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PATRICIA LANCE LECTURE: DELAYED DIAGNOSIS OF CHILDHOOD STRABISMUS: WHEN DOES IT MATTER?

Sandra Staffieri

Strabismus, real or otherwise, is an enigma. Fleeting and transient in the first few months of life, strabismus is a feature of the developing visual system. If epicanthal folds are particularly broad or persisting, it could just be an optical illusion. Although true strabismus will most often be benign in origin, untreated it could lead to severe, irreversible amblyopia and loss of binocular function.

Sometimes however, strabismus will be a sign of a more serious pathology. Accompanying systemic or neurological symptoms may alert the parent or primary health care practitioner that prompt referral and investigation are required. Often, there are none. Whilst the child is well and appears to see, for the uninformed, strabismus may be easily dismissed to simply 'watch and wait'.

Waiting however, could result in poor outcomes as the 'red flag' continues to be ignored. Which begs the questions: When should a parent seek advice if strabismus is observed in their child? What are the consequences of delayed diagnosis? And what can we do as orthoptists to challenge the current thinking and champion earlier diagnosis to achieve better outcomes, irrespective of the cause?

VARIATIONS IN THE PREVALENCE OF STRABISMUS BY AGE

Felicia Adinanto, Kathryn Rose, Amanda French

Purpose: To determine the prevalence of strabismus and it's variations with age.

Methods: The Sydney Paediatric Eye Disease Study (SPEDS) examined children between 6 months and 6 years, while the Sydney Myopia Study (SMS) cluster sampled children at 6 and 12 years, with a 5 to 6-year follow-up. All children underwent an age-appropriate comprehensive ocular examination including cover test, visual acuity and cycloplegic autorefraction. Prevalence of strabismus, esotropia and exotropia were analysed in 6,531 children by age groups 6-36 and 37-72 months, 6 and 12 years.

Results: The prevalence of strabismus remained consistent at 2.6% - 2.9% ($p=0.2$) in all age groups; 6-36 months, 37-72 months, 6 years and at 12 years. Intermittent exotropia was the most prevalent type of strabismus overall. Children in the 6 to 12-month age group had the highest proportion of esotropia (46%). However, by 6 and 12 years of age, the proportions of those with esotropia and exotropia were similar (1 - 1.3%, $p=0.2$). Of 1,205 children re-examined at follow-up in the SMS study, 2% of those who did not have strabismus at baseline, developed a strabismus, usually intermittent exotropia. Of those who had strabismus at baseline in both cohorts, a large portion (47%) became heterophoric at follow-up.

Conclusions: The overall prevalence of strabismus remains relatively stable from infancy to adolescence with intermittent exotropia being the most prevalent type of strabismus. However, the type of strabismus present changed with age due to both an increase in intermittent exotropia and reduction in constant esotropia, potentially due to treatment.

SILENT SINUS SYNDROME

Jodie Attard

Although relatively uncommon, patients with silent sinus syndrome (SSS) may present to an orthoptic clinic with enophthalmos, hypoglobus, eyelid retraction and/or diplopia. This presentation used a case study to explore the presentation, investigation and treatment of a patient suspected of having SSS. The discussion highlighted the importance of good history taking, imaging and multi-disciplinary care.

THE FUNCTIONAL IMPACT OF PERIFOVEAL GEOGRAPHIC ATROPHY IN PATIENTS WITH EARLY TO INTERMEDIATE DRY AMD

Jess Boyle, Meri Vukicevic, Konstandina Koklanis, Catherine Itsiopoulos, Wilson Heriot

Conventional measures such as best-corrected visual acuity (BCVA) often grossly underestimate the profound visual dysfunction experienced by patients with perifoveal geographic atrophy (GA) secondary to dry age-related macular degeneration (AMD). Foveal preservation in these patients typically means that BCVA is often only moderately impaired, in the order of 6/9 to 6/12, and thus misleading. Despite this, BCVA is widely used as a gold standard measure in assessing patient eligibility for disability support, such as the Blind Pension, and legal driving status. Moreover, clinical studies of GA often include BCVA as a primary outcome measure when investigating the efficacy of new therapeutic agents and patient response to treatment.

A systematic review by Boyle et al (2017) revealed only two studies to date have investigated functional deficits specifically in patients with perifoveal GA, comparing conventional outcomes with microperimetry thresholds. Microperimetry was found to represent a valuable tool in quantifying visual deficits in these patients and was significantly more sensitive than conventional acuity measures, including BCVA and low-luminance visual acuity. However, neither study investigated the relationship between microperimetry thresholds and functional vision measures such as reading speed, or patient-reported outcome measures (PROMs) in this clinical population.

This study aimed to investigate the functional impact of ring scotomata in patients with perifoveal GA secondary to dry AMD. Specifically, it aimed to explore the relationship between microperimetry thresholds and performance on both functional vision and visual function tests in this clinical population.

Twenty-five patients with perifoveal GA secondary to dry AMD will be recruited from a private ophthalmology practice. Participants will perform a battery of visual function and functional vision tests; including distance and near BCVA, MN Reading Speed, Melbourne Edge contrast sensitivity, MAIA microperimetry and the Melbourne Low Vision Activities of Daily Living Test. A self-administered, validated questionnaire (Visual Functioning Questionnaire-25; VFQ-25) will also be used to assess the degree of self-reported difficulty with vision-demanding activities in daily life. Statistical analysis will be undertaken to assess for data correlation between the different clinical variables. At the time of writing, data collection for this project was still in process. The preliminary results of this study were presented.

GAME ON! AN UPDATE ON DICHOPTIC THERAPY AT THE CHILDREN'S HOSPITAL AT WESTMEAD

Louise Brennan, Jane Lock, Lindley Leonard

The current mainstay of amblyopia treatment is correction of any underlying refractive error along with occlusion therapy, which involves patching or penalisation of the non-amblyopic eye.

More recently, experimental evidence has supported the role of binocular methods of treating amblyopia, referred to as dichoptic therapy. This treatment method forces both eyes to function together by presenting different images to each eye, either in a movie or as an interactive game. The amblyopic eye sees images of higher contrast, while the fellow eye sees images of lower contrast. In order for the game to be played successfully, both images must be seen.

Multiple small studies have already demonstrated the efficacy of dichoptic tablet games for visual improvement in amblyopes. The current study into dichoptic therapy being undertaken at The Children's Hospital at Westmead is aimed at better defining the game 'dosage'. The study outline along with the acceptance and resistance of this new treatment method for amblyopia was discussed.

COLOUR DISCRIMINATION: A COMPARISON OF CLINICAL FINDINGS OF INDIVIDUALS WITH AND WITHOUT CONGENITAL COLOUR VISION DEFICIENCY

Holly Brown, Julie Crewe, David Mackey

Introduction: The aim of this study was to assess vision and other ocular parameters of a group of individuals with congenital colour vision deficiency (CVD) and compare their results with a normal colour vision (nCV) group. It was hypothesised that people with a CVD may have a potential advantage in detecting camouflaged objects in outdoor environments, and this ability relates to measurable ocular functions.

Methods: Ocular examination involved best corrected visual acuity (BCVA), colour vision assessment with Ishihara plates (1-17) and Farnsworth D-15 test, autorefraction and ocular biometry. Dilated retinal imaging included SD-OCT imaging, fundus photography and cone cell imaging (rtx1 Adaptive Optics). The ocular parameters of the CVD cohort (n=17) were compared to a cohort of males (1:4, n=68) with confirmed nCV derived from the Western Australia Pregnancy Cohort (Raine) study. The Mann-Whitney U test was used to compare CVD and nCV groups with right and left eye averaged.

Results: The median BCVA of the CVD group was -0.1 (Snellen equivalent 6/4.8) compared to -0.06 (6/4.8-2) of the nCV group (p=0.18). There was no significant difference between the median axial length of the two groups (CVD=23.86, nCV=23.45, p=0.082). Spherical equivalent of the CVD group was 0.125 and -0.031 for the nCV group (p=0.57).

Conclusion: There was no measurable difference in the visual acuity, axial length or spherical equivalent of the CVD and nCV groups. Any enhanced vision skills of individuals with CVD may relate to their cone packing density or whether and if 'missing cones' are replaced in the photoreceptor mosaic.

THE TWILIGHT ZONE

Linden Chen, Ross Fitzsimons

These case presentations highlighted three adult strabismus patients who have very similar histories. The main presenting complaint is aesthenopia and eye strain. These symptoms are not debilitating. Examination reveals they had a manifest squint, intermittent diplopia, poor fusion and minimal suppression. They have all been managed by a behavioural optometrist at some point in their lives. 'The Twilight Zone' is a term we have used to describe these patients who all have somewhat intractable diplopia with very poor means of suppression or fusion. All synoptophore findings showed some form of abnormal binocular vision.

ORTHOPTIST-LED SECONDARY VISION SCREENING SERVICE

Jessica Collins

Amblyopia affects 1 to 5 % of children worldwide and can lead to permanent visual impairment despite being a treatable condition. Childhood vision screening is an effective way to identify amblyopia at an early age. Prompt detection allows more timely treatment aimed at reversing vision loss. Primary screening in South Australia is commonly done by general practitioners and community nurses. Many children initially fail this first vision screen and are often then referred for ophthalmic review, contributing to long waiting lists.

With the Orthoptist-led Secondary Vision Screening Service every child who fails their initial vision test is rescreened by an orthoptist in the community. This secondary screen provides more accurate results in amblyopia detection. It is a model of care that will reduce patient waiting times and lead to improved health outcomes for children. This model has been designed to service Adelaide's central and northern populations, enabling wider access to services.

The main aim of this service is to contribute relevant examination findings to improve the quality of triage of referrals. This enables a more direct, timely, and streamlined process for children requiring tertiary care. It will also aim to reduce the number of children on our waiting list. Consequently, this will improve the visual outcomes for children in our community. Vision screening is a vital service for early detection of amblyopia. A secondary orthoptist-led screening serves as an additional model of care to ensure redirection of resources to those who really need it.

PREDICTING PATIENT-REPORTED OUTCOMES TO CATARACT SURGERY

Vu Quang Do, Lisa Keay, Kris Rogers, Anna Palagyi, Andrew White, Nicole Carnt, Fiona Stapleton, Peter McCluskey

Background: Patient-reported outcome measures (PROMs) are recognised as a key component in assessing cataract surgical success. Accurate prediction of patients who are at higher-risk of poorer perceived outcomes will allow for more informed prioritisation of waiting lists and better management of postsurgical expectations. The aim of the study was to determine whether preoperative factors can accurately predict PROMs (satisfaction with surgery, satisfaction with vision, visual disability and health-related quality of life) following cataract surgery.

Methods: Bilateral cataract patients (aged ≥50 years) scheduled for their first-eye surgery were invited to take part in a prospective cohort study conducted at four urban public hospitals in NSW. Data collection occurred prior to cataract surgery and three months following first-eye surgery. Logistic and linear regression were used to model predictors of PROMs.

Results: 220 participants completed both baseline and follow-up assessments. Anisometropia (OR: 0.5, 95%CI: 0.3-0.98, p=0.04) and positive mood (OR: 0.92, 95%CI: 0.9-0.98, p=0.01) were protective against surgical dissatisfaction (c-statistic: 0.72). Females (OR: 2.4, 95%CI: 1.2-4.9, p=0.02) and preoperative visual disability (OR: 1.5, 95%CI: 1.1-2.1, p=0.01) were predictive of postoperative vision dissatisfaction (c-statistic: 0.66). Models examining predictors for visual disability and quality of life had poor predictive power (predicted r-squared: 0.11-0.30). The addition of intraoperative and postoperative factors only slightly increased (4-11%) the ability of all models to predict PROMs.

Conclusion: PROMs of cataract surgery are complex and multifactorial. Preoperative factors were able to predict satisfaction with surgery and vision with moderate confidence, but were unable to predict postoperative visual disability and QoL. These findings may assist clinicians to identify and manage patients at higher-risk of postsurgical dissatisfaction.

THE IMPORTANCE OF CONTINUING PROFESSIONAL DEVELOPMENT

Kerry Fitzmaurice

The concept of continuing education dates back to the middle ages and the guild system. The medical and health professions have been slower to embrace the need for regulated continuing professional education than many other professional groups such as chartered practicing accountants. A Continuing Professional Development Registration Standard is part of the Health Practitioner Regulation National Law 2010 and therefore mandated for all professions governed by this legislation.

Continuing professional education provides the basis for professional development (CPD). All professions have an expectation that their members will continually learn to improve practice and learn new skills. Not all are regulated by Statutory Authority however many professions self-regulate in relation to professional development. In this presentation the CPD requirements of health professions registered under the Health Practitioner Regulation National Law 2010 were reviewed. The CPD requirements of the Australian Orthoptic Board were discussed in relation to the Allied Health Practitioner Regulation Agency (AHPRA) managed registration boards to promote understanding of the need and purpose of CPD. The potential for the rapidly growing field of micro-credentialing in relation to continuing professional development was also explored.

ORTHOPTIC STUDENT LEARNING IN THE CLINICAL ENVIRONMENT

Amanda French, Felicia Adinanto

Aim: To investigate factors that shape positive and negative clinical learning environments and determine the influence on student approach to learning.

Methods: A questionnaire was administered to final semester orthoptic students from UTS. A set of 30 neutral-language statements were rated on a 5-point Likert scale from 'not important' to 'essential' for contributing to positive and negative environments. The 2-factor Study Processes Questionnaire was used to measure student learning approach at university and using this format, a set of statements reflecting deep and surface approach in the clinical environment were developed.

Results: Most students adopted a deep approach to learning at university (90%) and in the clinical environment (100%). All students adopted a deep approach in positive environments but, only 60% took this approach in environments considered negative. Most factors relating to the clinical supervisor were rated as equally important to positive and negative environments including; attitude towards teaching (4.89 and 4.81, $p=0.3$), interest in student learning (4.89 and 4.59, $p=0.12$) and attitude towards the orthoptic profession (4.61 and 4.46, $p=0.31$). Friendliness (4.89 and 4.63, $p=0.02$) and constructiveness of feedback (4.85 and 4.57, $p=0.02$) were also important for both environments, but significantly more so for shaping positive environments. Additionally, factors relating to students' belonging and opportunities to perform clinical tasks were more important for creating positive environments.

Conclusions: Quality student learning was better facilitated in positive clinical environments, with supervisors being the most important influence. Creating positive learning environments is essential for developing the clinical competencies of orthoptic students.

WHEN THE EARS MEET THE EYES. IS VISION SCREENING IMPORTANT IN CHILDREN WITH A HEARING IMPAIRMENT?

Katie Geering

Children who are diagnosed with a hearing impairment at The Children's Hospital Westmead are referred to the Eye Clinic for a baseline eye examination. A retrospective analysis of patient files was conducted for a 5-year period to determine the risk of eye disease in these children. A guideline for review will be developed to determine the best clinical care for these patients.

CONCUSSION: AN ORTHOPTIST'S ROLE

Premkumar Gunasekaran, Christopher Hodge, Clare Fraser, Kathryn Rose

Purpose: With at least 3,000 hospitalisations from sports-related concussion (SRC) annually in Australia, the optimal diagnosis and treatment of concussion and its sequelae is essential. Of consideration to orthoptists; ocular dysfunction, including version and vergence oculomotor defects, have been documented in up to 90% of concussed patients. This suggests that ocular testing may represent a crucial aspect of concussion assessment and surveillance. However, standard SRC assessment protocols do not typically include any analysis of the ocular systems. The aim of this research is to conduct a systematic literature review, identifying the prevalence of ocular defects associated with concussion and to examine the potential role an orthoptist may have in diagnosing and managing these patients.

Methods: A PubMed search using MeSH terms including 'brain concussion and concussion cerebral' and 'vision' resulted in 118 papers, or with the term 'eye movement' (86 papers) or 'visual dysfunction' (157 papers) were identified. These were searched individually and only included human-based studies published within the last 10 years (119 papers). A web-based review of existing Australian SRC assessment protocols was conducted concurrently.

Results: The literature indicates that commonly experienced oculomotor functions affected post-concussion are convergence (34-55%), accommodation (13-65%), smooth pursuits (33-60%) and saccades (29-42%). Minor deficits have been reported in visual fields, extraocular muscle motility and pupil function.

Conclusion: Ocular dysfunction is commonly found in cases of concussion. No Australian SRC diagnostic protocol includes visual assessments. Orthoptic testing may be a useful adjunct to the standard diagnostic tests for concussion in sports and the clinical setting.

AN AUDIT OF PAEDIATRIC REFERRALS OF PATIENTS WITH SUSPECTED PAPILLOEDEMA MADE TO THE CHILDREN'S HOSPITAL AT WESTMEAD

Sarah Harkins

Papilloedema is defined as optic disc swelling which is caused by raised intracranial pressure. Due to the serious implications of papilloedema in the paediatric population, patients are seen expediently in both the emergency department and outpatient ophthalmology clinic at The Children's Hospital at Westmead (CHW). The eye team at CHW noted an increase in referrals being made with children with suspected papilloedema. An audit was conducted of referrals for papilloedema and compared with the patient's clinical findings.

CASES OF PETERS ANOMALY IN YOUNG CHILDREN

Amy Huynh

Peters anomaly is a rare congenital disease which affects the eyes during the embryonic stages of development. The anterior structures fail to separate completely, hence resulting in the abnormality of cloudy eyes and generally poor visual outcome. Clinical findings of a few patients have been selected to provide an overview of their visual outcome and management of the condition.

REFRACTIVE ERROR IN PRESCHOOL CHILDREN: SYDNEY PAEDIATRIC EYE DISEASE STUDY (SPEDS)

Mythili Ilango, Kathryn Rose, Amanda French

Purpose: It has long been accepted that most young infants are relatively hypermetropic but some recent reports suggest that a more myopic refractive error is prevalent. The distribution of refractive error was examined in a population-based study of Australian pre-school children evaluating the role of ethnicity, iris colour and cycloplegia.

Method: 2,462 children aged 6 to 78 months had comprehensive eye examinations, including biometry measures (for ≥30 months) and cycloplegic (cyclopentolate 1%, 0.5% for ≤12 months) autorefraction (Canon RK-F1), Retinomax or retinoscopy. Ethnicity was ascertained by a questionnaire; iris colour was graded using reference photographs. Spherical equivalent refraction (SE) of the right eye was used for analysis using SPSS (v22, IBM, NY).

Results: Mean SE varied between the age groups (6-12, 13-30, 31-48 and >48 months, p=<0.0001), with infants 6-12 months (1.49D) being the most hypermetopic (all $p<0.05$). The least hypermetopic were the 13-30 months group (1.05D) where the Retinomax was predominantly used. With Retinomax measures excluded, the mean SE was 1.21D for this age group, while Retinomax alone was 0.92D. Children with darker irides were less hypermetopic than those with lighter irides (all ages $p<0.05$). This remained significant in European Caucasian children ($p=0.008$). Axial length/corneal radius ratio is a good predictor of refraction ($r=-0.639$, $p<0.0001$), but did not differ significantly between any of the iris colour groups ($p=0.238$).

Conclusion: The Retinomax and darker irides negatively shifted refractive measures in contrast to ocular biometry, posing the question of what is the reliable refraction protocol in young children?

WHAT? WHEN? WHY?: TELLING MY CHILD THEY WILL LOSE THEIR VISION

Lisa Kearns, Sandra Staffieri, Jonathan Ruddle, Alex Hewitt, David Mackey

Purpose: When their child is diagnosed with a blinding, inherited eye condition, parents experience feelings of shock, devastation, guilt, anger and isolation. Parents often face a dilemma on what and when to tell their child they will go blind.

Method: A series of case studies were used to describe and demonstrate the complexities of disclosure for both parent, child and the extended family.

Results: Two children (unrelated) 5 years and 10 years were diagnosed with Usher Syndrome and X-linked retinitis pigmentosa respectively. Both sets of parents limited the amount of information disclosed based on their child's age and potential exacerbation of anxiety in the child and/or sibling if they were aware of the diagnosis and future prognosis. By contrast, in another family, two brothers in their first decade, were aware they had inherited X-linked choroideremia. Despite the challenges, the brothers were able to make appropriate career choices based on their future visual potential. Families felt the context in which such a prognosis of vision impairment is delivered can be of major importance and influences the decision of when, whether or how much information is provided to their child.

Conclusions: Breaking bad news is complex and difficult. The moment of receiving the diagnosis may influence the emotional impact of such news on parents. Assisting them with appropriate information and supportive genetic counselling can facilitate their decision-making process and enable better adaptation for both parent and child.

PERSISTENT FOETAL VASCULATURE AND THE UNILATERAL CATARACT: ARE WE DOOMED FROM THE BEGINNING?

Lachlan Knight

Persistent foetal vasculature (PFV, previously known as PHPV) is an ocular development disorder in which the embryonic hyaloid vasculature has failed to regress. Unilateral posterior polar cataracts are a common presentation of anterior PFV. The cataracts invariably cause unilateral stimulus deprivation amblyopia in the affected eye, which is considered the most resistant to amblyopia therapy. Progressive anisometropia following cataract extraction also contributes to poor visual prognosis for such patients. However, there are case reports of significant vision improvement. This presentation demonstrated three varied cases.

These cases report the visual results following cataract extraction and primary posterior capsulotomy with anterior vitrectomy in PFV. Each case involves the use of aphakic contact lenses, instead of intraocular lenses, due to the added complexities of PFV-associated microphthalmia and management of high anisometropia.

The first case outlined the expected poor prognosis of vision, owing to difficulty with contact lens wear and compliance issues with amblyopia therapy. The second case, however, presented a successful and promising visual prognosis following compliance with treatment post-surgery. The final case challenges the school of thought that severe stimulus deprivation amblyopia only responds to treatment in early infant years.

In cases of unilateral cataract, a good visual prognosis is rarely expected or achieved. On the contrary, when treatment regimens are followed rigorously, an excellent prognosis is more likely. It is critical to decide when we cease treatment and when we push for further improvement, as our case illustrates that the potential for visual improvement could persist even years later.

THE EFFECTIVENESS OF AMBLYOPIA TREATMENT IN 4-YEAR OLD CHILDREN

Melanie Lai

An audit of the effectiveness of amblyopia therapy in the hospital setting will be discussed. Data from a retrospective analysis of patient demographics, treatment prescribed, the visits attended or not, and treatment outcomes were presented. The estimated hospital costs for the treatment of amblyopia were also be presented.

DEFINING HIGH RISK IN PREMATURE INFANTS

Lindley Leonard

The Ophthalmology department at The Children's Hospital at Westmead has historically accepted referrals for children born prematurely from a number of tertiary hospitals. The referral criteria, protocols and procedures have remained largely unchanged despite advancement in medical care and the treatment of premature babies. Internationally published literature was reviewed to determine the efficacy our current referral criteria and to ensure we align with best practice in ophthalmic assessment of premature babies.

THE PREVALENCE OF MYOPIA IN WESTERN AUSTRALIAN BABY BOOMERS

Gareth Lingham, Seyhan Yazar, Michael Hunter, Diane Wood, David Mackey

Introduction: Since the Blue Mountains Eye Study and Melbourne Visual Impairment Project conducted in the mid-1990s in NSW and Victoria, respectively, there has been little research into the prevalence of myopia amongst older Australians. Thus, the current and generational changes in myopia prevalence of older Australians are unknown. We present data from two contemporary 'Baby Boomer' Western Australian studies (aged 45 to 69 years), the rural Busselton Healthy Ageing Study (BHAS) and the metropolitan-based parents (Gen1) of the 25-year-old Western Australian Pregnancy Cohort (Raine) Study (G1RS) participants.

Methods: All participants underwent autorefraction. Only BHAS participants had cycloplegia. Those who self-reported a cataract or keratoconus diagnosis, or cataract or refractive surgery, were excluded. Myopia was defined as spherical equivalent <-0.50D. Independent samples t-test and test of equal proportions were used to compare continuous and binary outcomes, respectively. Myopia prevalence was standardised for age and sex according to 2016 Australian Census data.

Results: The mean age of participants was 56.4 ± 5.0 years and 57.6 ± 5.7 years ($p<0.001$) in the G1RS (n=891) and BHAS (n=4519), respectively. There was no difference in the mean spherical equivalent between the two cohorts (mean diff=0.07, 95%CI: -0.077 -0.21, $p=0.36$). However, the adjusted prevalence of myopia was higher in the BHAS (33.76% [n=1553] vs 27.08% [n=257], $p<0.001$).

Discussion: The prevalence of myopia was slightly higher in the rural BHAS population which may be a result of the differing autorefraction methods. The prevalence of myopia in both the G1RS and BHAS was higher than that reported in the previous studies of similar-aged Australians.

FUNDUS AUTOFLUORESCENCE IMAGING: AN INTRODUCTION

Myra McGuinness, Robyn Guymer

Fundus autofluorescence joins fundus photography, optical coherence tomography and fluorescein angiography as a powerful imaging tool in the modern ophthalmic clinic. The diagnosis and surveillance of several retinal conditions can be augmented via the use of autofluorescence. This presentation aimed to review autofluorescence techniques and illustrate the characteristic findings of age-related macular degeneration and other inherited retinal dystrophies as viewed via autofluorescence. Recent findings from research on the use of quantitative autofluorescence were also discussed.

HORIZONTAL GAZE PALSY WITH PROGRESSIVE SCOLIOSIS (HGPPS)

Michael Patti

Horizontal gaze palsy with progressive scoliosis (HGPPS) is a rare autosomal recessive disorder caused by homozygous or compound heterozygous mutations in the ROBO3 gene. This rare congenital disorder results in complete absence of horizontal eye movements. The majority of cases that have been documented are from Middle Eastern, African and European backgrounds. It seems that this case report of two brothers aged eight and six of Hokkien descent who have migrated from China, may be the first presented cases in Australia.

QUANTIFYING SPONTANEOUS RETINAL VENOUS PULSATIONS USING A NOVEL TABLET-BASED OPHTHALMOSCOPE

Sahar Shariflou, Ashish Agar, Mojtaba Golzan

Purpose: Spontaneous venous pulsations (SVPs) are fluctuations in vessel diameter observed at the optic nerve. Recent studies have pioneered SVP amplitude as a novel biomarker of glaucoma progression, however, absent SVPs have been reported in up to 50% of glaucoma patients. It was hypothesised that SVPs are detectable and quantifiable in all individuals using appropriate retinal imaging techniques and computer analysis. A novel tablet-based ophthalmoscope can be used to detect SVPs, providing crucial screening for ocular diseases such as glaucoma, leading to early intervention, preventing potential visual impairment.

Methods: Videoscopy of the retinal circulation at the optic nerve was performed on 13 glaucomatous eyes using an iOS-operating device with an attached add-on 20D indirect ophthalmoscopy lens. Data on SVPs were quantified by exporting individual video frames, manipulating image contrast and stabilising frames to eliminate eye movements. The central retinal vein diameter was measured in each frame and plotted against time.

Results: Thirteen eyes; 6 male (average age 60 years) and 7 female (average age 71 years) were imaged. SVPs were detected in all eyes and were quantified, with the average percentile pulse being 36.57% change (range 15.6-72.73). There was no significant difference in SVPs in males and females.

Conclusion: This study provides proof of principle that by applying correct computer algorithms, manipulating image quality with a high-powered lens, SVPs can be reliably extracted and quantified using this hand-held device. The next step in this research is to determine whether SVP assessment can aid early diagnosis of glaucoma in a larger cohort.

EXPLORING METHODOLOGY THAT REVEALS THE FUNCTIONAL IMPACT OF CHILDHOOD VISION IMPAIRMENT - THE OUTCOME OF AN E-DELPHI STUDY

Sue Silveira

To ensure that the National Disability Insurance Scheme (NDIS) provides reasonable and adequate support when a child has vision impairment, it is critical that reporting captures the functional impact of vision impairment on the child's day-to-day learning and experiences. However, the current NDIS access requirements for vision do not allow the child's vision to be represented functionally, but rather in terms of their clinical performance, ie their distance visual acuity and visual fields. This issue was investigated during 2017 in a study that used an e-Delphi technique to explore the functional impact of childhood vision impairment. The study participants consisted of orthoptists and specialist teachers in vision impairment. The study addressed ways in which the factors that impact on a child's daily visual function could be identified and rated. The participants provided feedback on the suitability of the inventories within the revised World Health Organization's International Classification of Diseases version 11. These inventories described other impairments of vision such as reduced contrast sensitivity and glare; subjective visual experiences such as visual fatigue, specific visual dysfunctions such as spatial neglect; and the effects of non-visual disabilities such as dual sensory impairment.

The findings of the e-Delphi study were presented in this paper, including a proposed model that may be suitable to judge a child's eligibility for NDIS funding. This model combines traditional clinical measurements with those phenomena that impact on a child's visual function, thus potentially indicating the functional impact of childhood vision impairment.

THE DELIVERY OF EYE CARE IN A CAMBODIAN HOSPITAL

Suzy Toovey

This presentation provided a personal look at the delivery of eye care in a Cambodian Hospital run by Korean Christian Missionaries. Whilst volunteering in an Eye Clinic in Cambodia I was able to witness the delivery of optical and some basic eye care. This talk is a personal tale of what I observed whilst I was there. It also explored the delivery of eye services at one hospital in Phnom Penh and makes some observations of how delivery of services could be improved. It also compared the services available to an older population to what is available in one hospital in Phnom Penh.

BOTOX

Faren Willett

Strabismus was the initial use for Botox and remains one of the five management options for someone who presents with strabismus and diplopia. It can be a good option for some patients with diverse circumstances. This presentation described a few patients who presented with varying complaints and how they benefited from Botox treatment.

The first patient is a surgeon who presented with a vascular sixth nerve palsy and diplopia after poorly self-managing his own diabetes. Being a surgeon, he relied on his excellent vision and his diplopia was preventing him from being able to work and support himself, his family and his clinic. Botox alleviated the diplopia and he was able to return to surgery. It has been a year since his last Botox injection, his palsy has resolved and he no longer suffers from diplopia.

The second patient had convergence insufficiency which was preventing her from completing her PhD study and interfered with her daily routine. Botox improved her convergence near point and alleviated her symptoms so that she was able to read more comfortably.

Another had a large angle exotropia since childhood. He doesn't have any diplopia, but is self-conscious of his turn. The patient has been returning for Botox injections for cosmetic alignment when he has important social events.

A CASE OF A POOR HISTORIAN

Shandell Wishart

To develop a sustainable clinical model of care for the management of In a busy retinal clinic a patient attends with non-specific eye trouble; the usual method would be to perform a vision, IOP and dilate. This case turned out to be much more than that. This case study to highlighted the importance of a good history, observing patient behaviour and using our gut instincts as clinicians.