

Selected Abstracts from the OAA 66th Annual Scientific Conference, held in Brisbane, 15-18 November 2009

OPENING ADDRESS

Jennifer Gersbeck

CEO of Vision 2020 Australia

With over 20 years experience working in the government and not for profit sectors, Jennifer Gersbeck has been involved in a wide range of social marketing programs aimed at raising awareness, changing behaviour and influencing key decision makers. Jennifer has qualifications in Political Science and Business Marketing and has worked extensively in the health and community services sector. Prior to joining Vision 2020 Australia, she held the position of National Marketing Manager with World Vision. Jennifer commenced as CEO of Vision 2020 Australian October 2004.

With ten years to go until 2020 Jennifer Gersbeck provides an overview of the global VISION 2020: The Right to Sight movement and achievements in Australia and our region. While significant progress has been made the eye health and vision care sector still faces many challenges as it comes together to eliminate avoidable blindness and improve vision care by 2020.

PATRICIA LANCE LECTURER

Michael Coote

Dr Coote is currently the Clinical Director of the Royal Victorian Eye and Ear Hospital (RVEEH) and has been from January 2009. He is also on the board of Mercy Health - an organisation with two major public hospitals and 1200 aged care beds. He runs a research project through the Centre for Eye Research Australia (CERA) - trying to develop a new implant for glaucoma. Dr Coote has developed and now collaborates in the GONE (Glaucomatous Optic Neuropathy Evaluation) Project (on-line education tool). Prior to RVEEH Dr Coote was the Head of Ophthalmology at The Northern Hospital. His main organisational goals are to put the RVEEH on a sustainable footing with substantial redesign of outpatients and work roles. This includes a substantial work change for orthoptics - with increased independent decision making and involvement in auditing and quality control. By proper triage and 'risk stratification' Dr Coote aims to make the Hospital effective and efficient in its role in the Community.

WORKFORCE SURVEY REVISITED

Val Tosswill, Sue Heathcote, Wendy Holland

The Australian orthoptic workforce was last surveyed in 2006/2007. One of the aims of this was to provide evidence of change in the profession. An edited version of the survey results was posted on the Orthoptic Association of Australia website in July 2009. In Brisbane, the contributors will highlight some notable changes and trends in the profession.

THE SIX MILLION DOLLAR ORTHOPTIST

Zoran Georgievski

We are quickly learning that we must develop the orthoptic workforce differently to before. We emerged from the "orthoptic heyday" of

strabismus decades ago and expanded into the area ophthalmic assisting, by and large, simplistically perhaps, by upskilling ourselves to do various 'tests', like refraction, perimetry, tonometry, biometry and so forth.

'Times are changing' is a cliché, but a stop-watch is being held to ophthalmology services as to how we will race to respond to the facts that we have - (i) More people requiring eye care, this is increasing, (ii) Limited resources, and (iii) Workforce challenges

Hospital outpatient departments are being required to reform, to work smarter. We're told we need to reduce non-value adding activity ('waste'), increase efficiency and improve the quality of care.

The Eye & Ear Hospital provides the highest number of ophthalmology occasions of service and the largest single cataract surgery throughput in the country. The orthoptists diligently assist, but are now being leaned on to help with management strategy. We have too many patients, so we are now asking the question "do they all need to see a doctor now?" Can orthoptists be delegated certain responsibilities, to monitor patients with eye disease that doesn't yet require ophthalmological attention? Does every diabetic patient need to see an ophthalmologist? What about those with early cataract?

In this presentation, I will speak about the encouragement from government and healthcare providers to improve the way allied health professionals, including orthoptists, are utilised. It's perfectly reasonable; and as a profession we should want this. I will provide examples of clinic initiatives, beyond strabismus, of how orthoptists can secure their relevance to the eye care landscape, how this is positive step, and how our profession's leaders need to be supporting the enhancement of our scope of practice.

A CASE OF ECTASIA - WHAT NOT TO DO

Ana Alexandratos

Corneal ectasia is a rare problem in the refractive world when treatment parameters and standards of best practice are adhered to. In this case presentation, an extreme case of high myopia treated by a surgeon without future consideration for the patient's well being are discussed. The problem of measuring for cataract surgery and dealing with unpredictable outcomes falls on the now treating Ophthalmologist

KERATOCONUS FROM THE INSIDE!

Laura Hartley

Keratoconus more than meets the eye. Ever thought beyond the orbiscan or keratometry readings of your KC patient? KC from the inside presents an inside view of the journey travelled by a Keratoconus patient. It discusses the increasing blur, abnormal keratometry readings, increasing cyl in glasses, contact lens journey and the resultant disaster and panic. Some other matters discussed will be the trials and tribulations such as dry eye leading to eczema, costs involved, decision and reasoning behind lubricants, choices and decisions to be made with surgery from the patient's perspective. The reasoning behind the type of surgery chosen will be discussed. Postoperative experience will conclude the journey.

WHAT TO DO WITH ASTIGMATISM?

Nhung Nguyen

With the increasing choices in the range of options in IOLs, this study compared which is the best option for patients undergoing Cataract surgery that has corneal astigmatism greater than 0.75 diopters cylinder. The study looked at the post-operative results of Marsden Eye Specialists patients comparing groups who've had the Rayner Toric IOL implanted with other astigmatic corrections such as Corneal Astigmatic Keratotomy and Laser refractive surgery post cataract. The study also looked at the difference in keratometry reading in Orbscan topography in comparison with IOL master keratometry and the Bausch and Lomb Keratometry.

THE ROLE OF THE OPHTHALMIC ASSISTANT IN OPHTHALMIC DAY SURGERY

Ana Alexandratos, Richard Smith, Margaret Kearns

Traditionally, Orthoptists have been employed in Ophthalmology practices in a clinical assistant role. The compatibility of the Modern Day Surgery was evident as a perfect partner to Ophthalmology; so many Day Surgeries evolved on the site of existing Ophthalmology practices.

A new role became apparent for Orthoptists as surgical ophthalmic assistants. This meant there was a natural transition for the Orthoptist from the clinical setting to the surgical arena. Certain training opportunities are discussed.

The technical and surgical knowledge an Orthoptist possesses makes them an integral part of the Day Surgery Team. The advantages to both the patient and facility are discussed.

THE SURVEILLANCE OF CHILDHOOD OPTIC NEURITIS RECOVERY POST TREATMENT USING THE VISUAL EVOKED POTENTIAL

Stephanie Sendelbeck, Katie Scanlon

Childhood optic neuritis presents with symptoms of sudden onset visual loss, visual field loss, changes in colour vision and swollen optic discs. It can be associated with a viral infection. Visual prognosis is excellent in the majority of cases. The visual evoked potential (VEP) assesses optic nerve function and is used to monitor optic nerve recovery in childhood optic neuritis. This paper discusses the orthoptists role in the investigation of childhood optic neuritis and the role of the VEP test.

WIDE VARIATION IN THE PREVALENCE OF MYOPIA IN SCHOOLS ACROSS SYDNEY: THE SYDNEY MYOPIA STUDY

Amanda N. French, Ian G. Morgan, Paul Mitchell and Kathryn A. Rose

Purpose: To examine variability in the prevalence of myopic refractive errors by school in two age samples from the Sydney Myopia Study (SMS).

Methods: The SMS examined two cross-sectional age samples; Year 1 children (aged 6, n=1741) and Year 7 children (aged 12, n=2367) from 55 randomly selected primary and secondary schools in Sydney. A mixture of public, private, religious and academically selective schools were included in the study. All children had a comprehensive eye examination; including cycloplegic auto-refraction (cyclopentolate 1%, Canon RK-F1). Myopia was defined as a right spherical equivalent (SE) refraction of ≤ -0.50 dioptres (D).

Results: The proportion of children with myopia was 1.5% in the 6 year olds and 12.8% in the 12 year olds. The percentage of children with myopia

within each school varied widely, more so for the secondary schools, with a range of 0% – 7.14% (mean 1.47% \pm 2.04) in the Year 1 sample and 2.68% – 59.22% in the Year 7 sample (mean 11.87% \pm 12.1). Entry to the two schools with the highest percentage of myopic children (23.44%, 59.22%) was academically based.

Conclusions: The proportion of children with myopia varied widely across schools in Sydney, but more so in the secondary schools. As the schools with the highest levels of myopia were academically selective, this may be attributed to the frequently observed link between educational attainment and myopia. A number of other factors that may be associated with educational attainment include socio-economic status, ethnicity, near work and outdoor activity.

INTERESTING CASES RELATED TO THE MANAGEMENT OF EPILEPSY

Louise Brennan

Research suggests that 2-3% of the Australian population will develop epilepsy. Epilepsy is a broad term that includes the many reasons why a child may have repeated seizures. Most children with epilepsy achieve good control through the use of antiepileptic medication and many become seizure free. However, a number of children will continue to have seizures that are difficult to manage. There is a wider range of options available for children with epilepsy that have seizures that are not well controlled with medication. Two interesting cases will be presented that attended the Eye Clinic at The Children's Hospital at Westmead for visual problems related to their epilepsy management.

RAPID FIRE - MODELS OF PAEDIATRIC EYE CARE SERVICES

Connie Koklanis

Many models of service care delivery have emerged to meet the challenges of providing eye health care services. Providing a high-quality eye service that is efficient and effective and which improves the patient journey is critical to developing a sustainable service. In late 2007 we implemented an orthoptist led clinic at the Royal Children's Hospital to address the growing demand on paediatric eye care services. This presentation will discuss the key elements of the implemented model of care in our outpatient department and its outcomes.

RAPIS FIRE - STRATEGIES FOR IMPROVING COMPLIANCE WITH OCCLUSION

Dee Garland

Distillation of 20 years of experience of patching, including inducements and bribery strategies, psychological insights for parents and children, recording of patching.... These strategies have spectacular results and will be presented.

RAPID FIRE - A PAEDIATRIC CASE OF THYROID EYE DISEASE AND MYASTHENIA GRAVIS.

Katie Scanlon, Stephanie Sendelbeck

Myasthenia Gravis and Thyroid Eye Disease are diseases that usually affect the adult population.

The clinical findings of an interesting case of a 9 year old with these 2 conditions will be presented.

RAPID FIRE - DARWIN: THE ORTHOPTIST ROLE

Aimee Leong

To showcase the role of the Orthoptist in the Northern Territory interesting case studies (both ophthalmic and orthoptic), an overview of the position and a brief overview of life and attractions in Darwin will be presented.

REFERRAL PATHWAYS IN METROPOLITAN QUEENSLAND

Jane Fleming, Johnson G, Knight K, Ebrahim B, Lindsell B, Te Whiu D and Wharton G

Queensland Vision Initiative Inc (QVI) has been investigating eye health services in Queensland, with the aim of reducing the incidence of avoidable vision impairment and blindness across the State. Recently a Federal Government funded project has been completed, into referral practices of eye and allied health professionals and awareness of the low vision, peer support and community services in Metropolitan Brisbane. The findings from this study have now been submitted to Government, and an extension of this project is currently underway for regional, rural and remote Queensland.

Part of this Referral Pathway Pilot Project was a survey of 96 eye and allied health professionals - including one orthoptist, four occupational therapists and a social worker working in low vision clinics. These health professionals indicated that 60% of eye and allied health practitioners are still unaware of the services provided by each agency. Other issues included the length of time taken to get an appointment and no information received back from agencies regarding referrals.

Overall, to improve eye health services in metropolitan Brisbane, these health practitioners recommended, increased continuing education on the services provided by low vision, peer support and community organisations; and a website to detail the services available. These results suggest that improving communication between agencies will achieve a better service for those with low vision or blindness.

THE BATTLE AGAINST MACULAR DEGENERATION - NOW WE HAVE A WEAPON!

David Hilford

One in seven Australians over 50 years of age experience some degree of macular degeneration (MD). This, combined with Australia's ageing population, accounts for the fact that MD is the leading cause of blindness in Australia's senior citizens. More specifically, it is the exudative form of MD which accounts for the majority of vision loss, and until recent years treatment modalities for exudative MD have had limited results at best. Anti-Vascular Endothelial Growth Factor (anti-VEGF) therapy has changed the face of treatment for wet/exudative age-related MD, along with its potential use in other vaso-proliferative ocular diseases. The use of anti-VEGF therapy in clinical practice will be reviewed in this presentation, along with a brief summary of relevant studies and presentation of actual patient cases, which reflect the clinical efficacy of this treatment.

RETINAL REGENERATION LASER TREATMENT IN EARLY AGE-RELATED MACULOPATHY

Kate Brassington, Professor Robyn Guymer and Peter Dimitrov

Age Related Macular Degeneration (AMD) is one of the leading causes of blindness in Australia with 15% of the population over 50 displaying early signs of AMD. To date there is minimal understanding of the underlying mechanisms of AMD. It is known that in early AMD there are drusen and an increase thickening to Bruch's membrane. This in turn can cause a

decrease in the level of nutrients passing from the Choriocapillaris to Photo Receptors. This may lead to altered Photo Receptor function. Our Aim is to clear the drusen and Bruch's membrane using Retinal Regeneration Therapy. The Retinal Regeneration Therapy Laser utilises low energy, nanosecond pulses to selectively target RPE cells. The hypothesis is the low level energy from the laser is expected to lead to RPE cell division and migration and elaboration of matrix metalloproteinase which will help to rid debris from Bruch's membrane. This should improve the health of the retina which we hope to demonstrate by using the retinal functional tests we have been developing over the past 5 years. So far 17 patients have been treated with laser therapy two showing promising results. These results will be discussed.

WHY ARE MALES WITH COMPRESSIVE OPTIC NEUROPATHY MORE LIKELY TO DEVELOP BINOCULAR VISION PROBLEMS?

Meri Vukicevic, Inez E Elderman

Purpose: The aim of this study was to investigate the prevalence and characteristics of diplopia in 50 consecutive patients presenting with suspected compressive optic neuropathy.

Methods: Fifty patients aged 17 to 93 years who were referred to an out-patient orthoptic clinic were investigated for reported complaints of diplopia and their ocular motility was assessed to determine the characteristics of the problems reported. All patients presented with a diagnosed brain tumour and possible compressive optic neuropathy.

Results: Thirteen patients (26%) presented with complaints of diplopia and a cranial nerve palsy was found in 8 (16%). Of the patients with cranial nerve palsy, 9 (87%) were male and this result was statistically significant ($\chi^2=0.03$).

Conclusion: the prevalence of cranial nerve palsy found in this cohort of participants was consistent with some of the literature and the most interesting finding was that males with compressive optic neuropathy were more significantly affected with cranial nerve palsy compared with females. It was not possible, however, to identify a causal factor in this study.

RAPID FIRE - THE PROBLEM OF ESOPHORIA IN THE DISTANCE

Zoran Georgievski, Connie Koklanis

Distance esophoria is often thought of in the context of divergence insufficiency or weakness. However, a patient with esophoria in the distance should present the clinician with some level of concern, as this case study will highlight. What are the causes? What should be looked for? When is it a sixth nerve palsy? What can cause that?

This presentation will tell of a 45 year old male patient who had an esophoria in the distance with dubious lateral incomitance. It will highlight the clinical investigations and decision making that lead to neuro-imaging that revealed a trigeminal schwannoma, and how the function of the abducent nerve can be implicated by such neuropathology.

RAPID FIRE - COMPARISON OF KEITH-WAGENER BARKER AND WONG-MITCHELL CLASSIFICATION SYSTEMS OF HYPERTENSIVE RETINOPATHY

Carly D'Sylva, Connell PP, Hodgson L, Downie L, McIntosh RL, Wang JJ, Mitchell P, Wong TY

Purpose: To assess the inter and intra-observer reliability between the Wong-Mitchell and Keith-Wagener Barker classifications of hypertensive retinopathy.

Method: 50 digitized retinal vascular images of normal and hypertensive fundi were randomly graded by an orthoptist, optometrist and retinal specialist in three ways: (i) Grade 1- Keith Wagener-Barker (KWB) Grade (ii) 2- Wong Mitchell (WM) (iii) Grade 3- WM following training. The inter and intra-observer agreement was then assessed between grade 1 and 2 and between grades 2 and 3.

Results: A pilot study of 50 images from an ethically approved study (SiMES) graded by three clinicians including orthoptist, optometrist and retinal specialist has generated pilot data. The interclass correlation coefficient for the KWB (0.83-0.93) was higher, but less homogenous, than that for WM (0.74-0.86), particularly after a period of training (0.85-0.89). We now propose to examine 150 images in a similar fashion.

Conclusions: With training, the WM classification grading system of Hypertensive Retinopathy demonstrates high reliability with greater homogeneity. However, the KWB showed higher correlation than WM on initial grading (n=50). Future studies will address increased numbers to ascertain the optimal system for classification purposes.

RAPID FIRE - IS THERE A PLACE FOR GLASSES IN THE MANAGEMENT OF CONGENITAL COLOUR BLINDNESS?

Jessica Crippa

It has been a widely accepted fact that there is no treatment or means to improve perception of colour in a person with congenital colour blindness. "Treatment" has dealt with teaching the patient to be aware of their limitations and educating those people in the patient's life (such as teachers, employers and family members) who have certain expectations of the patient. The impact of their limitation often extends to occupation, driving and every day tasks.

Tinted lenses are being sold by a small number of Optometrists in Australia, which claim to improve perception of colour. This forces us to re-evaluate what we know about colour blindness, how we test for it and what we advise our patients.

We will examine the basis for these claims as well as clinical and lifestyle implications.

RAPID FIRE - COLOUR VISION: ASSOCIATIONS WITH ETHNICITY AND REFRACTIVE ERROR IN AN AUSTRALIAN CHILDHOOD POPULATION

Katrina Rogers, Paul Mitchell, Kathy Rose, Chameen Samarawickrama, Michael Cosstick, George Burlutsky

Purpose: To examine colour vision anomalies (CVA) and associations with ethnicity and refraction in school-aged children.

Methods: 4,093 Year-1 and Year-7 students from 55 randomly selected schools participated in the Sydney Myopia Study. A comprehensive ocular assessment was performed including ocular biometry and cycloplegic autorefractometry (cyclopentolate 1%). Measures of the right eye only were analysed. CV was assessed using the Ishihara and the City University (TCU) tests, illuminated using a LUXO.FL 18/AN table lamp (colour temperature 5000K), presented at recommended distances.

Results: The Ishihara test identified 27 (1.57%) and TCU test identified 13 (0.75%) Year-1 children with CVA, and 56 (2.38%) and 28 (1.19%) Year-7 children, respectively with CVA. CVA was found predominantly in males: 92.5% on Ishihara and 92.7% on TCU. There was no overall association with ethnicity and CVA (p=0.23); however, after adjusting for height and age, European Caucasian Year-7 boys with CVA had significantly longer axial length (AL) than those without CVA (p<0.001), but without more myopic spherical equivalent refraction. This association was not present in younger boys or other ethnic groups.

Conclusion: While CVA were associated with longer mean AL in European Caucasian boys aged 12, there were no significant associations found with refraction. This contrasts with a Chinese childhood study that reported shorter AL and less myopic refraction in children with CVA. The variations in these findings could reflect differences in ethnicity or refractive error or a mechanism not yet explained.

STROKE AND THE OAA - INTERACTIVE AUDIENCE DISCUSSION TO FOLLOW

Neryla Jolly

The occurrence of vision problems in people who have experienced a stroke is great and can be either as a direct consequence of the stroke or pre existing. Identification and care of vision defects in stroke patients is valuable to assist maximal response to rehabilitation.

A working Group sponsored by GMCT and supported by NSW Health has been developing several strategies to assist the identification and care of the vision defects. These strategies include: (i) Developing key identifiers for the existence of vision defects. (ii) Developing educational material for associated health disciplines (iii) Developing material to educate patients and relatives about vision and stroke

These strategies will be reported followed by discussion on how to progress the issues. All conference attendees are invited to join the both the discussion session at the conference and future meetings, which are held by tele conference.

VISION AND FALLS - A PROFESSIONAL PERSPECTIVE ON THE CURRENT LITERATURE

Kylie Green

Purpose: There is a strong relationship between vision impairment and falls, with the literature suggesting that those with low vision are twice as likely to fall. Defects of visual acuity, contrast sensitivity, stereopsis and visual fields have all been mentioned as possible contributing factors. However, conflicting evidence exists as to which aspects of vision impairment increases the risk of falls. It is essential to accurately identify aspects of vision impairment that increase risk of falls so high-risk patients can be identified.

Method: A literature review of the aspects of visual function and their relationship to falls was undertaken. The research methods were examined, outlining the tests used and their interpretation. The clinically accepted normal values of all aspects of visual function are discussed and contrasted to the interpretations evident in falls literature.

Results: A review of the literature identified that the methods of testing visual function and the interpretation of clinical information vary significantly in falls literature, causing contrasting results. The literature demonstrated that researchers often do not use the standard clinical tests to evaluate visual function and furthermore do not adhere to the standard interpretation and normative values of these tests. This makes the translation of research into clinical practice extremely difficult. The type of visual function tests and the application of the tests vary, with tests often inappropriately performed leading to conflicting research outcomes.

Conclusion: It is essential that the aspects of vision loss that cause falls are properly understood so high-risk patients are identified and introduced to falls prevention programs. To achieve this, it is necessary for eye care professionals to become more involved in falls research and prevention.

LOW VISION IN A RURAL SETTING REVISITED - CONTINUING TO BROADEN HORIZONS ONE YEAR ON

Rebecca Schostakowski

Three months after graduating last year I had successfully set up a low vision clinic at the first ophthalmology practice I had ever worked for. Making the decision to set up the clinic was relatively straight forward, finding the clients to sustain the service proved to be slightly more challenging.

The big question was, "What sustains a low vision service?". After visiting the two other low vision clinics I was aware of in the North Queensland region I realised I needed to be more proactive in advertising what we offer, how it is different and also how we compliment the other services already available.

I also needed to introduce the clinic to the main group of practitioners that are our largest referral base, which are mainly optometrists, and also raise awareness within the other ophthalmology practices running in Townsville. The past year has also further broadened my definition of service requirements at a low vision clinic and made me more aware than ever of the importance in providing such a service.

EYE HEALTH SERVICE PROVISION FOR INDIGENOUS QUEENSLANDERS

Jane Fleming, Greg Johnson, Karen Knight, Bashir Ebrahim, Damien Te Whiu and Ghislaine Wharton

Since 2007, the Queensland Vision Initiative Inc (QVI) has been investigating eye health service provision for Indigenous Queenslanders, with the aim of reducing the incidence of avoidable vision impairment and blindness for this at risk group. A State Government funded project² has now been completed, and the findings and recommendations from this study have been submitted to the Queensland Government.

A survey of 218 eye and allied health professionals, including four orthoptists, found that the main issues affecting access to eye health services included: a lack of education regarding eye conditions; clients are unable to access services because of transport issues; and a need for a consistent, clear and culturally appropriate eye health message for Indigenous Queenslanders.

Seven recommendations and an implementation plan for the prevention of vision loss and provision of eye care for Indigenous Queenslanders have now been submitted to the Queensland Government. These recommendations include: targeted eye health resources for communities; increased support and training for Indigenous health workers; successful models of eye care services to be replicated across the State; improved partnerships between all eye and allied health care sectors; reduced gaps in service provision; and, cultural awareness information for practitioners. Together these recommendations rely on better communication between all Government and non-Government agencies to work together to 'close the gap' in eye health in Australia.

THE CRYSTALENS HD ACCOMMODATING IOL AND ITS ROLE IN TREATING PATIENTS WITH CATARACTS

Shandell Moore, Russell Phillips

The Crystalens HD is the only FDA approved accommodating IOL. It is now available in Australia as an alternative to the standard monofocal intraocular lens. This choice of lens allows for clear distance, extended intermediate and near vision by using the eyes natural accommodating ability. As of May 2009, our practice has provided Crystalens HD to patients who have undergone cataract surgery. This paper will discuss the Crystalens HD IOL and report on the use of an accommodating IOL in the treatment of cataracts and reducing the patients dependence on glasses. Visual outcomes following the implantation

of the Crystalens HD, as seen in a private cataract practice setting will be reported. Up-to-date results will be presented. Initial data suggests very good visual outcomes.

THE 5 PERCENT

Nhung Nguyen

Patients who come under the umbrella of Laser Refractive Surgery care have different requirements and expectations which require specific counseling and consultation methods. Although most patients are generally well informed and have undertaken some research before attending a consultation, this assumption should not replace the need to provide patients with appropriate counseling by an expert clinician.

The clinician should be highly skilled in assisting patients through their decision making process and should be able to put the client at ease before and after the surgery. The pre-surgery counseling and evaluation is crucial in preparing patients for their post-operative expectations.

The counseling helps to mentally prepare the patient, reducing the tension and apprehension most patients feel leading up to the surgery and during the recovery period. This presentation is designed to give the audience hints, methods and skills that can be adopted and used in their own clinic especially for those who are new to the laser refractive surgery specialty.

DOES SIZE MATTER? AN INVESTIGATION OF ANISOMETROPIA

Kristen Saba, Ross Fitzsimons

We aimed to identify the limits of anisometropia that commonly gives rise to symptoms in patients and to differentiate the cause of these symptoms in terms of anisokonia (difference in image size) and anisophoria (varying induced heterophoria). The amount of anisometropia that causes image size difference which can be perceived by the patient and amount of anisometropia that causes diplopia were used as outcome measures. Results will be presented.

TWO WORLDS APART - ONE VISION

Frances Myint

The Union of Myanmar, formally known as Burma has the world's highest recorded prevalence of blindness: 8% of a population of 55 million. The Myanmar Eye Care Program organised by Australian ophthalmologists is a volunteer project that has equipped and trained monastery communities to be able at low cost to manage the needs of their blind.

As the overwhelming bulk of the serious problems fall on to a small team, Ophthalmic Technicians ("OpTechs"), are trained to be orthoptists and accept multiple responsibilities. They take a history and examine, draw conclusions, prescribe glasses, consent and advise the patients and families, administer local anesthetics, set up operating facilities, sterilise instruments, scrub and assist, and take on the postoperative care.

In July 2009 I volunteered in a clinic at Mount Popa Taung-Kalat, a rural region in central Myanmar, where one of the programs is located. The pathology was ubiquitous, and of every kind such as agricultural injury, cataract, angle closure glaucoma, blepharophimosis, old keratomalacia, trachomatous entropion, pterygiums occluding the visual axis, severe corneal opacities due to measles, chicken pox, herpetic and mycotic keratitis.

It was an amazing experience to be part of a team that was so passionately generous, motivated and dedicated to the poor people of Myanmar. Within two weeks 267 operations were performed and 920 people were screened. Additionally, prior to our arrival the OpTech team with two visiting general practitioners had screened over 2000 patients in surrounding villages.

STEPS - PRESENTATION AND ANALYSIS OF CLINICAL FINDINGS FROM SYDNEY HOSPITAL AND SYDNEY EYE HOSPITAL AND ST GEORGE HOSPITAL EYE CLINIC

Gillian May and Chantelle Palmer

Statewide Eyesight Pre-schooler Screening (StEPS) was introduced by the NSW Department of Health in 2008. StEPS is a vision screening program for four to five year old pre-school children.

The vision screening is conducted by trained lay screeners. Children who do not meet the "pass" screening criteria undergo comprehensive secondary vision and ocular motility assessment by an Orthoptist employed by the program. Failure to pass the secondary screening results in further referral.

The Orthoptic Departments at Sydney Hospital and Sydney Eye Hospital and St George Hospital are involved in the assessment and management of StEPS referrals in the South East Sydney Illawarra Area Health Service (SESIAHS). This presentation outlines the clinical findings of 88 children referred from the StEPS program between October 2008 and August 2009.

Results to date confirm that the majority of children referred had some form of ocular pathology requiring treatment or further review. These findings confirm that vision screening can be performed accurately and effectively in this younger age group and are in line with similar studies reported in literature.

THE STEPS PROGRAM - A 12 MONTH REVIEW OF THE IMPLEMENTATION AND OUTCOMES FROM THE SOUTH EAST SYDNEY ILLAWARRA AREA HEALTH SERVICE

Kylie Green

The Statewide Eyesight Preschooler Screening (StEPS) Program is an initiative of NSW Health which offers free visual acuity screening to all 4 year old children. Across NSW various models have been utilised to implement the StEPS program. In South East Sydney Illawarra Area Health Service (SESIAHS) a model of Primary and Secondary Vision screening was designed to ensure the StEPS program is available across the whole area. The StEPS program involves a monocular visual acuity assessment, therefore Lay Screeners have been employed to conduct the vision screening in all preschools and child care facilities across the area. Children requiring further assessment are referred in the first instance to a Secondary Screening Orthoptic clinic where the child receives a comprehensive visual acuity and ocular motility assessment and is then either referred or discharged. This model of care has proven to be highly successful in SESIAHS. The StEPS program was introduced in SESIAHS in July 2008 and since then over 11,000 children have been screened with over 1300 children requiring referral. The Lay Screeners have maintained an accurate referral rate of 12% throughout the first year of the program and the value of the Secondary Screening Orthoptic clinic has been demonstrated by 11% of referrals resulting in discharge following secondary screening thus avoiding unnecessary referral and overcrowding of public hospital eye clinics. This review discusses the model of care and implementation of StEPS in SESIAHS as well as highlighting significant outcomes which provide vital new information for Orthoptists.

USE OF AN EYE TRACKING SYSTEM TO VALIDATE A SIMULATOR TO TEST DRIVER SKILLS

Jodie Attard, Neryla Jolly, Hamish McDougall, Rob Heard

Over recent years driving simulators have been used for training, vehicle design and safety research. Past research has investigated the validity of using simulator technology by comparing data collected from a simulator with that collected on road. However, no research has investigated the

use of eye movements on the simulator. When analysed, a driver's eye movements can give insight into the ability to react to and perceive aspects of the changing road environment. A Valid driving simulator would provide an opportunity to investigate skills in a safe road environment that can be purposefully designed and manipulated.

This study aims to validate the use of the driving simulator as a means of investigating and assessing a person's use of eye movements whilst driving.

Participants aged from 19-28 years with a minimum of 2 years driving experience under went preliminary visual assessment to confirm they did not have a vision, ocular motility or field defect. This group then completed a course on the driving simulator and on road wearing eye tracking goggles. These goggles had cameras which recorded the scene in front of the driver and infra red light which plotted their eye position. The journeys were then broken down into matching important road situations, events or features. At each of these important situations the participant's eye movements were analysed and ranked. To validate the simulator the data from the on road and simulator environments were statistically compared using Kendall's coefficient of concordance.

AN OVERVIEW OF CHILDREN PRESENTING WITH AUTISM SPECTRUM DISORDERS AT THE CHILDREN'S HOSPITAL WESTMEAD

Katie Scanlon and Louise Brennan

Autism Spectrum Disorders (ASD) are characterised by impairments in social interaction and communication, along with restricted repetitive and stereotyped patterns of interests and behaviour. The exact cause of ASD is unknown although research has shown that there are similar ways in which affected individuals brains develop and function. There is also evidence supporting a genetic basis to ASD. The reported prevalence of ASD has increased over the past 15 – 20 years in Australia and worldwide. This paper discusses the Orthoptists role in the assessment and management of a patient with ASD. An overview will be given on patients with ASD attending the Eye Clinic at The Children's Hospital at Westmead in 2009.

ASSESSING THE VISION OF VERY YOUNG CHILDREN AND CHILDREN WHO HAVE LIMITED COMMUNICATION SKILLS

Louise Rosati

Assessing a very young child or a child with significant communication difficulties presents a challenge, as their ability to participate in the vision assessment is limited. Often the child has useful vision but this can be difficult to quantify using standard practices.

Assessment of functional vision is important as it provides information for optimising the use of vision and providing appropriate opportunities for learning and development.

Suggestions about a range of standard and non-standard approaches for gaining an understanding of a child's vision, and how they use their vision, will be described in the presentation.

VISUAL ACUITY TESTABILITY WITH THE ELECTRONIC VISUAL ACUITY TESTER COMPARED WITH LOGMAR IN AUSTRALIAN PRE-SCHOOL CHILDREN

Jodi Leone, Kathy Rose

Purpose: To establish testability rates in Australian preschool children for the electronic visual acuity (EVA) tester using HOTV letters and to compare these findings with the standard LogMAR visual acuity (VA) chart.

Methods: The Sydney Paediatric Eye Disease Study (SPEDS) is a population-based, cross-sectional study of children aged 6 months to 6 years. Measurement of presenting monocular distance VA using the EVA tester was attempted on all children, who were aged 30 to 84 months. Testability was determined by the ability of the children to have VA tested monocularly in both eyes. Children aged >60 months also had repeat VA tested with the LogMAR chart

Results: EVA testing was attempted on 865 children. Testability rates were 55.9% for children aged 30 to <36 months, 91.4% for children aged 36 to <48 months, 98.5% for children aged 48 to <60 months, 98.9% for those 60 to <72 months, and 99.1% for those aged 72 months or older. Of the children aged ≥60 months, 247 had their vision tested using both EVA and LogMAR charts, with a LogMAR testability of 84.5%. There was a statistical and clinically significant difference of a mean of 5 letters between the EVA and EDTRS ($p < .0001$), and between the EVA and HOTV LogMAR charts ($p < .0001$).

Conclusions: Monocular threshold VA testing using the EVA can be completed by the majority of Australian pre-school children at most ages, with 97% testability in children aged at least 36 months. The EVA overestimated VA by comparison with the logMAR.

PRESCHOOL VISION SCREENING: OUTCOMES OF CHILDREN REFERRED TO THE HOSPITAL EYE CLINIC

Jenni Spink, Nocola Anstice, Anmar Abdul-Rahman

Purpose: To assess the outcomes of children referred to the hospital eye clinic from three different preschool vision screening programmes in the Counties Manukau District Health Board area.

Methods: A retrospective study was conducted of all children referred over a six month period, January to June 2009. Children included were either screened by Plunket, Pre-School Check or specialist vision screeners. A small number ($n=7$) of children of screening age referred from other sources were also included. All children were initially assessed by an Orthoptist or Optometrist. Distance visual acuity was measured monocularly and recorded in logMAR notation. Other tests included cover test, ocular motility and assessment of binocular single vision (BSV).

Results: 424 children were referred during the specified period, of which 128 (30.2%) were eligible for inclusion in data analysis. Thirty-seven children were discharged after their initial assessment (29.1%); remaining children underwent full cycloplegic refraction and ocular health check. Preliminary analysis shows a low percentage of myopia and a high percentage of astigmatic errors $\geq 2.00DC$ (10.2%). Results suggest a screening programme carried out by Orthoptist- trained screeners with a continuous process of feedback and self-audit provides higher positive predictive value than other methods of training.

Conclusion: The timing, mode of delivery and efficacy of vision screening in childhood continues to provoke discussion amongst the Ophthalmology community. This study provides useful prevalence data for the ethnically diverse South Auckland population and provides evidence for the continuation of preschool vision screening.

OCULOMOTOR NERVE PALSY DUE TO EXTENSIVE SINUS DISEASE

Priya Narayan

An interesting case of ischaemic oculomotor nerve palsy resulting from sinus disease is presented. Both the superior and inferior division of the right third nerve were affected except the pupil resulting from extensive inflammation of the sphenoid and ethmoid sinuses on the right side.

Ischaemia is a common cause of acquired non-traumatic oculomotor nerve palsy seen in the Neurophthalmic setting. The majority of these

cases are due to systemic vascular disease most commonly Diabetes Mellitus. Sinusitis related oculomotor nerve palsy is comparatively rare in occurrence and is not well documented within literature. The clinical and investigative pathway of the patient is presented in light of the reasoning behind specific diagnostic tests performed.

A CASE OF RECURRENT ABDUCENS PALSY IN A 4 YEAR OLD

Rebecca Schostakowski

A 4 year old male presented as an emergency patient to our clinic as a result of a sudden onset of a recurrence of his left abducens palsy which was present upon waking in the morning. A similar episode had been apparent 2 years prior and had resolved. Upon examination visual acuity was equal at 6/6 in each eye; anterior segments were healthy along with ocular motility apart from a complete left sixth nerve palsy (graded at a -4). He was not ill at the time of assessment and had only vomited as a result of the diplopia induced by the abducens palsy. His local practitioner had noted fluid in both ears during a consultation that morning and he was commenced on antibiotics to resolve this. An MRI had been performed 2 years prior after the first episode and no pathology was present. As a result Recurrent Abducens Palsy was diagnosed.

AN ANALYSIS OF TORSION IN SUPERIOR OBLIQUE PALSY

Kara Muecke, Zoran Georgievski, Connie Koklanis

The differentiation of unilateral and bilateral superior oblique palsy (SOP) can be challenging. Clinical signs can assist, such as the presence of reversing hypertropia, unilateral or bilateral oblique muscle dysfunction, the size of the V-pattern and findings from Bielschowsky head tilt testing. However, in cases of asymmetrical bilateral SOP, clinical features may confirm unilateral involvement only, with the amount of torsion being the only clue of SOP also existing in the fellow eye. A reported 5% to 38% of cases showing clinical features of unilateral SOP become "unmasked" as having bilateral involvement after surgery directed at the confirmed unilateral superior oblique weakness. While torsion measurements are important in SOP, particularly bilateral, and in planning surgery, controversy remains as to the amount of torsion that predicts or distinguishes bilateral from unilateral involvement.

This study builds on a pilot study (by Zoran Georgievski) and investigates patients with SOP experiencing torsion. It aims to establish if an expected torsion increase from primary position to downgaze can differentiate between unilateral and bilateral SOP, so torsion can perhaps be regarded as a predictive index in cases where it is otherwise difficult to diagnose. In this study, torsion was measured using the Torsionometer®, double Maddox rod test and synoptophore. The findings of our research will be presented and discussed.

MANAGEMENT OF ACCOMMODATIVE ESOTROPIA: AN INTERNATIONAL SURVEY OF ORTHOPTISTS' PRACTISE PATTERNS

Katrina Lee, Connie Koklanis, Zoran Georgievski

Fully or refractive accommodative esotropia was first described by Donders in 1864, and hypermetropic correction has long been recognised as an effective treatment. It is also often thought that patients with accommodative esotropia may be able to discard their glasses into adolescence. However, retrospective studies have shown that only a minority of patients can be expected to discontinue wearing their hypermetropic correction without further treatment.

Whilst there has been some recent research, there is insufficient high-level evidence to inform clear clinical guidelines for management of

accommodative esotropia. Health professionals are increasingly required to ensure that their practice is based on robust evidence, yet it is unknown how orthoptists currently manage these patients. A study that aimed to explore the practice patterns of orthoptists in the management of accommodative esotropia will be discussed. This study involved the international distribution of an online survey, which focused on orthoptists' decisions regarding optical and orthoptic intervention. A further aim was to explore whether practice patterns varied depending on demographics, and to compare trends with the evidence offered by the current literature. The results of this study will be presented.

INVESTIGATION OF VERGENCE EYE MOVEMENTS ELICITED BY APPROACHING IMAGES PROJECTED ON A FRONTOPARALLEL SCREEN

Frances Corkin, Elaine Cornell, Hamish MacDougall

Vergence eye movements are initiated by tonic, fusional, accommodative and proximal factors. In this research we set up the experiment to remove the first three cues and focus on proximal vergence alone. Proximal vergence has been defined as an 'awareness of nearness' and it has been found to be closely linked with radial optic flow which is the radial pattern of image motion on each retina as an individual moves forward through their surroundings. This research has shown situations with optic flow causing a vergence response however much of this relied on dot patterns to induce the optic flow. Our study was designed to investigate the amount of vergence induced when subjects view images that appear to come towards or away from them on a flat screen. Subjects were seated in an immobile car in a driving research laboratory and were instructed to watch images on a screen simulating the view of the driver as they move down the road. Of the eight subjects tested three showed a strong and unequivocal convergence response, two a moderate response and three a poor (or no) response.

PARENTS TAKE ON EYE EXERCISE

Sarita Ibbotson, Frank Martin

We often see vast clinical improvements in children with intermittent exotropia when treated using orthoptic exercises. We were interested in determining whether this clinical improvement translated into parent, and patient satisfaction.

We devised a short questionnaire to be filled out anonymously by parents relating to perceived success and satisfaction with orthoptic eye exercises.

We asked a total of 44 patients to participate in the survey. The inclusion criteria consisted of presently performing orthoptic eye exercises (convergence exercises, or red filter anti-suppression treatment).

We have yet to compile the results of the satisfaction survey. We hope to present some positive, and exciting results!

VISION REHABILITATION TRAINING ON CHILDREN WITH LOW VISION

Norliza Bt Mohamad Fazdil, Kerry Fitzmaurice, Linda Malesic

Visual impairment can have significant impact on a person's functional abilities (such as reading, writing, walking) and independence. In children with low vision this impairment may affect learning processes as it may restrict the child's motor and social development. The aim of this study was to determine the usefulness of vision rehabilitation training in improving the efficiency of visual performance of children with low vision. Students attending the Special Education School, Kuala Lumpur were provided with eccentric viewing training (n=8) or null zone training (n=11). Each student received 10 sessions of one hour training. Reading speed and print size were measured pre and post training. Results of the study indicate improvements in reading speed of both related and unrelated words (tNP related = -2.36, p = 0.04; tNP unrelated = -2.32, p = 0.04; tEV related = -5.10, p = 0.001; tEV unrelated = -4.24, p = 0.004) and print size of the students in both groups after training. These results support the use of eccentric viewing and null zone training to improve the efficiency of reading performance of children with low vision.

VISUAL SCANNING AND EMOTIONAL FACIAL RECOGNITION IN TRAUMATIC BRAIN INJURY: A CASE REPORT

Suzane Vassallo, Emma White, Jacinta Douglas

Purpose: Neurological damage may cause the interpretation of facial expression to breakdown at various stages of processing. Visual scanning and feature extraction underpin the process of stimulus encoding and enable the generation of an adequate percept for subsequent processing. While visual scan paths to facial expressions have been examined extensively in non-patient groups and in other individuals (e.g., schizophrenia), this is not the case in those with a traumatic brain injury (TBI). We have investigated visual scanning in those with TBI and present an interesting case report to highlight the deviation in the scan path from neurologically normal controls.

Method: Participants were one adult male (LY) with impaired ability to interpret facial expression as a result of severe TBI and 3 neurologically normal male controls. Stimuli were 18 pictures of facial expressions depicting the six basic universal emotions (sadness, happiness, anger, surprise, fear and disgust). The Tobii 1750 binocular infrared eye tracker (Tobii Technology, Stockholm, Sweden) recorded eye movements as participants viewed stimuli.

Results: LY's pattern of scanning differed significantly from that of the neurologically normal controls. For the controls, the majority of fixations fell within the internal facial region (that area including the eyes, nose and mouth). In contrast, LY's scanning was more dispersed (hyperscanning), with frequent foveal fixations to external peripheral regions (hair, ears, forehead, and blank stimulus background).

Discussion: These results indicate that, at least in some cases, impaired visual scanning contributes to impaired interpretation of facial expression after TBI.