yet it still afflicts us as the number one preventable cause of blindness.



For these reasons Eyelights is produced for you. To help us all understand and meet the challenge of this disease that threatens vision and blinds.

Glaucoma NZ wishes you all a very enjoyable Christmas Season.

We look forward to being back again in the New Year with further issues of Eyelights.

Public Meetings

We finished our Public Meetings for 2004 with four successful meetings in the South Island. Invercargill was the first of these on 6th November and Dr Ken Tarr spoke to an appreciative audience. Then Dr Rod Keillor spoke at Oamaru, Lawrence O'Connell at Alexandra and on 13th November Dr John Ah-Chan addressed a large crowd at the University Hospital in Dunedin. Internationally acclaimed Ophthalmologist, Professor Tony Molteno joined with John and Otago Senior Lecturer Gordon

Sanderson to answer the many questions from a keen audience. Lions Clubs assisted with all these South Island meetings – Lions throughout the country have supported us this year by distributing publicity about our meetings and assisting with the light refreshments afterwards. We appreciate their support and they tell me they appreciate the lively buzz of conversation they hear after our meetings as people have a cup of tea and talk to other people with glaucoma.

Volume 1, Issue 6

December 1st 2004

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VDU Screens and Glaucoma

There has been a recent article in the press about a Japanese study on computer work and its relevance to glaucoma. There are many aspects of this research that suggest that its conclusions cannot be substantiated. The



sample was taken from Far East populations in which there is a high prevalence of myopia - a known risk factor for glaucoma. Other limiting factors of the research include the term Glaucoma not being defined and that many of the

research participants were not seen by a glaucoma specialist. The limitations of the study raise concerns about making such sweeping statements linking eye disease, and glaucoma in particular, to VDU use.

Most leading glaucoma specialists who have analysed this study do not believe that there is any strong evidence for the claims which have been made.

Your ophthalmologist considers many kinds of information to determine your risk for developing the disease. The risk factors that

have been confirmed to be related to glaucoma include:

- ◆ age
- ◆ elevated eye pressure
- ◆ family history of glaucoma
- ◆ farsightedness or nearsightedness
- ◆ past eye injuries
- ◆ thinner central corneal thickness
- ◆ systemic health problems, including diabetes, migraine headaches, and poor circulation
- ◆ African or Spanish-American ancestry

Your ophthalmologist will weigh all of these factors before deciding whether you need treatment for glaucoma, or whether you should be monitored closely as a glaucoma suspect. Being a glaucoma suspect means your risk of developing glaucoma is higher than normal, and you need to have regular examinations to detect the early signs of damage to the optic nerve.

One promising aftermath of this week's media story is that it is likely to boost the number of people getting an eye examination and a glaucoma check. Some people are sure to benefit as 2% of our community over 40 years of age have glaucoma.

Trabeculectomy Surgery

The eye is like a soccer ball: unless it is pressurized it has no form. Pressure is what makes the eye round. Instead of being pressurized with air the eye is pressurized with "aqueous". Aqueous is a perfectly transparent



fluid and is made within the eye by a thin band of tissue called the ciliary body.

The aqueous is made continuously and exits the eye from another thin band of tissue called the trabecular meshwork. The trabecular meshwork is like a gutter and encircles the eye

just behind the cornea. If the gutter gets clogged it becomes harder for the aqueous to exit the eye and the eye pressure rises.

The obvious way to solve this problem surgically is to make a hole in the side of the eye. Until the 1970s this was what Eye Surgeons did to patients with uncontrolled glaucoma. It was called the Scheie's Procedure and it lowered the intraocular pressure very well. After the small hole was punched in the white wall of the eye (the sclera), the thin skin covering the eye (the conjunctiva) was drawn up to cover over the hole and the aqueous filtered back into the bloodstream from underneath the conjunctiva.

However, Scheie's operation frequently failed. The conjunctiva is not as strong as sclera and the pressure of the aqueous against the undersurface of the conjunctiva used to cause the conjunctiva to become dangerously thin and perforate, often leading to disastrous eye infections. Also the pressure was frequently too low after the operation.

In the late 1960s John Cairns, a surgeon from Cambridge in England came up with a new method of doing a trabeculectomy that remains standard practice to this day, and carries his name.

Cairns fashioned a square half-thickness "trapdoor" in the sclera which he lifted back along its uncut side. He then made the hole into the eye beneath the trapdoor. Once the hole through into the eye was completed the square flap of sclera was swung back down over the hole and sutured down. Then the conjunctiva was sutured back over the trapdoor in similar fashion to the Scheie's.

This method has two advantages. Firstly, it gives the eye surgeon the opportunity to control the pressure depending on how tightly the trapdoor is sutured down. Secondly, it ensures that the jet of aqueous that passes through the hole does not hit the weak conjunctiva directly

but that its force is dissipated against the scleral trapdoor before diffusing underneath the conjunctiva. Cairn's method overcame the tendency of the Scheie's trabeculectomies to perforate and get infected and made for a much safer glaucoma operation.

It is usual after trabeculectomy surgery to be on 3 different medications for a period of about six weeks. There is a dilating drop like atropine which helps control the eye pressure in the initial post-operative phase – it also blurs the vision. Patients undergoing trabeculectomy can expect to have blurring of vision for at least a week. There is a steroid drop which settles the inflammation and prevents scarring. And then there is an antibiotic drop to prevent infection.

During the post-operative phase the surgeon will watch the eye pressure very closely. If it rises he may intervene by breaking the sutures which hold down the trapdoor. Sometimes a cyst of scar tissue arises at the site of the operation (Tenon's cyst) and often such a cyst needs to be "popped" with a needle to return the pressure to the desirable level.

If the eye pressure rises after a trabeculectomy the pressure lowering properties of the operation can be supported by the addition of eye drops. Ophthalmologists have noticed that even when the IOP reduction achieved by trabeculectomy surgery is not great that protective effects of the surgery are still conferred. This may be because the surgery smoothes out the hour to hour variation in the IOP.

We are already planning our meetings for next year.

Our first meeting will be in Hamilton on 19th Feb. Venue details will be on our website shortly. The presentation will be brand new but we will still be including the popular question and answer time at the end.

“Trabs” or Drops?

What is better at preserving sight in patients with glaucoma? Is it eye drops or is it surgery? This question was addressed by a South African surgeon called Clive Migdal who works at the Western Eye Hospital in Marylebone, London. He showed conclusively that surgery was superior to drops for preserving sight in a study published in 1994. In the same decade another London-based surgeon called David



Broadbent showed that trabeculectomies worked much better for much longer if they were carried out on patients who had not previously had eye drops.

Why don't all our patients have glaucoma surgery then? The truth is that the risks of surgery outweigh the risks of eye drops. Even though Cairn's trabeculectomy reduced the problems of glaucoma surgery substantially and has made trabeculectomy a very safe procedure it has not eliminated them.

We have all seen patients who have beautiful trabeculectomy operations that are still working well after 20 years but the trend is for trabeculectomies to slowly fail and for the eye pressure to rise. This can happen very quickly, within a year, or more gradually. By and large eye pressure steadily rises after surgery and 10 years is a good life expectancy for the modern trabeculectomy. This gradual deterioration in function simply reflects the realities of wound healing. The body closes wounds, even surgical ones. In this light it is fantastic that the trabeculectomy works as well as it does. These days surgeons use the anticancer drugs 5 Fluoro Uracil (5FU) and Mitomycin C (MMC) to protect the trabeculectomy surgery from failing. These agents are applied to the sclera at the time of

the surgery and reduce the scarring response and thereby extend the life expectancy of the glaucoma operation.

Problems with over drainage and low pressure can still occur in the setting of a Cairns trabeculectomy as can thin conjunctiva and infection. Cataract formation which is universal to some extent once New Zealanders enter their 60s and 70s is accelerated by trabeculectomy. Sometimes patients are aware of the bulge in the conjunctiva (the bleb) that forms around the scleral flap. The bleb makes contact lens wear problematic. Dilating drops which blur the vision are used in the first weeks after trabeculectomy surgery. In the initial period following the surgery the IOP may vary and the operation almost routinely needs manipulation in the first 2-3 months to optimise its performance and prevent scarring.

These are the reasons why drops are the preferred first choice in patients with glaucoma. Also since the introduction of the prostaglandin analogues (Xalatan, Travatan and Lumigan) in the last 5 years our ability to control the IOP with drugs has improved considerably and most eye surgeons have found a fall off in the number of patients requiring surgery as a result.

Generally speaking trabeculectomy surgery is recommended when the IOP cannot be lowered with drops to a level that the surgeon in his or her judgment believes will forestall blindness. Or, having achieved a satisfying reduction in pressure with eye drops there is evidence from sequential visual field testing of continuing loss of surround vision. We are most happy to do this procedure when the glaucoma patient understands and has weighed the risks of surgery against the risks of continued poor IOP control and wants the operation for him or herself.

Personal Story from a 50 Year Old Man

Twenty years ago I was introduced to a new word. Glaucoma. It has had an enormous effect on my life and I believe has made me a stronger person. Glaucoma, a funny word with a big influence. It reduced my vision but gave me a new focus, forced me to refocus on what's important and gave me a hook to hang that new focus on. After years of sore eyes (pressing them was the only way to get some instant momentary relief), vision problems, and a lack of credibility as few people believed I had a problem, the word glaucoma simplified it all, it made the problem small enough to deal with.



Now I had something to focus on, to call the enemy, to see if at least I could live with it or better still beat it. I remember that day twenty years ago so clearly when glaucoma came into my life, it was mixed in equal parts with fear and hope and looking back it was the hope that enabled me to cope. Hope and a great eye man. For me the thought of losing my vision was so overwhelming it was far easier

not to think about it and when I did I busied myself with other passions. Being a male I can only think of one thing at a time so it wasn't too difficult. I live in a world where colour, design and detail are so important so the thought of never seeing again would mean a large chunk of my life would have to be rethought. But I also realised I wasn't going through this all alone, I had my eye man.

It was when I was most down that his dedication to my problem was such a crutch, he gave me hope and changed my medication as needed when things weren't working which left me free to cope with my inner self. The knowledge that if anything can be done, somehow it would be, was and is so comforting. Like life we are never alone, often whether we like it or not. I didn't fight this new word alone, we did and we will continue to fight it until the Grim Reaper comes knocking.

My vision is OK, I continue as before, hopefully a better person for the battle.

Focus on Research

Does lowering your cholesterol help lower your risk of glaucoma?

A five year study of men aged over 50 found that those who had used cholesterol-lowering medications, known as statins, for at least two years were less likely to be diagnosed with glaucoma than those who had not.

The lower risk of glaucoma was particularly notable in men with cardiovascular disease and lipid metabolism disorders. Non-statin, cholesterol-lowering medications were also found to be associated with a lower risk of developing glaucoma.

The researchers speculated that this potential benefit may be due to two factors:

1. improved health of the optic nerve vasculature as a result of lower cholesterol levels
2. enhanced outflow through the trabecular meshwork as an effect of statins themselves.

If more studies show a beneficial relationship between cholesterol-lowering medications and glaucoma risk, lowering cholesterol may have a role in the treatment of glaucoma.

Eye Treatments Have Improved!

Eye treatments, like most things in life, are better now than ever before. Glaucoma management has never been more effective than it is now. Of course it will be better still in the future. With all the research effort around the world and new treatments being developed all the time things can (or should) only improve.

Some times it is a good thing to look back in time to what was done before in order to appreciate how far we have come. This account of eye treatment, given in 1874, was written by Richard Charles Wills at age forty two. It was published in the Cumbria Family History Journal. Nov. 1998 No.89.

Financed by his father, Richard travelled from Liverpool to Coblenz on the Rhine to find an eye specialist (that makes a 30 minute trip in the traffic to the eye clinic seem short). This is a direct quote from his account of the best treatment of the day.

“ The eye specialist, a Dr. Meurer, had three weapons he could use against this particular disease: the first was an ointment made from powdered silver nitrate mixed with lard, which was supposed to be soothing; the second was an irritant, extract of opium in a solution of alcohol; the third was another ointment, again deliberately used as an irritant, the chief ingredients of which were belladonna (obtained from the leaves and roots of the plant Deadly Nightshade) and lard.

The opium was administered by eye drops. The ointments were applied by taking a lump about the size of a pea on a small brush. The upper eyelid was lifted away from the eye by the doctor while the lower was held steadily by the

patient and the ball of ointment was inserted under the upper lid. A similar procedure placed another lump of ointment under the lower eyelid. The patient was then told to keep opening and closing the eye to spread the salve evenly over the whole of the eye and eyelid. After ten minutes the eye was gently pressed to squeeze out the excess ointment, which was wiped off with a cloth and the eye was then bathed with a sponge soaked in “lotion”. This latter treatment was usually applied daily and resulted each time in a vicious, burning sensation in the eye”.

The account then goes on to a diary of his treatment through April to October 1874, written to his wife describing the agonising treatment. These are some excerpts from the diary.

4th June – “Dr. M tried a new ointment today for the first time

and it is only compared to filling the eyes with powdered tobacco or snuff. I was $\frac{3}{4}$ of an hour before I was able to open them and they are only just losing their redness at 5 o'clock I expect a lively time as all the former applications though I thought them bad were quite soothing compared to this”.

The amazing thing is that Mr. Wills kept going back! He also gives a brief account of a fellow patient having treatment for a cataract which was “... treated by injections of strychnine under the skin on the temples. this caused the patients tortures at the back of the eyes and violent headaches”.

Don't we live in amazing times where medical treatments have come so far in improving the quality of life so tremendously!



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!

Glaucoma and Eye Trauma

Eye trauma is considered as either a blunt injury or as a penetrating injury. Blunt eye trauma is more common and occurs when the eyeball is struck with a fist, ball or other object but does not burst the solid coats of the eye. Penetrating injuries do just that: penetrate into the eye. Windscreen glass in motor vehicle accidents, knives, screwdrivers and the like are frequent causes of penetrating injuries.

Blunt injury temporarily deforms the globe, causing a shearing stress between its internal tissue layers. These shearing forces may tear structures inside the eye that leads to scarring. Initially this injury may result in bleeding inside the eye known as a hyphaema. The blood then absorbs and the vision often returns to normal. However all is not necessarily well as subsequently there may be scarring of the fluid drainage system of the eye. This will lead to raised pressure within the eye and therefore glaucoma. It may take years before glaucoma occurs. The drainage system can be

examined for damage but only regular follow up can determine if the pressure has risen and glaucoma is setting in.

Small penetrating injuries are less likely to lead to glaucoma for the tissue damaged is often more localised and avoids the drainage system. Severe injuries however may have many complications including glaucoma. We should all wear protective spectacles far more often, in work and play, to prevent these injuries.



Contact Us with Your Questions & Comments

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I am interested in becoming a volunteer for Glaucoma NZ

I would like information on leaving a bequest for Glaucoma NZ

adidas Auckland Marathon Update

More than 60 people took to the Auckland streets on the morning of 31st October to raise sponsorship for Glaucoma NZ in conjunction with the adidas Auckland Marathon. We were a small number among the thousands who were running or walking in the Marathon, Half Marathon or 10 K event but our cool blue tee shirts stood out amongst the crowd.

Thankfully the day dawned crisp and clear for our very early start – those entered in the Marathon or Half Marathon had to catch a ferry to Devonport at 5.30 am to start their run back over the Harbour Bridge. The 10 K runners and walkers strode off from the Viaduct at a much more civilized time of 8.30. All gathered back at the Glaucoma NZ tent after the finish



for a barbecue and refreshments.

The sponsorship collected is still coming in but it looks like we will raise in excess of \$6,000. Glaucoma NZ says a big Thank You to those who participated and also to our sponsors, Royal Oak Trust, The Mad Butcher, adidas Eyewear, Kodak, Fujifilm, Pfizer and Visique.

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