

Selected Abstracts from the Orthoptics Australia 72nd Annual Scientific Conference held in Wellington 1 to 4 November 2015

PATRICIA LANCE LECTURE THE SPECTRUM OF POST-STROKE VISUAL IMPAIRMENT

Fiona Rowe

Stroke can have serious detrimental effects on the visual system and cortical processing including eye movement disorders, visual field impairment, low vision, perceptual and cognitive difficulties. While many visual disabilities are easily recognised and diagnosed, other, more subtle, defects remain harder to diagnose with important implications. Orthoptists working within stroke rehabilitation units or on acute stroke wards can work specifically with visual impairments related to eye movement and visual pathway systems and are experienced with requisite therapy options.

Based on recent research, the aim of this presentation is to outline the incidence and prevalence of post-stroke visual impairment, the types of visual impairment that occur in relation to low vision, eye movement disorders, visual field loss and perceptual deficits, and the impact of visual impairment. A brief review of visual rehabilitation options will be outlined along with results of recent systematic reviews of relevant interventions.

REVIEW OF THE PREVALENCE OF STRABISMUS AND FACTORS CONTRIBUTING TO VARIATION

Felicia Adinanto, Amanda French, Kathryn Rose

Strabismus presents in 2-5% of the population and is highly associated with amblyopia. It is known that those with poor vision in one eye are more likely to have pathology in the better eye later in life, contributing to the proportion of those with vision impairment with age. Literature has established that the contribution of genetics to strabismus is approximately 30% with associations between strabismus and various craniofacial and global syndromes. Environmental risk factors such as low economic status, maternal exposure to smoking, low birth weight, prematurity and admission to neonatal intensive care units have been identified as modifiable risk factors. This raises the question of whether the prevalence of strabismus has varied over decades. In order to determine this and whether the contribution of demographic characteristics of the population, such as age and ethnicity and methods of sampling and testing across populations has caused variation in the recorded prevalence of strabismus, this has been assessed by systematic analysis of the available literature.

Papers presenting the prevalence of strabismus within various population samples have been identified through database searches of PubMed and MEDLINE. Search terms included prevalence, strabismus, risk factors, school-based and population. Papers were selected for analysis if the samples were either population-based or school-based and the method of detection was by cover test by a qualified practitioner.

A TALE OF SUDDEN ONSET ESOTROPIA AND ITS MANAGEMENT

Natalie Ainscough, Deepa Taranath

A two-year-old healthy boy presented to the emergency department with sudden onset esotropia. Examination suggested likely partially accommodative esotropia or decompensating microtropia and glasses were prescribed to fully correct his hypermetropia. His left amblyopia was managed with patching therapy and three months later he underwent botox therapy to correct his residual esotropia to try and restore binocularity. Subsequently he developed an unexpected side-effect from the botox

which made further management challenging. He later underwent bimedial rectus recession surgery and his follow-up over the next four months was discussed.

The diagnosis of decompensated microtropia along with its management and follow-up was discussed, highlighting the expectations of different strategies and the difficulties encountered by the unexpected outcome in this particular case.

ALBINISM AND THE ORTHOPTIST

Natalie Ainscough, Deepa Taranath

The Ocular Genetics Clinic conducted from the Women and Children's Hospital in Adelaide has been running since 2013. This clinic uses the expertise of an ophthalmologist, clinical geneticist, two orthoptists and a genetic counsellor. Within this clinic setting, the most commonly seen condition is those patients diagnosed with or suspected to have one of the many types of albinism, making up 25% of all probands seen in the 22 months between March 2013 and January 2015.

Each professional group working within the Ocular Genetics Clinic has its own defined role. The orthoptists are there to make observations, assess visual acuity, document strabismus and ocular motility deficits as well as image the eye itself. This presentation will demonstrate the orthoptic assessments, the results and how different types of albinism present in clinic. This experience is in turn valuable in identifying albinism suspects in a general paediatric ophthalmology clinic.

CAN A TWO-YEAR-OLD HAVE 45 DIOPTRES OF MYOPIA?

Natalie Ainscough, Deepa Ajay Taranath, Timothy Greenwell

A first-born healthy male child, born to nonconsanguineous caucasian parents was diagnosed to have severe neonatal primary congenital glaucoma at birth. He underwent multiple surgeries to control his intraocular pressures in addition to topical therapy. He was identified as myopic in the first two months of life, with optical correction being given before one year of age. Although he was a known high myope, he never tolerated his glasses, this factor combined with an ongoing difficulty in getting a clear neutralisation of the retinoscopy reflex, prompted the consultant to get a second opinion. His most recent refraction was at two years of age and he was found to be highly myopic, 45 dioptres bilaterally.

Ocular morphometric measurements were analysed to explain this extreme myopia and various optical corrective options were discussed. This case highlighted the various challenges in the visual assessment and optical correction of high myopia in children. Presence of congenital glaucoma and multiple surgical interventions makes it more difficult for the orthoptists and ophthalmologists managing such children.

THYROID EYE DISEASE

Jodie Attard

This was a case presentation of a patient with thyroid eye disease who was treated with intravenous methylprednisolone, including symptoms, clinical findings, management plan and response to treatment. The indications for the use and effectiveness of intravenous methylprednisolone in thyroid eye disease patients were discussed.

THE PSYCHOSOCIAL IMPACT OF REPEATED INTRAVITREAL INJECTIONS ON PATIENTS WITH NEOVASCULAR AGE-RELATED MACULAR DEGENERATION

Jessica Boyle, Meri Vukicevic, Connie Koklanis, Catherine Itsiopoulos, Gwyneth Rees

Background: Current therapy to slow disease progression in patients with neovascular age-related macular degeneration (nvAMD) entails regular intravitreal anti-VEGF injections, often indefinitely. Little is known about the burden imposed on patients by this repetitive treatment schedule and how this can be best managed. Few studies have investigated the perceptions of patients regarding treatment tolerability and satisfaction in this population. Most of these studies were small case series or examined out-dated treatments (eg PDT). The aim of this study was to explore the subjective experiences of patients undergoing anti-VEGF therapy.

Method: Forty patients (16 males, 24 females) with nvAMD undergoing anti-VEGF treatment were recruited using purposive sampling from a private ophthalmology practice and public hospital in Melbourne. Patients were surveyed using the Macular Disease Treatment Satisfaction Questionnaire and underwent semi-structured, one-on-one interviews. Topics included: treatment burden and satisfaction; tolerability; barriers to adherence; and patient education. Interviews were recorded and thematic analysis performed using NVivo 10.

Results: Patients recognised the importance of treatment to preserve eyesight, yet experienced significant emotional and practical burden from the treatment schedule. Important issues included treatment-related anxiety, financial considerations and transport burden placed on relatives/carers. Many patients were restricted to sedentary activities post-injection owing to treatment side effects. Patients prioritised treatment above other commitments, sacrificing family, travel and social life.

Conclusion: Whilst anti-VEGF injections represent the treatment method of choice for nvAMD, the ongoing treatment protocol imposes significant burden on patients. An understanding of the factors that contribute to the burden of treatment may help inform strategies to lessen its impact and assist patients to better manage the challenges of treatment.

LONG-TERM FOLLOW-UP OF A HIGH PRIORITY REFERRAL CLINIC AT THE CHILDREN'S HOSPITAL AT WESTMEAD: THE OUTCOMES

Louise Brennan, Lindley Leonard

What started as a pilot clinic in 2010 is now a busy outpatient ophthalmology clinic assessing, treating and monitoring children to achieve best visual outcome. A retrospective review of 94 children referred to a High Priority Clinic at The Children's Hospital at Westmead between 2010 and 2012 was presented. Initial visual acuity, ocular diagnosis, treatments initiated and the long-term visual outcomes were discussed.

FRAMEWORK FOR THE INTRODUCTION AND TRAINING OF LOW VISION AIDS FOR PRESCHOOL CHILDREN

Alison Byrne

There has been an increase in the amount of available adaptive and mainstream technology, which has significantly improved access for students with vision impairment to the school curriculum. Nevertheless it is important not to disregard the benefits of simple optical low vision aids (LVAs), such as magnifiers and monoculars. These LVAs are simple to use, portable, affordable and provide immediate magnification. When used proficiently, LVAs can markedly increase a student's independence, inside and outside the classroom.

It is currently widely believed that LVAs should be introduced to children once they start school. At the Royal Institute for Deaf and Blind Children (RIDBC) we introduce simple LVAs to students as young as three with positive outcomes. If children with vision impairment have a clear understanding of how LVAs function and what their benefits are, prior to starting school, it allows for an easier transition. Research shows that the type of LVA that is prescribed, when it is prescribed, and how it is introduced can significantly impact on the way a child uses LVAs in the long term.

At RIDBC a framework is being developed to provide educators with a guide on how and when LVAs can be introduced prior to starting school. The framework will be designed to encourage students to have positive and meaningful interactions with LVAs and ultimately improve their transition to school. The presentation looked at case studies where LVAs have been successfully introduced early and the impact this had on the child's transition to school.

VISION IMPAIRMENT IN CHILDREN WITH CEREBRAL PALSY

Frances Corkin

Visual disorders including strabismus, refractive error, amblyopia and cerebral visual impairment are frequently diagnosed in children with cerebral palsy. Cerebral palsy (CP) is the most common physical disability in childhood with a prevalence of 2.1 affected individuals per 1,000 live births. Cerebral palsy is a prevailing diagnosis for a number of the children seen at the Royal Institute for Deaf and Blind Children. Developmental delay as well as speech and communication impairment commonly coexists in patients with CP therefore visual responses can be difficult to evaluate and visual function underestimated. Often conventional, age-appropriate tests are not adequate to evaluate vision however assessment methods can be modified in various ways to allow for the optimal visual response. A case study was presented highlighting these common visual impairments and how positioning and other adaptations can affect visual response. Given that orthoptists are primarily responsible for evaluating vision in the eye clinic it is important that children with cerebral palsy are adequately evaluated and their vision properly understood.

THE USE OF A TOOL TO DETECT THE PRESENCE OF VISION DEFECTS IN PATIENTS DIAGNOSED WITH STROKE: PHASE 1 VALIDATION OF THE VISION SCREENING TOOL

Michelle Courtney-Harris, Neryla Jolly, Jan Steen

Aim: To report on the validation of a vision screening tool for use by all healthcare practitioners and developed to identify ocular conditions that are either pre-existing or stroke-related in stroke-affected patients.

Method: A team of vision care experts devised a screening tool to be used as part of routine stroke assessment. The screening tool was designed to detect pre-stroke eye conditions and new visual problems that may have occurred as a result of stroke. Two public hospitals in metropolitan Sydney with stroke units and no current access to on-site eyecare professionals participated in the study. Patients admitted to these stroke units for a minimum of three days were eligible for recruitment. The study had two components, the first a complete visual assessment by an orthoptist who is an experienced eyecare practitioner versus the vision screening tool administered by a health practitioner from the stroke unit. The second involved the vision screening tool administered by both the orthoptist and the stroke practitioner for comparison.

Results: Comparing vision screening using the tool and a complete vision assessment conducted by an orthoptist, the results were similar. Areas of successful detection included the use of spectacles and use of ocular medications for pre-existing conditions, which enabled patients to continue the use of pre-prescribed treatments. New ocular conditions were well recognised by stroke practitioners as they were common eye defects

associated with stroke.

Conclusion: the screening tool was effective for the detection of pre-existing eye treatments but not all pre-existing eye conditions could be specified.

ALPORT SYNDROME

Micheal Deng, James Leong, Adrian Fung

A 38-year-old myopic Chinese male was diagnosed with Alport syndrome. He presented to the clinic with bilateral rings of macular drusen. His visual acuity was right eye 6/12 pinhole 6/10 (-1.75/-1.00x120) and left eye 6/7.5-1 pinhole 6/7.5 (-1.50/-1.00x100). Past medical history included IgA nephropathy requiring a renal transplant 15 years ago and hearing loss. Alport syndrome features consist of 85% X-linked, COL4A5 gene mutations (encodes for Alpha5 chain in collagen type IV found in lens capsule, ILM, RPE, choriocapillaris basal laminae) and oculo-renal syndrome: renal failure (haematuria) and hearing loss.

EXPLORING THE PATIENT PERSPECTIVE OF CATARACT SURGICAL OUTCOMES

Vu Quang Do, Lisa Keay, Anna Palagyi, Jan Steen, Andrew White, Peter McCluskey

Background: Success of cataract surgery has traditionally been assessed by visual acuity and vision function measures. However, little is known about the relationship between these clinical outcomes and patient satisfaction following cataract extraction.

Purpose: This study aims to identify the main predictors of patient satisfaction following cataract surgery and to explore how satisfaction and quality of life is related to key visual outcomes such as visual acuity and vision-related quality of life.

Methods: The aim is to recruit 400 bilateral cataract patients aged 50 years and above currently on the cataract surgery waiting list at four public hospitals and one private clinic in Sydney. Participants will undergo comprehensive assessment of vision, self-reported visual function, quality of life and mood prior to first eye surgery, three months after first-eye surgery and three months after second-eye surgery. Satisfaction with surgery will be rated by the participant, and target post-surgical refractive status and surgical complications assessed by surgical record review.

Results: 330 participants have undergone baseline assessment as of July 2015, with 27% (n=90) having completed follow-up assessment post first-eye surgery. One-third (n=28) of participants were dissatisfied with their self-reported wait-time from initial hospital appointment to surgery date (median 6 months, range 1-18 months); median preferred waiting time was 4.5 months (range 0.5-12 months). Most participants (91%, n=82) were satisfied with their first-eye cataract surgery.

Conclusion: Eliciting the personal perspective of cataract surgery may allow eye professionals to better determine the suitability of a patient for cataract surgery, manage expectations and appropriately time surgery.

IS ECCENTRIC VIEWING TRAINING OF BENEFIT TO CHILDREN AND YOUNG ADULTS?

Kerry Fitzmaurice, Norliza Fadzil, Linda Malesic

Loss of vision can have a profound impact on a child's development, education, mobility and future employment. The impact is further compounded as the child will live with this impact for life. Macular vision loss has a profound impact on high acuity activities such as reading that are integral to education, employment and daily activities. Rehabilitation

strategies to ameliorate this impact are therefore very important. The aim of this study was to investigate the impact of eccentric viewing training on visual performance of children and young adults with macular vision loss.

Method: Eight participants legally blind due to macular disease were assessed at baseline, post training and at six-months follow-up. Outcome measures were print size, reading speed, perceived and actual ADL performance. All participants were assessed for best potential eccentric viewing locus and underwent a modified eccentric viewing training based on the EccVue program.

Results and Discussion: Reading speed increased post training (mean 6.13, $p=0.05$), print size decreased (mean 1.01 log units to 0.74 post intervention, $p<0.01$) and ADL perceived ability improved (mean difference 0.51 effect size 0.88); actual ability improved (mean 0.92 and effect size 0.85). The outcomes of this study supported the use of eccentric viewing training with children demonstrating improvement on all outcome measures. Improved performance is consistent with other reports in the literature. The data also indicated participants required training to use the best potential eccentric viewing locus consistently and efficiently.

OUTCOMES FROM QUALITATIVE RESEARCH: EXPLORING CLIENT-PERCEIVED BARRIERS TO USING LOW VISION SERVICES

Julie Fitzpatrick

Low vision (due to eye disease) and living with unaddressed issues it may bring, is a growing concern and potential burden on the aging population worldwide, including in Australia. Also present, is the widely reported health issue that barriers exist to full utilisation of a range of health services, should the services exist. Evidence demonstrates that not all those requiring such healthcare see themselves as 'in need'. This issue of underutilisation of health care has also been reported for low vision rehabilitative services. This is for a range of reasons, particularly one's perception of 'need'.

The personal and financial effects of underutilising low vision rehabilitation services rank significantly in comparison with other health issues in countries where this service exists. If the barriers to use of low vision rehabilitation services could be more fully understood, this may partly help to reduce the burden of disease and improve future services for clients in this particular health industry. The goal to better understand whether this health issue exists forms the basis of this research, recently conducted in the form of investigative focus groups at Vision Australia Geelong.

CAREGIVER PERCEPTIONS ABOUT THE IMPACT OF CARING FOR PATIENTS WITH WET AGE-RELATED MACULAR DEGENERATION

Julie Heraghty, Meri Vukicevic, Rob Cummins, Bamini Gopinath, Paul Mitchell

Introduction: Family caregivers are integral to providing care to patients with chronic disease, particularly for those with wet age-related macular degeneration (wAMD). Family caregivers often provide assistance without formal training and are usually not compensated for their time. It is well documented that caregiver burden includes expending significant financial, emotional and physical effort whilst receiving no return. This in turn causes overload and stress compromising the caregiver's health and quality of life. Very few studies have explored caregiver perceptions as to what they consider important when providing care such as compassion, patience and selflessness.

Methods: A cross-sectional, self-administered survey of patients with wAMD and their caregivers was commissioned by the Macular Disease Foundation Australia. The carer survey consisted of 29 items (27 structured

Likert-scale response questions & 2 extended response questions). The aim of this study was to explore the perceptions of caregivers in relation to the most important aspects of caring, as described by their extended response answers.

Results: 643 caregiver responses were returned. Three discrete thematic networks were extrapolated from the data: i) The Impact of Caring; ii) Injections and Information and iii) Activities of Daily Living; and these were presented.

Conclusion: The findings of this study reveal an interesting and unexpected narrative into the lives of caregivers. It is quite evident that caregivers are very special people and require more support than currently available to them to prevent or ease the known issue of distress experienced as a result of caring.

RETINAL VASCULAR CALIBRE AND KIDNEY FUNCTION IN CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES

Stuart Keel, Connie Koklanis, Meri Vukicevic, Catherine Itsiopoulou, Laima Brazionis

Aim: To investigate the relationship between retinal vascular calibre and kidney function in children and adolescents with type 1 diabetes.

Method: This was a hospital-based cross-sectional ($n = 483$) study of children and adolescents with type 1 diabetes. Microalbuminuria (ACR of $>3.5\text{mg}/\text{mmol}$ in females and $>2.5\text{ mg}/\text{mmol}$ in males) and Estimated Glomerular Filtration Rate (eGFR) (abnormal = $0 - 59\text{ ml}/\text{min}$) were utilised as measures of kidney function. Retinal vascular calibre was measured by a trained grader and summarised as central retinal artery equivalent (CRAE) and central retinal vein equivalent (CRVE) using a semi-automated computer program.

Results: In this population, the mean ($\pm\text{SD}$) CRAE and CRVE were $164.21\ \mu\text{m}$ (± 12.55) and $232.75\ \mu\text{m}$ (± 17.18), respectively. Crude analysis revealed that CRAE was narrower in participants with microalbuminuria (mean $159.07\ \mu\text{m}$, ± 9.93) compared to those with normo-albuminuria (mean $164.49\ \mu\text{m}$, ± 12.45 ; $p=0.006$). The presence of abnormal eGFR on the other hand, was associated with lower AVR. Regression models revealed narrower CRAE was significantly associated with the presence of microalbuminuria (95% CI = $0.08/0.24$, $p<0.0001$). z

Conclusions: The finding of retinal arteriole narrowing in individuals with microalbuminuria highlights that retinal microvascular changes may precede a decline in kidney function. If confirmed in future longitudinal cohort and intervention studies, these findings support clinical evaluation of function in individuals with narrower retinal arterioles for earlier detection of individuals at high risk of developing nephropathy.

LONG-TERM FOLLOW-UP OF A HIGH PRIORITY REFERRAL CLINIC AT THE CHILDREN'S HOSPITAL AT WESTMEAD - BEYOND THE CLINIC

Lindley Leonard, Louise Brennan

The capacity of our High Priority Clinic to manage both newly referred patients and those already under our care led us to evaluate our service delivery. Data collected from the medical records of 94 children referred to a High Priority Clinic at The Children's Hospital at Westmead between 2010 and 2012 was further evaluated. With consideration to occasions of service and visual outcomes in relation to diagnoses and treatment, the development of discharge criteria and protocols are presented with reference to specific cases.

THE ORTHOPTISTS' HEADACHE ... SURVIVING THE CATARACT REVOLUTION

Irene Lim, Allannah Cramer

Orthoptists of today are facing many challenges due to changes in their scope of practice but also the changes in our demographics. One of the main challenges we face is the pressure to strive for the best cataract outcomes for our patients.

This presentation looked at the evolution of cataract surgery and how it has now become a complex jigsaw puzzle (often with a missing piece) for orthoptists to put together. With the advent of new lenses, new equipment, new surgical techniques and more complicated patients, we are now faced with many more decisions to make which influence the outcome.

The presentation reinforced what is important in making these decisions and presented case studies to give an insight into the problems involved when some of these patients present to clinic.

VERGENCE TRAINING AS A TREATMENT FOR INTERMITTENT EXOTROPIA

Chiu Wai Ling

Intermittent exotropia is difficult to treat. Conventional orthoptic exercises are not very effective and the surgical effect is not long-lasting because of divergent shift. In addition to the mystery of onset, there is the day-to-day variability. While binocular single vision and fusion gradually deteriorate, patients finally lose control of the deviation completely to end up with a constant exotropia. Vergence training with a 5-dioptre prism base-out was used to train fusional reserves for 43 patients with intermittent exotropia. The control of deviation was measured by the Newcastle Control Score, binocular visual acuity and prism fusion range. The results were presented.

PAST PHYSICAL ACTIVITY AND AGE-RELATED MACULAR DEGENERATION

Myra McGuinness

Patients in the clinic often ask what they can do to prevent age-related macular degeneration. Apart from general lifestyle and nutritional advice there is no specific treatment to avert age-related macular degeneration, or prevent progression from early and intermediate to late age-related macular degeneration. Physical activity represents a lifestyle choice that is modifiable for many older persons. The association between physical activity and age-related macular degeneration was examined using 20,816 participants from the Melbourne Collaborative Cohort Study. Information on demographics, lifestyle and diet were collected between 1990 and 1994. Fundus photographs were taken an average of 11 years later. Early, intermediate and late age-related macular degeneration were detected in 4,244, 2,661 and 122 participants respectively. After adjustment for age, gender, smoking, country of birth, diet and alcohol, no association was detected between a past total recreational physical activity and early, intermediate or late age-related macular degeneration using multinomial logistic regression. For females, frequent vigorous exercise was associated with lowered odds of intermediate age-related macular degeneration, but not for males. No associations were found between vigorous exercise and early or late age-related macular degeneration.

PAPILLOEDEMA: WHEN PATHOLOGY AND 'VISUAL FUNCTION' CROSS PATHS

Danielle Morgan

Papilloedema is a condition which can affect both adult and paediatric patients. In some cases this form of optic disc swelling can cause severe and lasting vision impairment which can affect a patient's ability to carry out daily activities. An interesting case of paediatric papilloedema and its impact on visual function was discussed.

OPTICAL AIDS IN LOW VISION

Vincent Nguyen

Visual aids, including high-powered magnifying lenses and prisms are often trialled in low vision clinics. In the early stages of macular degeneration, patients are often assisted by magnifying lenses for reading. In ocular albinism where distance vision is reduced, telescopic lenses are used to assist with distance viewing. These lenses are also used in reverse to increase the content of field in patients affected by retinitis pigmentosa. Prisms made popular by the Peli Lens system, are used in expanding the visual field of patients with visual field defects caused by stroke.

High powered optical lens visual aids remain very useful among the more advanced electronic magnifying devices and the cost of these optical aids remains relatively low compared to their rival electronics.

INFLUENCES ON THE MEASUREMENT OF MOTOR FUSIONAL VERGENCE

Fiona Rowe

When describing a normal motor fusion range the values are typically provided for combined categories of heterophoria rather than individual types. It is not uncommon however to see a small motor fusion range in entirely asymptomatic heterophorias, particularly esophoria. The aim of this presentation is to evaluate and compare the fusional vergences of subjects with orthophoria, esophoria and exophoria. The literature will be reviewed and discussed in relation to factors that have an impact on the measurements of fusional vergence such as stimulus size, ocular dominance, target distance and subject age. Furthermore clinical significance of fusional vergence measures will be considered when reviewing outcomes of treatment in terms of degree of alignment.

PROGRESSION OF DIABETIC RETINOPATHY IN A RANDOMIZED CLINICAL TRIAL OF INTRAVITREAL BEVACIZUMAB VERSUS INTRAVITREAL DEXAMETHASONE FOR DIABETIC MACULAR OEDEMA (THE BEVORDEX STUDY)

Sutha Sanmugasundram, Lauren Hodgson, Dania Quaterneh, Samantha Fraser-Bell, Mark Gillies, Hemal Mehta, Sanj Wickremasinghe, Lyndell Lim

Diabetic retinopathy (DR) is a common cause of severe vision loss and the leading cause of blindness in individuals between 20 and 65 years of age in developed countries. Diabetic macular oedema (DME) is the most common cause of vision loss in diabetic retinopathy. Although laser photocoagulation was the standard treatment for close to 30 years, improved treatment outcomes have led to laser treatment being surpassed by intravitreal anti-VEGF therapy as the first-line treatment for moderate to severe vision loss caused by DME. Steroidal treatment has also shown to be beneficial for DME; one such agent is the dexamethasone intravitreal implant. In this presentation the effect of bevacizumab versus dexamethasone (Ozurdex) implants on the severity of diabetic retinopathy was discussed.

Changes in DR severity will be based on reading centre assessment of colour fundus photographs using the modified Airlie House scale and the development of clinically important events defining proliferative diabetic retinopathy (PDR).

Eighty-eight eyes of 61 patients with centre-involving DME were enrolled in this study. Forty bevacizumab and 33 Ozurdex treated eyes had colour fundus images available at baseline and 24 months. Most study eyes had no change in their Airlie House DR grade regardless of treatment (62% bevacizumab, 54% Ozurdex). An improvement was noted in 20% of bevacizumab versus 30% of Ozurdex treated eyes; a deterioration was evident in 18% versus 15%, respectively. There were five bevacizumab and two Ozurdex-treated eyes, which developed PDR. In conclusion both bevacizumab and Ozurdex can improve DR severity when administered for DME.

GAZE BEHAVIOUR AMONG ORTHOPTISTS DURING OPTIC DISC EXAMINATION

Jane Scheetz, Konstandina Koklanis, Maureen Long, Meg Morris

In recent times the role of the orthoptist in glaucoma assessment has expanded with the introduction of new models of care utilising the skills of orthoptists in monitoring and co-managing patients with stable glaucoma and those considered to be suspects.

Accurate assessment of the optic nerve head is essential in the diagnosis and monitoring of glaucoma as typically, changes at the optic nerve head occur prior to any detectable visual field loss using conventional white-on-white perimetry testing. The purpose of this current study was to examine the eye movements and gaze behaviour patterns among orthoptists with varying levels of experience in glaucoma assessment during optic disc and retinal nerve fibre layer examination using optic disc photos. For each disc photo orthoptists were also asked to give a diagnosis of glaucoma likelihood.

Twenty optic disc images were selected by two glaucoma sub-specialists and included in this study. The selected images represented a range of both glaucomatous and physiologic optic disc characteristics. The eye movements of orthoptists were recorded using the Tobii T120 eye tracker. The preliminary findings of this study were presented.

TREATMENT PATTERNS IN DIABETIC MACULAR OEDEMA – A RETROSPECTIVE AUDIT: THE TREND STUDY

Tina van Tonder, Julie Morrison, Lauren Hodgson, Jonathan Tan, Lyndell L Lim, Ecosse Lamoureux, Sukhpal Sandhu

Purpose: Treatment patterns for diabetic macular oedema (DME) have evolved in recent times with the introduction of intravitreal injection therapy. Though this shift is evident in clinical practice, minimal data exists describing the change. This study aimed to describe the population presenting for DME treatment at the Royal Victorian Eye and Ear Hospital (RVEEH) over a period of five years.

Method: A retrospective chart review of patients undergoing intravitreal injection or macular laser for DME between 2009 and 2013 was performed. Data collected included demographics, clinical measures (visual acuity (VA), central macular thickness), treatments performed and adverse events.

Results: Data was extracted from 400 charts. Ninety-six percent had type 2 diabetes with a mean HbA1c of $8.5 \pm 2.1\%$. Seventy-one percent had bilateral DME. Worse eye median VA was 6/18; 57% were male; mean age was 63.6 ± 11.4 years.

Macular laser accounted for 89.5% of all treatments in 2009, with only 8.4% intravitreal triamcinolone (IVTA) and 2.1% bevacizumab injections performed. By 2013, treatment patterns had changed, bevacizumab now accounting for 50.0% of all treatments while laser and IVTA reduced

to 46.1% and 3.9% respectively. Poor VA (<6/12) and bilateral DME significantly increased patient visits and treatments compared to good VA or unilateral disease.

Conclusion: This study has characterised the RVEEH patients being treated for DME, and their treatment change over time. There has been an inevitable shift towards intravitreal injection therapy in recent years however macular laser still has a significant part to play as a treatment of DME.

A RARE CASE OF DIPLOPIA

Shandell Wishart

A healthy 35-year-old male presented to the clinic with sudden onset of diplopia and blurry vision, examination showed an ocular motility pattern mimicking a VI nerve palsy. The rare finding was bilaterally dilated pupils which were unresponsive, denied any trauma or use of recreational drugs. An urgent MRI was performed and came back normal.

POST-REFRACTIVE CATARACTS (IN A NON-REFRACTIVE PRACTICE)

Shandell Wishart, Rebecca Page

Calculating intraocular lens (IOL) powers in patients with previous laser surgery continues to be a difficult task. This presentation aimed to highlight how a private practice in Adelaide without access to refractive lasers and often no pre-operative data tackles this situation. What the outcomes have been, where we went wrong, and some ideas of where we could improve, based on the current knowledge and resources available. The aim was to provide some tips and tricks to assist other orthoptists when faced with this challenging task.

CORTICAL VISION IMPAIRMENT iBOOK

Rosa Wright

One of the roles of orthoptists at the Royal Institute for Deaf and Blind Children is to develop resources that are useful for families and professionals working with children with vision impairment. Our newest resource is an iBook about cortical vision impairment (CVI). CVI is the most common cause of vision impairment in children in developed countries. As a consequence, various orthoptists may need to assess a child with neurological vision loss at some point in time. By definition, CVI is caused by damage to the posterior visual pathways and/or the occipital lobes, and affects the processing and perception of what is seen. The health of the eyes may still be normal. There are various characteristics specific to CVI that are not seen in children without damage to the visual areas of the brain. I will highlight the contents of the iBook including the main characteristics that are seen in children with CVI. This resource may be used to help families understand the observations that are being made as an orthoptist assesses their child.

THE ROC STUDY: COMPARING THE EFFECTIVENESS OF AN INNOVATIVE AND COMPREHENSIVE NEW EYECARE MODEL WITH USUAL CARE FOR INDIVIDUALS IN RESIDENTIAL CARE FACILITIES: MULTI-CENTERED, PROSPECTIVE AND RANDOMISED CONTROLLED CLINICAL TRIAL

Kiera Young, Marios Constantinou, Theona Nicolou, Ecosse Lamoureux

By 2025 the aging population will have grown at a rate of 3.3 times faster than the total populations and 36% of that population will need residential care. Approximately 60% of people in residential care are vision-impaired and there is no formal comprehensive eye care service model that exists to date.

The residential ocular care study proposes a new model of eye care, called Residential Ocular Care (ROC). This is a comprehensive model which includes a thorough on-site eye examination with four subsequent interventions: 1. Refraction and spectacle provision; 2. Cataract surgery; 3. Low vision rehabilitation and; 4. Referral to an ophthalmologist. This study aims to compare the effectiveness of ROC with the usual care received in aged care homes on presenting and best-corrected distance and near vision. It also aims to assess the effectiveness of ROC on various aspects of quality of life, depression, rate of falls and eyecare utilisation. The study collaborates with the Australian College of Optometry, Vision Australia, Mercy Health and Aged Care Services Australia. This presentation outlined the study methodology and progress/outcomes to date.