Paediatric Glaucoma

Glaucoma is thought of as a disease of adulthood with a greater risk as one ages and this is largely true. However glaucoma can strike at any age and sometimes it affects children.

Early onset glaucoma arises because of an inborn abnormality of the structure and/or function of the pressure drainage area in the eye, the trabecular meshwork. Depending on the severity of the abnormality it can be present when a baby is born or it can arise later. When glaucoma occurs under the age of three we call it infantile glaucoma and if after the age of three then it becomes juvenile glaucoma.

A lot of the glaucoma seen in young people is secondary, meaning that some other disease or condition has caused it. This includes, for example, another type of inborn eye problem, an injury or inflammation in the eye. Children who are born with cataracts that require removal within the first few weeks of life can develop glaucoma. This means any child who has cataract surgery must be kept under glaucoma surveillance by an ophthalmologist or optometrist for the rest of his/her life.

Infantile glaucoma behaves quite differently from the glaucoma seen in older people. The cornea, the window portion on the front of the eye has a far greater tendency to become cloudy (oedematous) and this leads to watering and light sensitivity. Sometimes that watering leads to a misdiagnosis of a blocked tear duct. A young eye is relatively soft so any pressure rise can cause the eye to enlarge (buphthalmos), something that doesn’t occur after the age of three.

The optic nerve in children can be more tolerant of elevated pressure than an adult nerve but on the other hand even a slow worsening is more relevant when your eyes have to last 70-80 years rather than 20-30.

When glaucoma causes loss of nerve fibres we see increased cupping of the nerve, meaning that the depression in the centre of the nerve head in the eye gets larger as the rim of nerve fibres gets thinner. In children and young adults some of that cupping may be reversible with the cup getting smaller again, and the nerve rim improving, as the disease is brought under control. This occurs because the less rigid eye of a child allows some outward bowing of the nerve which makes it look more cupped. When the pressure comes down the outward bowing reverses and the cup size gets smaller again. This can be seen in people as old as 35.

The treatment of infantile glaucoma is also very different with surgery being the primary therapy and drops more as an adjunct. Different types of surgery may be appropriate in children including goniotomy, which involves using a needle inside the eye to try to open up the trabecular meshwork so it can work more efficiently. This

Child with Buphthalmos

Continued over page
is usually very effective but is less so when the glaucoma is due to some other disease than when it occurs on its own.

The surgeon needs to be able to see into the eye to perform goniotomy and if this isn’t possible then trabeculotomy is the other option. This should not be confused with trabeculectomy which is the standard adult glaucoma operation. With trabeculotomy a flap is created on the sclera (the white of the eye) and the channel that drains pressure from the trabecular meshwork is identified. A probe is passed along this channel and then rotated into the eye. You can think of trabeculotomy as creating a pathway from the outside in and goniotomy from the inside out.

Glaucoma eye drop use in children is different from adults with fewer options available. For example Alphagan (Brimonidine) can cause sleepiness and affect breathing and is usually avoided in children under eight years of age. If babies are treated with Timolol drops then they should sleep on an apnoea mattress as this drop can affect breathing.

Monitoring eye pressure in young children can be challenging and full assessments sometimes require repeated general anaesthetics. However, most of the time, with the equipment available nowadays, the checks can be done in the clinic. Of particular value in measuring the pressure is the i-care tonometer which can be used without even putting anaesthetic drops in the eyes, a real bonus when dealing with children. In fact it is remarkable how well some young children manage their eye checks; even at three or four some will sit on Mum or Dad’s lap and happily put their chin up on the microscope for the examination.

A unique problem with paediatric glaucoma is the fact that the vision in children is still developing until around eight years of age. Any eye condition that interrupts normal vision, including glaucoma, can slow that development and cause laziness of the vision (amblyopia). We can treat that with patching of the better eye but sometimes it is difficult to reverse and in fact more children with glaucoma lose vision from amblyopia than from optic nerve damage.

Paediatric glaucoma is quite different from adult disease and its management has some special challenges. On the other hand, as is usually the case when dealing with young people, the visits can be fun and the satisfaction of helping a young child maintain vision for a lifetime is particularly rewarding.
Glaucoma Symposium Update

The second GNZ Glaucoma Symposium was held at Alexandra Park in Auckland on Sunday 13 August. It was exciting to see a large number of attendees, with approximately 130 delegates from across New Zealand. The second GNZ Symposium delivered high quality glaucoma education and encouraged collaborative discussion between optometry, ophthalmology and industry colleagues.

The morning sessions included a keynote speaker, and two blocks of brief presentations, and the afternoon sessions consisted of glaucoma cases, with interactive panel and audience discussion. Professor Steven Dakin, head of the School of Optometry and Vision Science at the University of Auckland was the keynote speaker. Professor Dakin presented ‘Glaucoma: The View from Optometry’, emphasising the diagnostic and management challenges faced by clinicians. Professor Dakin discussed the potential role of eye movement assessment in the examination and follow-up of patients with glaucoma. He highlighted preliminary research results, and new eye tracking possibilities. In addition, Professor Dakin made mention of the NZNEC glaucoma collaborative care model, providing a platform for future DHB glaucoma care in the Auckland community. The ultimate aim of this model is to offer public glaucoma assessment locations that are convenient to patients, and to reduce waiting time in between visits.

The short presentations in the first session came under the theme of ‘Clinical Pearls for Glaucoma Management: Tips of the Trade’. Session chair, Dr Sam Kain, provided the delegates with some light relief on a Sunday...
morning, with quirky introductions revealing the secretive (and sometimes dark) past of the speakers. Dr Graham Reeves opened the session with a presentation on disc examination and interpretation. This was followed by a presentation by Dr Hussain Patel on the challenging subject of determining visual field progression. Dr Jim Stewart spoke about the weird (and not very wonderful) side effects of the many eye drops used in glaucoma treatment. The final speaker in the first session was Dr Sonya Bennett, who gave an entertaining talk on glaucoma and driving.

The focus of session two was ‘Paradigm Shifts in Glaucoma’. Dr Hannah Kersten spoke about non-IOP factors in glaucoma, including ocular perfusion pressure (and the importance of discussing blood pressure with patients), OCT-angiography (a new imaging modality) in glaucoma, and neuroprotection. Professor Charles McGhee gave an illuminating overview of central corneal thickness in glaucoma (noting that glaucoma has stolen corneal thickness from the corneal specialists). Dr Shenton Chew discussed new minimally invasive glaucoma surgery (MIGS) devices (including the Hydrus, Xen, iStent and Cypass) and their important (and increasing) role in glaucoma management. Dr Alex Buller outlined the huge amount of work that he and his team have put into setting up the Hawke’s Bay glaucoma collaborative care scheme. The first patient letters have recently been posted, and he is hoping to provide us with an update next year. The session concluded with a presentation by Professor Helen Danesh-Meyer on the link between IOP and intracranial pressure.

The afternoon sessions included a number of case presentations by optometrists (Nawras Nabhani, Kristine Jensen and Dr Hannah Kersten), and ophthalmologists (Drs Hussain Patel, Alex Buller, Ben Hoy, Sam Kain, Graham Reeves and Sonya Bennett). Professor Helen Danesh-Meyer chaired these sessions, facilitating panel discussion and encouraging audience participation. A broad range of glaucoma topics were covered, including plateau iris trauma, IOP phasing, narrow angles, steroid response, and ocular hypotony following trabeculectomy surgery. Cases highlighted the importance of collaborative care, informed consent, ocular imaging, and medical and surgical management of the glaucomas. These sessions truly showcased the diversity of glaucoma. It was clear, from the panel discussion, that sometimes there is no one correct answer when it comes to glaucoma management.

Professor Helen Danesh-Meyer concluded the day with a tribute to Associate Professor Gordon Sanderson, who sadly passed away in July of this year. Gordon was a founding trustee of GNZ, and was the driving force behind establishing the GNZ Symposium. His vast contributions to both optometry and ophthalmology were recognised, and his presence was sorely missed.

GNZ thanks the presenters, who came from all around New Zealand, for giving up their time to speak at the symposium.

The event was generously sponsored by AFT Pharmaceuticals, Clinicians, Johnson and Johnson Vision, Novartis and OIC. Thanks also to Device Technologies and Toomac Ophthalmic for their support.
Contributors to Eyelights

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

Prof. Helen Danesh-Meyer
Dr Justin Mora
Dr Hannah Kersten

Support Groups

Would you like to be part of a local support group to get together with others to share coping strategies and for a sense of community around living with glaucoma?

Then please register your interest by emailing us at info@glaucoma.org.nz or phoning us on 0800 452 826
Firstly, Glaucoma NZ would like to thank all those who supported our 2017 July Annual Awareness Appeal.

It has been extremely encouraging to have so many regular participants willing to help out once again and also some new faces and places joining in. Optometrists and ophthalmologists responded by taking donation boxes and information to display at their practices. Many also made a donation from eye examinations undertaken during July.

The ongoing support of pharmacies nationwide continues to have a significant impact on raising awareness and funds.


Again, Glaucoma NZ appreciates all your efforts during the 2017 July Annual Awareness Appeal and your continued support throughout the year working towards eliminating blindness from glaucoma. Raising funds for Glaucoma NZ to continue with its sight saving work does remain a major focus.

Donations can be made via our website [www.glaucoma.org.nz](http://www.glaucoma.org.nz) or by completing the donation form on the back page of Eyelights.

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](http://www.glaucoma.org.nz)
Christmas Card Designers 2017
GNZ was lucky enough to have two volunteer designers work on this year’s Christmas card designs. Lilian and Nicole you have done a great job!

About the Designers

Lilian Patterson is the founder and owner of Edge of Design. She holds a Bachelor of Fine Arts and has 22 years of experience in graphic design and brand development. Lilian has travelled and lived in various parts of the world, and freelanced in Abu Dhabi, Hong Kong, the United States, and New Zealand.

Her work has been featured in international exhibitions and magazines. Her clients have included; Schlumberger, Harvard University, and 3M.

Lilian is passionate about helping companies stand out through the use of distinctive and great design.

She has a close eye for detail and strives to attentively listen to her clients.

Lilian enjoys painting and good coffee, especially with friends.

Nicole Drummond is a graphic designer based in Auckland. She has a Bachelor of Graphic Design and works in an advertising studio.

She is passionate about all aspects of design and loves to create outcomes that clients are excited about, especially if she can do some social good at the same time.

Nicole loves painting, calligraphy and can be found most days in the dance studio.

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Phone 0800 452 826 for more info
Limited edition – don’t miss out!
Christmas Research Appeal

PLEASE support us in our efforts to fund research to eliminate unnecessary blindness from glaucoma.

Ongoing research and development play a vital role in the treatment and prevention of blindness from glaucoma. Our goal is to raise $18,000 to specifically dedicate to worthwhile New Zealand based research projects. Please help us invest in a future without blindness from glaucoma.

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 Christmas Research Appeal

☐ $300  ☐ $100  ☐ $50  ☐ $20

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

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☐ I have already included Glaucoma NZ in my Will

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