

## CATARACT- POSTERS

#1

### **Capsulorrhexis: Evidence of the presence of Meyer and Land's Threshold Concepts in Micro-surgical Training**

**Arun Reginald**

**Purpose** Threshold concepts are counterintuitive and the knowledge they convey can be troublesome. Attaining threshold concepts is often described as the 'light bulb moment' or 'when the penny dropped'.

This study explores whether attaining the skill of Capsulorrhexis represents a 'Threshold Concept' in the microsurgical training of ophthalmic trainees and satisfies the classical defining criteria of Meyer and Land set out in the education literature. It questions whether this represents a 'threshold skill', a novel concept in teaching and learning.

**Study Design** On-line Multicentre Questionnaire & Interview

**Methods** Ophthalmic trainees at two sites (Toronto, Canada and Oxford, England) were asked to complete an anonymized online questionnaire regarding their perception and experience of microsurgical training. Questions were posed to establish whether trainees perception and reported experience of learning capsulorrhexis complied with Meyer and Lands criteria for a threshold skill;

1. It is transformative in that it represents a significant shift in the perception of a subject.
2. It is probably irreversible in that it cannot be unlearned.
3. It is integrative in that it exposes relationships that were not previously visible
4. It is 'bounded' as it helps to define the outlines of a subject area.
5. A threshold concept represents troublesome knowledge, due to its counterintuitive nature

An adapted version of this questionnaire was sent to ophthalmic microsurgical trainers at both sites to also include the perception of the trainers.

**Results** Trainees in both sites identified capsulorrhexis as either the most difficult or one of the most difficult elements of surgery. Most trainees found this stage counterintuitive.

- 1)Attaining the skill of capsulorrhexis was transformative to the majority (80%) of trainees understanding and self perception.
- 2)All trainees found attaining this skill irreversible
- 3)Over half (55%) of the trainees and over three quarters (80%)of the trainees felt attaining capsulorrhexis skills represented integrative knowledge
- 4)All trainees and trainers agreed this skill represented a boundary to progression and subspeciality knowledge
- 5)There were conflicting data regarding the whether this attained knowledge was truly 'troublesome' as outlined by Meyer and Land

**Conclusions** Different stages in cataract surgery are perceived to be more or less, easy, intuitive and transformative. Capsulorrhexis complies to many of the criteria for a threshold skill as defined in the educational literature as it is transformative, integrative, often irreversible and acts as a boundary to progression. Further more detailed and larger analysis is required to establish whether the final criteria is met. Recognition of threshold concepts and their properties have aided teaching in many other disciplines and the lessons learnt may aid trainers and trainees adapt their approach to microsurgery.

## CATARACT- POSTERS

#2

**Is the use of a foldable scleral fixated intraocular lens with the ab interno technique in the absence of adequate capsular and zonular support safe and efficient?**

**Maxime Laroche, Marie Eve Légaré, Rene Dinh**

**Purpose** Despite the fact that there are multiple surgical techniques to suture the lens to the sclera, no consensus has been established on the optimal technique. In this study, we evaluate the safety and efficacy of foldable scleral fixated intraocular lens (SFIOL) technique using a clear corneal small incision and ab interno double-armed polypropylene 9.0 sutures. Visual acuity and incidence of postoperative complications are reported.

**Study Design** After approval by the institutional review board of the Centre Hospitalier Universitaire de Quebec, we did a review of Dr Dinh's patients who underwent primary or secondary foldable SFIOL implantation for aphakia, ectopia lentis and following intraocular trauma between April 2004 and January 2009. One hundred and fifty-two patients were identified. Seventy two patients for seventy six eyes were admissible for the inclusion criteria which were the use of a foldable SFIOL type MA50BM with both haptics sutured and a follow-up of at least two months.

**Methods** The same surgeon did all the surgeries. Visual acuities were the best-corrected visual acuity (BCVA) in the chart with the Snellen notation. We used student tests to do the statistical analysis between pre and post-operative visual acuities. We recorded all the complications during the follow-up period.

**Results** A total of 76 eyes were identified with a mean follow up of 15 months (2 to 52 months). Postoperatively, 81.6% maintained or improved best-corrected visual acuity with a statistically significant LogMAR improvement of -0.42, passing from 0.95 LogMAR (6/60) to 0.53 LogMAR (6/19). Adverse events occurred in 33 eyes (43.4%). Most of them were transient. No suprachoroidal hemorrhages and or endophthalmitis were noticed. The main complication was transient ocular hypertonia. Three eyes (3.9%) had polypropylene exposed sutures at 1, 9 and 34 months in the follow-up respectively. Three eyes (3.9%) had transient tilt/decentration problems.

**Conclusions** The foldable SFIOL using ab interno method described in this study was found effective according to the improvement of visual acuity, and safe with relatively few serious complications. The use of a foldable SFIOL approach is less invasive than the rigid SFIOL technique and allows a faster healing of the wound for the patient. The ab interno has the advantage of good globe maintenance during the procedure which can be useful in particular situations.

## CATARACT- POSTERS

#7

**Does the use of a Surgical Safety Checklist offer safety improvements when adapted to cataract surgery?**

**Hamza N. Khan, Donna Gramigna, Courtney Addis, Carla Service**

**Purpose** To develop and study the impact of a specialized cataract surgery checklist on safety and team communication. Checklists are used in many applications to help improve team communications, task completion and error reduction. Cataract surgery is the largest-volume procedure in developed nations, and thus is particularly high profile. The World Health Organization Safety Checklist is limited in several areas important to ambulatory cataract surgery.

**Study Design** We performed a prospective cohort analysis over a 12 month period and 3800 cataract surgeries at a hospital-based ambulatory surgical facility. Rates of preventable errors and near misses were measured, along with staff survey, before and after implementation of the Cataract Checklist.

**Methods** The WHO checklist was modified to improve outcomes in ambulatory cataract surgery. An environmental scan and pilot trial were used in the development. Over a period of 12 months, 3800 cataract surgical procedures employed the use of the new Cataract Checklist, or prior method of time-out. Rates of preventable errors and near misses were measured before and after implementation of the Cataract Checklist. A survey of staff and surgeons provided user-input into the perceived impact on team communication and ease of use.

**Results** Significant education was needed to implement the tool. One case of wrong IOL was reported in both periods pre and post implementation. No statistical reduction in wrong IOL implants was seen; staff reported better communication, including several near-misses.

**Conclusions** A low rate of preventable errors was reported in both measurement periods. Based on surveys, the tool can improve team communication. A significant improvement in safety can be achieved through better communication, thus an ophthalmology checklist can be recommended as a standard of practice.

## CATARACT- POSTERS

#3

### Translational aids for Canadian ophthalmologists

**Kathy Y. Cao, Zale D. Mednick, Rosa M. Braga-Mele**

**Purpose** To conduct a needs assessment survey of Canadian ophthalmologists to determine if there is a requirement for translational aids in ophthalmology, and if so, the content, format and languages to include, and to create these translational aids in several common languages for use by all ophthalmologists.

**Study Design** Anonymous voluntary online needs assessment questionnaire

**Methods** An anonymous voluntary online survey was distributed to 700 active members (practicing Canadian ophthalmologists) of the Canadian Ophthalmological Society in English and French from September to November 2010. Data was collected as to the areas of ophthalmology that are perceived to require translation. If the results of the survey showed a need for translational aids, common ophthalmological terms will be translated into the most prevalent languages indicated from the survey and for areas of examination, diagnosis and treatments most needed. The final translational aids will be made available to the ophthalmology community.

**Results** The survey response rate was 19.9 % (139/700), with 131 English survey responses and 8 French responses. Majority of the respondents (130/139 = 93.5%) have encountered difficulty in communicating with patients due to language barrier and 88.5% (123/139) would benefit from having a list of ophthalmological terms translated into several of Canada's most popular languages. The top 10 languages that the respondents found would be most beneficial are in descending order: Chinese, Hindi, Spanish, Punjabi, Italian, Portuguese, Arabic, Greek, Cree, and Vietnamese. The survey responses provided a comprehensive list of the most useful ophthalmological symptoms, instructions to patients and diagnoses to be translated. Most respondents (120/139 = 86.3%) felt that having basic information pamphlets on specific ocular conditions translated into several languages would benefit their practice and the top 3 conditions were: cataract, glaucoma and age-related macular degeneration. Producing the translational aids in both paper and electronic format was found to be the most popular (89/139 = 64.0%).

**Conclusions** With increase in migration and globalization, there is a strong need for translational aids in ophthalmology. The findings of this national survey will help direct the content, format and languages to include in the production of the translational aids to fill this unmet need. These aids will be of benefit when discussing diagnosis and treatment options with patients, such as cataracts, in our multicultural communities.

## CATARACT- POSTERS

#4

### Simultaneous bilateral cataract surgery in Ontario and around the world in 2011

**Steve A. Arshinoff**

**Purpose** SBCS is being practiced with increasing frequency in Ontario around the world. Progress in acceptance has been hindered by resistance to change, and helped by the establishment of the International Society of Bilateral Cataract Surgeons (iSBCS). I tried to ascertain the extent of its current adoption.

**Study Design** Data collection and analysis.

**Methods** Inquiry was made to the Ontario government about cataract surgery data in Ontario, and to members of iSBCS about their own countries. A literature review was done on PubMed to ascertain available published data. David Leaming's most current surveys of ASCRS and ESCRS members were reviewed. All information was gathered and collated into a meaningful presentation.

**Results** Acceptance of SBCS is rapidly increasing, despite its being hampered by a few factors:

1. Irrational fear of devastating bilateral complications.
2. Financial disincentives still present in many jurisdictions.
3. Fear of collegial wrath, impeding reporting of data.
4. Fear of deviation from preferred practice pattern and guideline documents.

**Conclusions** The frequency of SBCS has increased rapidly over the past decade. Published suggestions for its safe routine performance are available from [www.iSBCS.org](http://www.iSBCS.org). Irrational fear and bias, has resulted in unreasonable interference with those who wish to cautiously perform SBCS.

## CATARACT- POSTERS

#5

**Objective measurement of accommodation and effect of higher order aberrations with pseudophakic intraocular lenses.**

**George Beiko**

**Purpose** To determine objectively, using a dynamic measure of accommodation, the mechanism of action of single optic accommodating and non accommodating intraocular lenses.

**Study Design** Non randomized.

**Methods** The AMO Complete Ophthalmic Analysis System (AMO COAS) was used to measure the effect of a near stimulus in patients implanted with accommodative IOLs. The AMO COAS provides high resolution, dynamic measures of wavefront, pupil size and refraction and allows for binocular viewing of near and distant objects. Patients with Lenstec Tetraflex, B&L Crystelens HD and Tecnis one piece iols were studied.

**Results** Although objective measures of accommodation were demonstrated in phakic individuals with the COAS system, only minor accommodation was observed in the study IOLs. All accommodative effect in pseudophakic individuals was due to the effect of spherical aberration, no effect was due to coma.

**Conclusions** Objective measures of accommodation using dynamic aberrometry failed to demonstrate any effect in single optic accommodating intraocular lenses.

## CATARACT- POSTERS

#6

### Comparison of cataract induction techniques on porcine eyes for surgical simulation

**Patrick Gooi, Karim Punja, Jamie Bhamra, Tom Gonder, Stephanie Wood, Malcolm Gooi**

**Purpose** Surgical simulation provides a safe environment to acquire and develop microsurgical skills for cataract surgery. Pig eyes are readily available but have different tissue characteristics compared to human cataract patients. We compare different methods of inducing cataract by chemical, thermal, and microwave means in porcine eyes.

**Study Design** Basic science controlled trial

**Methods** Cataracts were induced in porcine eyes using microwave treatment (n=5); cautery of the lens (n=5); 10% formaldehyde solution treatment (n=5); treatment with solution of concentrated formaldehyde and methanol (n=5); and untreated controls (n=5). Cataract surgery with phacoemulsification using an Alcon Legacy machine was performed. Eyes were graded for the clarity of the cornea, quality of the capsulorhexis, hardness and integrity of the induced cataract, interval for cataract formation and ability to crack and chop the lens in a wet lab setting.

**Results** Inducing cataract with a concentrated formaldehyde and methanol solution provided a realistic capsulorhexis, and cracking and chopping was possible during nucleus disassembly. Corneal clarity was also maintained and time to cataract induction was less than 20 minutes. 10% formaldehyde required several days to induce cataract, and corneal clarity was diminished after this interval. Microwave treatment created a hazy cornea, which resulted in difficulty in assessing the capsulorhexis and nucleus disassembly. Cautery produced inconsistent cataracts, and surgery was complicated by wound burn and wound leak.

**Conclusions** Cataract induction using concentrated formaldehyde and methanol is an effective means in cataract surgery simulation with porcine eyes. Porcine eyes provide a predictable, high volume amount of teaching material compared to human cadaver eyes. Best results are achieved with freshly harvested porcine eyes and we recommend use within 3 days of retrieval. For residency programs that already have wet labs, this method of cataract induction is the relatively low cost compared computer-based cataract surgery simulators. Furthermore, this technique enables training with different instruments and different nucleus disassembly techniques, such as coaxial, biaxial, flip and chip, divide and conquer, and stop and chop. We have found this technique to be especially useful in our relatively new residency program, where residents learn a variety of surgical techniques.



## CATARACT- POSTERS

#8

### Traumatic Aniridia in Pseudophakic Patient 6 Years After Cataract Surgery

**Mikel Mikhail, Keyvan Koushan, Rajeshvar K. Sharda, Gloria Isaza, Keith Mann**

**Purpose** To report a case of aniridia in a pseudophakic patient following blunt trauma to the eye. The traumatized eye had cataract surgery through a 3.0 mm clear corneal incision six years prior to the incident. While there have been previous cases of traumatic aniridia in pseudophakic eyes, previous reports have all occurred closer to the time of the cataract surgery. This case represents the latest following surgery that a case of traumatic aniridia has been reported.

**Study Design** Case report and literature review.

**Methods** A previously healthy 66 year old female presented with decreased vision in her left eye two hours after blunt trauma to the eye. The traumatized eye had cataract surgery by phacoemulsification with intraocular lens (IOL) implantation through a 3.0 mm temporal clear corneal incision six years prior to the accident. Examination of her left eye revealed visual acuity of hand movement, hyphema of 5.6 mm and what appeared to be a mydriatic pupil. Intraocular pressure (IOP) was 29 mmHg. There was dense vitreous hemorrhage obscuring the view of the fundus.

**Results** Ultrasound biomicroscopy (B-scan) revealed vitreous hemorrhage but there was no retinal detachment. In subsequent visits, the visual acuity, hyphema, and IOP improved. By the fourth week post-trauma, the hyphema and vitreous hemorrhage eventually resolved with the visual acuity returning to 20/20. During this period, absence of the iris was noted. This was confirmed by gonioscopy. This was a new observation for the patient and her ophthalmologist, as she was not known to have any iris abnormalities. Her visual acuity returned to 20/20 four weeks post-trauma, with symptoms of glare which were managed by the use of a coloured contact lens.

**Conclusions** A number of explanations can be offered for aniridia following blunt trauma in the setting of pseudophakia. We believe that the most likely explanation is dehiscence of the self-sealing clear corneal incision used for phacoemulsification and IOL implantation six years prior to the accident. The possibility of wound dehiscence with prolapse of anterior chamber contents should be recognized as an important clinical entity post-operatively. This is particularly the case in the immediate period following surgery when the wound is most susceptible to dehiscence but also several years post-phacoemulsification as highlighted by our case.

## GLAUCOMA- POSTERS

#11

### **Combined cataract and glaucoma surgery: Endoscopic Cyclophotocoagulation versus Trabeculectomy**

**Sheila A. Marco, Karim F. Damji, Christopher Rudnisky**

**Purpose** To compare the efficacy and safety of endoscopic cyclophotocoagulation (ECP) versus Trabeculectomy with mitomycin C (Trab MMC) in patients who underwent combined cataract and glaucoma surgery.

**Study Design** A retrospective comparative case series.

**Methods** We reviewed the 6-month results of patients who underwent phacoemulsification with either ECP or Trab MMC. The primary outcome was mean intraocular pressure (IOP); secondary outcomes included postoperative complications, change in glaucoma medications from baseline, and change in visual acuity. Success was defined as complete if there was an unmedicated IOP of  $>5$  mmHg,  $<21$  mmHg and at least a 20% reduction from baseline and qualified if the same goals could be achieved but with topical medications.

**Results** We evaluated a total of 67 eyes in 67 patients. 34 (50.75%) eyes were treated with ECP and 33 (49.25%) treated with Trab MMC. There was no significant difference in age, gender, pre-operative IOP, visual acuity and pre-operative number of glaucoma medications between groups. There were more patients with POAG in the Trab MMC group vs. ECP (23 vs.13  $p=0.0143$ ). The first day post-operative IOP was significantly higher for the ECP group ( $22.97 \pm 8.00$ ) than the Trab MMC group ( $16.62 \pm 11.81$ ;  $p=0.0036$ ), but was not significantly different at 3 and 6 months. None of the eyes underwent repeat surgery; the ECP group had significantly greater anterior chamber reaction at one week and one month but not at 6 months. The rate of postoperative hypotony and other complications was not significantly different between groups. The number of post operative medications was significantly lower in the trabeculectomy group at both 3 months ( $p= 0.0016$ ) and 6 months ( $p=0.0064$ ). After 6 months, almost three times as many patients achieved complete success in the trabeculectomy group (65.0%) than in the ECP group (22.73%;  $p=0.012$ ); all eyes in each group achieved qualified success at 6 months. Visual acuity was better in the ECP patients after one week ( $p=0.013$ ) but not significantly different after 3 or 6 months.

**Conclusions** Patients undergoing cataract surgery with ECP achieve similar IOP lowering as combined Trab MMC patients at 6 months, although ECP patients required significantly more topical medication. There was no difference in postoperative complication rate in each group.

## NEURO-OPHTHALMOLOGY- POSTERS

#18

**Cavernous angioma of the optic chiasm presenting as pituitary apoplexy.**

**Randy A. Walker, Edward J. Atkins**

**Purpose** To describe a rare case of cavernous angioma of the optic chiasm, and to discuss the differential diagnosis, imaging characteristics, surgical treatment, and pathology of this infrequently reported cause of sudden visual loss.

**Study Design** Case report.

**Methods** Chart review.

**Results** A 48 year old male previously in good health presented with sudden onset severe headache upon waking, followed a few hours later by right nasal visual field loss. An urgent CT scan suggested pituitary apoplexy and he was transferred to neurosurgery. Ophthalmic exam showed visual acuity of 20/40 OD and 20/20 OS. There was a 0.3 log unit left RAPD. Goldmann visual field testing demonstrated an incongruous left homonymous hemianopia. Fundus exam showed subtle temporal pallor of the right optic nerve. An MRI revealed a chiasmal lesion with surrounding hemorrhage extending into the right optic nerve and tract. The favoured radiological diagnosis was chiasmal glioma; however, a chiasmal cavernous angioma was suspected clinically and became the working diagnosis. After a few months of stability and improved vision, there was a recurrence of hemorrhage, presenting with similar symptoms. There was a more congruous left homonymous hemianopia, and a 0.6 log unit left RAPD. Surgical resection was successfully performed and the diagnosis of cavernous angioma was confirmed pathologically. Visual acuity and visual fields have remained stable post-resection.

**Conclusions** Cavernous angioma of the optic chiasm is exceedingly rare, with only a few previously reported cases. Classically, this presents with sudden onset of headache and bitemporal hemianopia. These lesions have a high incidence of recurrent hemorrhage within two years and resection is generally recommended since a cleavage plane can usually be found between the malformation and normal neural tissue. Complete resection is thought to be curative and the majority of cases show at least stabilization of visual function, if not improvement. This report contributes to our understanding of the clinical and radiologic features of anterior optic pathway cavernous angiomas, and underscores the importance of considering cavernous angioma in the differential diagnosis of pituitary apoplexy, and of other hemorrhagic lesions of the optic nerve, chiasm, or tract.

## NEURO-OPHTHALMOLOGY- POSTERS

#20

### **Bilateral blindness after one month of pharmacologic coma for extended cutaneous burns treatment**

**Pierre Lepage-Létourneau, Daniel O. Black, Yvonne Molgat**

**Purpose** To report an interesting case of bilateral blindness after pharmacologic coma for extended cutaneous burns treatment

**Study Design** Case report

**Methods** A 48-year-old man who was intubated for 1 month after severe extended thermal burns complained of bilateral blindness immediately after emergence of pharmacologic coma. There was no orbital compartment syndrome at admission. Examination at emergence of coma revealed no light perception, marked bilateral ischemic retinas with extremely severe bilateral optic atrophy.

**Results** Angio-CT demonstrated no thrombosis of ophthalmic arteries nor occipital lesion. Transoesophageal echocardiogram revealed a small left auricular thrombus. Electroretinography demonstrated a normal A wave with an abnormal B wave, suggesting central retinal artery occlusion rather than ophthalmic artery occlusion. Over next months, there was no visual recovery.

**Conclusions** This is a rare case of bilateral irreversible blindness, potentially consequent to two surgeries in prone position at different times, but probably multifactorial. An extensive workup was conducted to identify etiology, revealing interesting findings.

## NEURO-OPHTHALMOLOGY- POSTERS

#19

**Fluctuant bilateral external ophthalmoplegia in meningovascular syphilis: a case report.**

**Emmanuelle Chalifoux, Marie-France Jutras, Alain Gourdeau**

**Purpose** To describe a clinical case of acute bilateral oculomotor nerve palsy with pupil sparing combined with a unilateral abducens nerve palsy caused by meningovascular syphilis.

**Study Design** A clinical case report

**Methods** A 47-year-old man with no prior medical history presented with sudden fluctuant bilateral ptosis, followed a few days later by the onset of binocular diplopia. History was negative for any other systemic complaint or neurological symptom. Physical examination revealed a mild systemic hypertension, a fluctuant ptosis with a pupil sparing bilateral third nerve palsy and a left sixth nerve palsy. Physical, neurological and ophthalmological exams were otherwise within normal limits.

**Results** CBC, ESR, TSH and ACE were within normal limits. Epstein-Barr virus serologies were negative. EMG was normal. Cerebral MRI and MRA showed no focal anomaly or sign of meningeal carcinomatosis. MRI of the orbits only revealed a small T2 hypersignal in the left cavernous sinus area. CT scan of patient's thorax, abdomen and pelvis was negative for a tumor, as was his PET scan. A lumbar puncture revealed an increased protein concentration and a slightly elevated white blood cell count with a high proportion of monocytes. VDRL on the CSF and blood RPR finally came back positive. The patient responded well to IV penicillin and his condition improved markedly within a few weeks. We also treated his spouse, who tested positive for the disease.

**Conclusions** Syphilis should always be considered in the differential diagnosis for multiple cranial nerve palsies. To our knowledge, this is the first case of syphilitic bilateral oculomotor nerve palsy with pupil sparing. Clinical suspicion of the disease must always be high, as it is a treatable disease that can have important long term consequences if left untreated.

## PEDIATRICS- POSTERS

#25

### **Anterior segment ischemia in two horizontal muscle surgery following radiation exposure**

**Graham Jurgens, Joel Post, Shehla Rubab**

**Purpose** To report radiation exposure as a possible risk factor for two horizontal muscle anterior segment ischemia

**Study Design** case report

**Methods** Case report reviewing a clinical chart. Informed consent was received orally. Ethics approval was not required as per the University of Saskatchewan Research Ethics Board.

**Results** We report a patient who underwent single stage, uneventful two muscle horizontal recti strabismus surgery who, two weeks later, developed anterior segment ischemia as evidenced by corneal edema with striae, anterior uveitis, and a slow healing corneal epithelial defect. Her medical history was significant for breast cancer which had developed eight years previously and was treated per protocol. Eight years later she developed brain metastases to her right sphenoid ridge which required stereotactic removal and radiation. A permanent 6th nerve palsy resulted, for which she required strabismus surgery, leading to the complication of anterior segment ischemia. The patient was treated over the next month with oral prednisone, and topical antibiotic/steroids resulting in complete recovery of her anterior segment pathology.

**Conclusions** Strabismus surgery is a common procedure with low expected complication rates. The complication rates are even lower with two muscle horizontal surgery. Risk factors for anterior segment ischemia include operating on three recti muscles, with vertical recti muscle involvement increasing the odds of complication. Other risk factors include atherosclerosis, carotid artery stenosis, and hematologic disorders that increase blood viscosity. Single-stage surgery on the horizontal recti muscles without known risk factors has been reported rarely in the literature. Less than a handful of cases have been reported involving radiation exposure and anterior segment ischemia in two muscle strabismus surgery. We feel that radiation exposure to the orbital area is accruing evidence in the literature as a risk factor for anterior segment ischemia and should be screened for prior to strabismus surgery.

## PEDIATRICS- POSTERS

#26

### Incidence of Retinopathy of Prematurity among premature infants at a NICU from 2006-2010

Sourabh Arora, Gloria Isaza, Varun Chaudhary

**Purpose** To study the incidence of retinopathy of prematurity (ROP) in a neonatal intensive care unit (NICU) and obtain information on risk factors associated with ROP.

**Study Design** Retrospective chart review.

**Methods** Data was retrospectively extracted from The Canadian Neonatal Network that maintains clinical information about neonates. Infants screened for ROP had either a birth weight of < 1500g and/or gestational age < 32 weeks. On special request from the neonatologist, babies who did not meet these criteria were also screened. Risk factors were compared among screened children who had ROP and those that did not have ROP by univariate and multivariate analysis.

**Results** 423 infants were screened for ROP in the NICU. The incidence of ROP was 40.4%, and 6.4% of patients had severe ROP needing laser treatment. Mean gestational age (25.99±0.13 vs 28.55 ± 0.12 weeks;  $p < 0.0001$ ) and birth weight (839.94±17.49 vs 1190.24± 20.20 grams;  $p < 0.0001$ ) were significantly lower among children with ROP versus those without ROP. Univariate and multivariate logistic regression showed that low birth weight ( $p < 0.001$ ), gestational age ( $p < 0.001$ ), ventilation therapy ( $p = 0.039$ ), necrotizing enterocolitis ( $p = 0.019$ ) were independent risk factors for ROP.

**Conclusions** The incidence of ROP and severe ROP needing treatment was similar to that of other studies in developed countries and gestational age and birth weight were the most significant independent risk factors for developing ROP. Despite our study population having an elevated percentage of extremely low birth weight neonates, there was not a corresponding increase in ROP incidence or severe ROP incidence. Thus the development of site specific strategies for managing premature infants may decrease the incidence of severe ROP needing treatment.

## PEDIATRICS- POSTERS

#29

**Very early diagnosis and treatment of inherited retinoblastoma in an infant born at 29 weeks gestation by focal laser therapy.**

**Adil Bhatti, Brenda Gallie, Elise Heon, Michael D. O'Connor**

**Purpose** To describe the very early development and treatment of inherited retinoblastoma in an infant born by preterm delivery at 29 weeks gestational age.

**Study Design** Case report.

**Methods** A male adult patient with a known familial retinoblastoma gene mutation presented with his spouse for genetic counseling regarding their second pregnancy. At 15 weeks the couple underwent an amniocentesis, which was positive for the same retinoblastoma gene (RB1) mutation as found in the father. Plans were put in place to follow the fetus with serial ultrasounds, followed by induced early delivery at 36 weeks gestation. However, the infant was delivered by spontaneous preterm delivery at 29 weeks gestation, following premature rupture of membranes at 26 weeks gestation. This afforded a unique opportunity for very early observation and intervention in the course of retinoblastoma development.

**Results** The infant was followed by dilated fundus examinations from birth. Serial examinations were performed every 3-7 days from birth to age 44 weeks corrected gestational age, and then every 1-2 weeks thereafter. The first retinoblastoma tumour was observed at age 45 weeks corrected gestational age. The patient underwent urgent examination under anaesthesia and focal laser treatment of the lesion. As serial examinations continued every 1-3 weeks over the subsequent months, the patient developed three additional bilateral tumours, all of which have been treated successfully by focal laser therapy only.

**Conclusions** To our knowledge, this patient is the youngest retinoblastoma gene carrier to undergo serial fundus examinations, due to her spontaneous very premature delivery. In pregnancies where a retinoblastoma gene mutation is diagnosed prenatally, previous reports have described screening fetuses by serial ultrasounds, followed by induced delivery at 36 weeks gestation to allow early diagnosis and treatment of retinoblastoma. The observation of the first tumour in our patient at age 45 weeks supports current retinoblastoma screening guidelines, and highlights the value of early intervention to reduce vision loss and to reduce the need for systemic therapy.



## PEDIATRICS- POSTERS

#30

### Tyrosinemia Type II (Richner-Hanhart syndrome)

Rachel Trussart, Nicole Fallaha

**Purpose** To report a case of Tyrosinemia Type II in a 8-month-old infant, who presented with recurrent bilateral pseudodendritic corneal lesions.

**Study Design** Case Report

**Methods** An 8-month-old male presented with bilateral photophobia, blepharospasm and redness. The parents were consanguineous and of Lebanese origin. Slit-lamp examination showed bilateral pseudodendritic corneal lesions. Both corneas demonstrated normal sensitivity and absence of vascularisation. The remainder of ocular examination was otherwise normal. Despite negative IgM HSV serology and absence of skin vesicles, the infant was initially diagnosed and treated for herpes simplex keratitis.

**Results** During the following months, the patient experienced several relapses of its ocular condition. Therefore, chronic corneal epitheliopathy developed and bilateral high myopia with astigmatism was observed at 17-month-old. Conjunctival viral culture was negative and no IgG or IgM antibodies to HSV were detected by ELISA. During a follow-up consultation at 18-month old, Richner-Hanhart Syndrome was suspected when the infant manifested painful hyperkeratotic lesions on the palms and soles. Few days later, the serum tyrosine level was 1546  $\mu\text{mol/L}$  (Normal range: 30-110  $\mu\text{mol/L}$ ). The diagnosis of Tyrosinemia type II was confirmed by an analysis of the TAT gene, using the PCR followed by DNA sequencing, revealed a homozygous mutation within codon 297 resulting in a non-functional protein. Initiation of a tyrosine and phenylalanine restricted diet allowed rapid resolution of the oculo-cutaneous symptomatology. On long-term follow-up, a transitional psychomotor delay was observed when the child started attending kindergarten, but no permanent cognitive impairment developed. The patient's most recent visual assessment, at five years and a half old, showed dramatic improvement of his refractive error. However, amblyopia in the left eye was detected and therapeutic patching was started.

**Conclusions** This case illustrates the potential visual consequences of induced visual form deprivation in infant suffering from RHS. We emphasise the importance of prompt recognition and effective treatment of this genetic disease for preventing permanent developmental and visual deficits.

## PEDIATRICS- POSTERS

#31

### **Does ocular dominance affect stereoacuity in experimentally induced anisometropia?**

**Minoo Azadeh, Reza Nabie, Dima Andalib, Safieh Amir-Aslanzadeh, Rambod Sabori Hamed, Shalaleh Raoufi, Farzin soltan Mohammadloo**

**Purpose** The purpose of this study is to evaluate the effect of ocular dominance on stereoacuity in experimentally induced anisometropia.

**Study Design** analytic descriptive study

**Methods** 60 healthy adult volunteers ranging from 18-37 years (mean: 25.58 years) with no previous ocular diseases were enrolled. Anisometropia (unilateral myopia) was induced by placing trial lenses over the dominant and non dominant eyes in 1 diopter (D) increments ranging from 1 to 3 D. Stereoacuity was measured using the TNO, Randot and Titmus stereotests and the results (converted into Neperian logarithm, Ln) were compared between the two eyes.

**Results** Sixty adults, 25 males and 35 females were enrolled in the study. Right eye was dominant in 49 (81.7%) cases. Stereoacuity levels were reduced in proportion to the degree of anisometropia in all participants. The mean stereoacuity was 4.3, 5.5 and 7.4 for the dominant eye and 4.1, 5.4 and 7.3 for the non dominant eye in TNO testing by applying 1, 2 and 3D lenses, respectively ( $p>0.05$ ). The corresponding results were 3.5, 4.6 and 6.6 for the dominant eye and 3.4, 4.6 and 6.5 for the non dominant eyes by the Randot testing (the circles subcategory) respectively ( $p>0.05$ ). The mean stereoacuity was 3.8, 4.7 and 6.5 for the dominant eyes and 3.8, 4.7 and 6.4 for the non dominant eyes by the Titmus testing (the circles subcategory), respectively ( $p>0.05$ ).

**Conclusions** This study showed that experimentally induced anisometropia can reduce the stereoacuity, and this should be considered in creating monovision using contact lens or refractive surgery. However, the ocular dominance does not affect the amount of decrease in stereoacuity.

## PEDIATRICS- POSTERS

#28

### **Binocular single vision in children with refractive accommodative esotropia and high AC/A**

**Alan Kosaric, Inas Makar**

**Purpose** Delays in active management in children with refractive accommodative esotropia (RAET) can have potentially detrimental effects on their binocular single vision. The objective of this study is to examine factors influencing BSV in children with RAET and high AC/A ratio and see if they are different from factors affecting binocularity in children with RAET without high AC/A ratio.

**Study Design** Retrospective chart review

**Methods** 23 patients of age <10 years were examined at a tertiary care pediatric ophthalmology clinic in southwestern Ontario were identified from July 1, 2007 through to March 2010. Esotropia was controlled in all patients for distance and near with bifocal spectacles to an alignment <8 prism diopters. The following factors were recorded for all patients: The age of onset (AO), age at prescription of single power hyperopic correction, age at prescription of Bifocals, intermittency of deviation on initial exam, presence of amblyopia and presence of anisometropia. 50 age matched controls with refractive accommodative esotropia without high AC/A ratio were analyzed similarly. Patients were excluded if they decompensated requiring surgery, if they had residual angles more than 8 prism diopters and if they had associated neurological illness or prematurity. Patients were included only if they were able to perform reliable stereopsis testing.

**Results** Correlation of improved stereopsis with later presentation was confirmed in patients with RAET with high AC/A (Fisher Exact Test,  $P=0.0123$ ). No significant correlation beyond chance could be found between developing stereopsis and all of the other examined factors (presence of amblyopia, anisometropia, intermittency at presentation, delay in SP, age at single power, age at bifocals, refractive error, AC/A ratio). A control group of patients with refractive accommodative esotropia and normal AC/A ratio were examined and outcome measurement of stereopsis was compared to above factors outlined (except for age at bifocals)

**Conclusions** Age of onset of esodeviation appears to have the strongest predictive value for final stereopsis in refractive accommodative esotropia with high AC/A ratio. A trend was seen that suggested intermittency at presentation to be a positive predictive factor in acquiring stereopsis; however our numbers were not large enough to make this observation statistically significant.

## PEDIATRICS- POSTERS

#27

### Leber's hereditary optic neuropathy - rare presentation in a 10 year old child

**Robert Polomeno, Tenley Bower, Elham Rastikerdar**

**Purpose** Leber's hereditary optic neuropathy (LHON) is a maternally inherited mitochondrial disorder characterized by painless central visual loss typically presenting in the age range of 15 to 35 years old. We present the case of a ten year old boy presenting with bilateral decreased visual acuity that was ultimately diagnosed as LHON with a mitochondrial DNA (mtDNA) mutation at 11778 ND4 region.

**Study Design** This is a case report documenting the onset and progression of an atypical case presentation of LHON in a 10 year old boy.

**Methods** The case report involved a chart review of the single patient including consultations completed, imaging, mitochondrial genetic analysis, and follow-up.

**Results** On presentation the 10 year old boy had bilateral decreased visual acuity of 20/200 and 20/400 in the right and left eye respectively. He had no recordable stereoacuity and was found to have normal pupils and fundus on initial exam. There was no family history of any eye diseases or consanguinity and the patient has two older brothers who are both healthy. On follow-up exam two days later the patients distance visual acuity remained the same, however near visual acuity with both eyes open was 20/30 and moderate stereopsis was documented. A Goldmann visual field done at this time was normal. A electroretinogram (ERG) was performed and was found to have normal amplitude, peak time, and morphology. Visual evoked potentials (VEP) were completed resulting in both the flash and pattern VEP yielding no documentable P100 wave. Inconsistent history was then revealed on further follow-up where the child was able to read at one point and then unable to at school. A history of transient ptosis was also present but resolved. Complete neurological assessment, imaging, and psychiatric evaluation were normal. Four months after presentation optic atrophy was seen bilaterally. Goldmann visual fields were then repeated revealing a bilateral centrocecal scotoma. Genetic analysis confirmed a mtDNA mutation of 11778 localized in the coding region for ND4 region of the complex I subunit of the mitochondrial respiratory chain complex.

**Conclusions** This case of LHON is unusual for age of onset, the lack of fundus findings on examination, and the question of functional visual loss prompted by the inconsistent history and exam findings. Change of the fundus is shown before and after development of optic atrophy along with documented change in visual field.

## UVEITIS- POSTER

#37

### Relative prevalence of aboriginal patients in a Canadian uveitic population

Mili Roy

**Purpose** To determine whether the prevalence of aboriginal patients in a random sample of consecutive uveitis patients differs significantly from the expected prevalence of aboriginal persons in the general cross-sectional population.

**Study Design** retrospective chart review

**Methods** After approval from the provincial Assembly of Chiefs and university ethics board, charts of 140 consecutive uveitis patients from within a single catchment area were reviewed for patient age, gender, prior disease duration, type of uveitis and self reported race. The proportion of aboriginal patients within the uveitis series was statistically compared to the expected proportion of aboriginal patients within the general population in the same region using Canadian census figures to determine whether aboriginal patients were under or over-represented within the uveitis population relative to the general cross-sectional population. Mean age, gender proportion and mean prior disease duration were also compared between the aboriginal versus non-aboriginal uveitis patient groups.

**Results** After exclusion of seven charts for incomplete information, 133 charts were reviewed. Twenty-two (16.5%) were found to be aboriginal patients and 111 (83.5%) were nonaboriginal. Census population figures for the same region documented 15.5% of the general cross-sectional population to be aboriginal. By chi square analysis, there was no statistically significant difference between the proportion of aboriginal persons encountered in the uveitis population studied compared to the general population. Mean age at presentation was significantly younger by 10.5 years in the aboriginal group versus the control group (36.8 versus 47.3 years,  $p=0.01$ ). Mean prior disease duration before presentation did not differ significantly between groups (aboriginal 20.3 versus control 21.1 months,  $p=0.79$ ). Gender proportions measured 68.2% female and 31.8% male in the aboriginal group, versus 53.2% female and 46.8% male in the non-aboriginal group.

**Conclusions** Prevalence of some autoimmune conditions such as rheumatoid arthritis, juvenile idiopathic arthritis, ankylosing spondylitis and HLAB27 positivity have previously been found to be significantly higher in some North American aboriginal populations than other populations worldwide. The current study finds no statistically significant difference between the prevalence of aboriginal versus non-aboriginal persons occurring within a random consecutive sample of uveitis patients, as compared to the

prevalence of aboriginal versus non-aboriginal persons occurring in the general population for the same catchment area using population census figures. Mean age at presentation was significantly younger and female preponderance was greater in the aboriginal group versus non-aboriginal group. Prior disease duration was comparable between groups.

## UVEITIS- POSTER

#38

### Multiple Cosmetic Tattoo Reactions and Bilateral Anterior Uveitis

Joel Post, Ravikrishna Nrusimhadevara, Peter Hull

**Purpose** To report a patient who presented to the Ophthalmology department with multiple cosmetic tattoo reactions (all 20 of his cosmetic tattoo's were inflamed), bilateral granulomatous anterior uveitis, and remote pulmonary symptoms. A subsequent biopsy of his tattooed skin demonstrated noncaseating granulomas consistent with sarcoidosis.

**Study Design** case report

**Methods** Case report reviewing a clinical chart. Informed consent was received in writing. Ethics approval was not required as per the University of Saskatchewan Research Ethics Board.

**Results** We report a patient who presented with a history of multiple tattoo reactions and a concurrent history of bilateral irritated red eyes. Our department diagnosed granulomatous uveitis based on his anterior segment pathology. A tissue biopsy of his inflamed cosmetic tattoo's confirmed noncaseating granulomas. Our respiratory department and certain laboratory investigations also aided in the eventual diagnosis of systemic sarcoidosis.

**Conclusions** The unique presentation of our patient, including a reaction of all of his cosmetic tattoo's, bilateral anterior uveitis and pulmonary symptoms, illustrates the importance of a thorough history and physical examination. The involvement of other specialties including dermatology and respiratory were crucial in the eventual diagnosis. This is especially vital in a multisystem, variable presentation disease such as sarcoidosis. As cosmetic tattoos have increased in popularity in recent years, the clinician must be aware of this unusual presentation and consider a tissue biopsy as well as the involvement of other services for the possible diagnosis of systemic sarcoidosis.

## **UVEITIS- POSTER**

**#42**

**Life threatening problems were averted by careful observation and proper reporting of fundus signs.**

**Shawkat S. Michel, Monica S. Michel**

**Purpose** The presenting signs of two life threatening conditions were abnormal findings in the fundus of two patients.

**Study Design** Case study of two patients seen in an outpatient ophthalmic clinic.

**Methods** The first patient was referred by an optometrist for retinal bleeding in one eye. The patient was a healthy 33 year old lady originally from Tanzania; she was married and had two children. She visited Tanzania two years prior to her complaints. Two weeks later the patient developed bilateral retinal bleeding and the bleeding in her right eye was in the macula (color fundus photo 1). Her visual acuity dropped to 20/100+1 in her right eye and was still 20/20 in her left eye. This lady did not suffer from diabetes mellitus or systemic hypertension. Review of systems showed low grade fever and chills in the evenings with brief dizzy spells. There were no other complaints or problems. Chest x-rays and brain MRI were normal; blood tests showed some leukocytosis, neutrophilia, slight increase of the liver enzyme Alanine amino-transferase (ALT) and a weakly positive cANCA. Tests for tuberculosis and malaria were negative. Echocardiography showed the vegetations of subacute bacterial endocarditis. After intravenous antibiotics and an open heart surgery the lady regained 20/20 vision in each eye with complete disappearance of the retinal bleeding (color fundus photo 2). The second patient was a 68 year old lady who had borderline diabetes mellitus and atrial fibrillation. Her past history showed mastectomy for breast cancer. On a routine semi-annual examination this patient was found to have new bilateral flame shape retinal haemorrhages and exudates around both optic discs (color fundus photo 3). The new fundus lesions being bilateral and silent (symptomless) gave the impression that emboli may be the reason. This lady was on Warfarin as she was suffering from atrial fibrillation; a blood test showed she was not taking enough of her anti-coagulant. Adjusting the dose of Warfarin resulted in complete disappearance of these fundus lesions (color fundus photo 4).

**Results** careful ophthalmic examination, proper investigations and timely co-operation of health care providers can result in diagnosis and treatment of some life threatening conditions.

**Conclusions** Emboli arising from the heart should always be kept in mind in cases of bilateral fundus lesions that are otherwise hard to explain. These cases need to be diagnosed and treated without delay due to their seriousness and possible grave



consequences. The fundus lesions in the above two cases were the presenting signs that led to correct diagnosis and proper treatment of the heart condition. The ophthalmologist must be able to pick up these signs and properly interpret their possible significance. Sharing the information with the family doctor and/ or other health care providers in a timely manner can not be over stressed.

## UVEITIS- POSTER

#41

### Analysis of uveitis in a Canadian First Nations population

Mili Roy

**Purpose** To compare patient demographics, uveitis characteristics and outcomes in a cohort of First Nations (FN) versus non FN uveitis patients.

**Study Design** retrospective chart review

**Methods** Charts of 43 FN patients (80 eyes) and 45 control non FN uveitis patients (69 eyes) were reviewed. Patient age, gender and residency were compared. Uveitis and anatomic classifications, granulomatous versus non-granulomatous and acute versus chronic inflammation, systemic associations and specific uveitis diagnoses were compared between groups. Therapeutic interventions were compared including corticosteroid and glaucoma therapy, systemic immunosuppression, surgical and laser interventions. Uveitic complications and visual outcomes were compared between groups.

**Results** Mean age at presentation and at disease onset were significantly younger in the FN group at 32.1 and 30.4 years respectively than the control group at 44.5 and 40.2 years ( $p < 0.0001$ ). Mean follow-up durations were comparable between groups (4.4 years FN, 4.9 years controls;  $p = 0.88$ ). Female gender predominated in both groups ( $p = 0.13$ ). Significantly more control patients (71%) lived in urban centres than FN patients (26%;  $p < 0.0001$ ). Bilateral uveitis occurred in 86% of FN patients versus 51% of controls ( $p = 0.0005$ ), chronic uveitis in 74% of FN versus 60% of controls ( $p = 0.15$ ), and granulomatous disease in 53% of FN versus 11% of controls ( $p < 0.0001$ ). Panuveitis was the prevalent anatomic classification in the FN group at 67% (16% in controls), while anterior uveitis was prevalent in controls at 73% (26% in FN). Vogt Koyanagi Harada syndrome was the predominant specific uveitis diagnosis in the FN group at 56% (0% of controls), while idiopathic uveitis predominated in controls at 40% (19% in FN). All therapies studied except anterior segment surgeries ( $p = 0.88$ ) were required significantly more often in the FN group than controls, including systemic corticosteroids ( $p = 0.002$ ), injected corticosteroids ( $p = 0.042$ ), systemic immunosuppression ( $p = 0.021$ ), glaucoma therapy ( $p = 0.005$ ), laser surgeries ( $p = 0.000$ ) and posterior segment surgeries ( $p = 0.002$ ). Complication rates were significantly higher in the FN than control group ( $p < 0.001$ ). Final visual outcome was significantly worse in the FN group (35% of FN group  $\leq 20/200$  versus 9% of controls; 44% of FN group  $\geq 20/40$  versus 78% of controls;  $p = 0.001$ ). Control patients gained a mean of 1.33 lines of Snellen acuity during follow-up duration while FN patients lost 0.42 lines ( $p = 0.05$ ).

**Conclusions** Strikingly different spectra of uveitides and patient demographics were

encountered between groups. Significantly earlier onset and younger presentation, more bilateral, panuveitic and granulomatous disease, greater need for therapies, higher complication rates and poorer visual outcomes occurred in the FN group compared to the non-FN group.

## **CORNEA- POSTERS**

**#9**

### **Contact lens related limbal stem cell deficiency**

**Alex P. Lange, Gregory Moloney, Sachiko Sasaki, Simon Holland**

**Purpose** To investigate etiology, and describe clinical features and management of limbal stem cell deficiency (LSCD) in contact lens (CL) wearers.

**Study Design** Cross-sectional retrospective.

**Methods** 18 patients with focal limbal stem cell deficiency were identified in our database. A questionnaire asking for contact lens brand, type and cleaning solution, and duration of contact lens wear was sent to the patients with follow up calls. Clinical features, management and time to recovery were identified.

**Results** 16/18 questionnaire were returned. 16/16 used soft contact lenses with a mean wearing duration of 12.8 hours per day (8-20hours). 12/16 were wearing them for more than 5 years. Silicone hydrogel lenses were noted in 10/16 cases. LSCD was superior in all cases, improved with topical steroid and preservative free artificial tears but was still present in 14/18 at 1 year. No patient successfully returned to CL use.

**Conclusions** LSCD associated with CL use may be related to silicone hydrogel CL, CL solutions, prolonged wearing times and long term use. Recovery is slow and affected patients did not recover CL tolerance.

## **CORNEA- POSTERS**

**#10**

### **Poor Outcome of Bilateral Mooren's Ulcer Despite Aggressive Therapy**

**Frozan Qasemi, William K. Hamilton**

**Purpose** To report a patient with bilateral Mooren's ulcer refractory to aggressive medical and surgical therapy

**Study Design** Interventional case report

**Methods** We report a case of a 62 year-old man with bilateral malignant Mooren's ulcer. The patient was treated with various antibiotics, anti-virals, steroids, cyclosporine, interferon alpha-2b, and cyclophosphamide. He underwent bilateral perilimbal conjunctival excision with no significant improvement.

**Results** Despite various treatments, the ulcerative process initially spread circumferentially and then centrally to involve the entire cornea. The end-stage result was bilateral scarred and vascularized cornea.

**Conclusions** This report highlights the fact that not all cases of Mooren's ulcer show successful result with immunosuppressive therapy and conjunctival excision. A significant percentage of cases still remain refractory to available therapies and result in severe visual morbidity.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#12

### **Assessment of patient perceptions of eye disease and treatment in the communities of Bihar, India.**

**Nishant Sharma, Michael Brayden Lundquist, Kirti Kewalramani**

**Purpose** The purpose of this study is to assess patient perceptions of eye disease and treatment in Bihar, India. The data collected will aid in the formation of future educational initiatives in rural communities who are otherwise unable or unaware of access to treatment possibilities to preventable and treatable blindness.

**Study Design** This is both a descriptive and an exploratory study that seeks to assess baseline patient knowledge of prevalent eye diseases and treatment options available to persons residing in rural communities in Bihar, India. There is no current research addressing patient perceptions of eye diseases in this region and the study will give researchers a better understanding so that educational initiatives can be created. Survey questions will include both discreet and open-ended questions, including yes/no, and multiple-choice questions. Survey questions will be based on prevalent diseases identified in prior research, including the focus areas identified in India's VISION 2020 initiatives.

**Methods** In a clinic-based observational study, 304 subjects aged 40 and older were given a verbal survey. Un-identifying background questions regarding age, gender, and socio-economic status were collected. Patient knowledge of cataract and cataract treatment, un-prescribed eye drop usage, glaucoma, diabetes and its relation to eye disease, and frequency of eye doctor visits were all surveyed.

**Results** Surveys were administered to 170 men and 134 women. Mean age was 53.89 ( $\pm 10.851$ ) years, with 61.3% living on 100 rupees or less per day. Previous eye doctor visits were reported by 68.3% of subjects. 25.7% of subjects reported using eye drops prescribed by someone other than a doctor, and of those, 52.6% reported not knowing that a doctor should prescribe eye drops. 71.9% of subjects accurately reported that a cataract is treated by surgery, while 23.4% did not know. Of those aware of cataract treatment, 41.9% learned about treatment from an eye care professional, and 36.4% from someone with a cataract. 17.1% of participants reported diabetic diagnosis by a doctor, and of those, 64.7% inaccurately reported how often diabetics should receive exams. Furthermore, 60.3% of patients have never heard of the term glaucoma and 80.9% did not know that blurry vision caused by glaucoma is irreversible.

**Conclusions** The majority of patients reported knowledge of cataract treatment.

## Diabetes

related vision awareness remains low. Future outreach educational programs should be created to help increase population awareness of ocular diseases in Bihar India.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#13

**Ophthalmology Education in the 21st Century: Comparing a computer module to a review article for teaching on Giant Cell Arteritis.**

**Amandeep S. Rai, Toby Chan, Cindy Hutnik**

**Purpose** Our group completed a previous needs based assessment (presented at COS 2010) to identify ophthalmological topics and skills that Family Medicine residents at the University of Western Ontario were not confident with.

Giant Cell Arteritis was the topic that Family Medicine residents identified as the ophthalmological topic that they were least comfortable with.

We aim to determine whether an online computer module is an effective means of teaching an ophthalmological topic to Family Medicine residents.

**Study Design** We are currently enrolling participants in a prospective single-blinded randomized control trial. All Family Medicine Post-Graduate Year 1 & 2 will be eligible to participate.

Participants will be randomized to one of two groups: a computer module or a review article.

**Methods** There are two learning modalities:

-a review article on Giant Cell Arteritis was identified.

Kawasaki A, Purvin V. Giant cell arteritis: an updated review. *Acta Ophthalmologica* 2009; 87: 13-32

-an online computer module was created by our group based on the review article. The content of the computer module is intended to be the same as the review article and contains no additional information.

-Participants will not be eligible to switch from one learning modality to another.

**Results** Data collection not complete.

**Conclusions** Pending.

We aim to understand whether computer modules are an effective modality for teaching ophthalmological topics. Whether the study has significant or not significant results, this study will contribute towards the delivery of medical education in ophthalmology.



## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#14

### Improving eye care in East Africa: Teleophthalmology versus Ophthalmologist-based screening for Diabetic Retinopathy

**Khaliq Kurji, Dan Kiage, Christopher Rudnisky, Karim F. Damji**

**Purpose** To assess patient preference between teleophthalmology and face-to-face ophthalmologist-based screening for diabetic retinopathy (DR) in a sample population of diabetics living in Nairobi, Kenya.

**Study Design** Retrospective observational study

**Methods** 57 patients from Aga Khan University Hospital, Nairobi (AKUHN) one-stop diabetic clinic were included based on whether they had experienced both a teleophthalmology and an ophthalmologist-based screening exam. Teleophthalmology assessment consisted of trained nurses taking stereoscopic digital retinal photographs following pupillary dilation. These digital images were then uploaded onto the Secure Diagnostic Imaging (SDI) system and were reviewed by the ophthalmologist onsite. Electronic reports were generated and included information such as diagnosis, treatment, and follow-up recommendations, including referral for in-person consultation. Once reports were ready, patients were notified to return, and a trained nurse provided a review of results as well as follow-up recommendations. For the study, a 5-point Likert scale structured questionnaire (1-strongly disagree to 5-strongly agree), developed in both English and the local language (Swahili), was carried out over the telephone. Ten questions were utilized to compare patient experiences and preferences between their teleophthalmology and ophthalmologist-based consultations.

**Results** Of the 57 patients that fit the selection criteria, 26 (58% male, 42% females) were successfully contacted by telephone. The mean ages of male and female patients were 52.4 and 46.5 years respectively. Analysis of the responses demonstrated that patients were satisfied with their teleophthalmology examination (mean  $4.15 \pm 0.97$ ) and that this preference was driven primarily by convenience, less examination time, and the idea of being able to visualize the inside of their eye. Furthermore, when asked about their choice of diabetic eye screening in the future, patients preferred to use teleophthalmology (mean  $3.42 \pm 1.52$ ). Patients also preferred to attend a traditional clinical exam when it was deemed necessary (mean  $3.58 \pm 1.39$ ).

**Conclusions** Diabetic patients evaluated at AKUHN prefer a teleophthalmology based screening exam over a traditional ophthalmologist-based exam. Teleophthalmology screening for diabetic patients needs to be explored further in East Africa and has the potential for becoming the screening model of choice. Further study is also needed to assess its cost-effectiveness in comparison to an ophthalmologist-based examination.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#15

### **Non-governmental organization (NGO) eye outreach programs in Cambodia: An effective, efficient and essential service**

**Patrick Prendergast, Sarit Khimdas, Bal Kumar, Roger Biggs, Roshan Bista**

**Purpose** It is estimated that 140 000 Cambodians are blind and 370 000 have low vision. The majority of eye care in Cambodia is provided by NGO's. The authors had an opportunity to work with two NGO's in Cambodia; IRIS(International Resources for the Improvement of Sight) and BOC(Battambang Ophthalmic Center).

The purpose of this study was to (i)describe surgical outputs and post-operative visual acuity(VA) outcomes at IRIS and the BOC and (ii)to compare outputs between NGO and the Battambang Government Eye Clinic(BGEC).

**Study Design** A retrospective review of surgical outputs and VA data from IRIS outreach eye camps and the BOC's clinic.

**Methods** Surgical output data for IRIS Eye Camps in 5 provinces was collected. Additionally, visual acuity data for one eye camp in Odor Meanchey province was assessed at 1day and 2weeks post-op. VA was assessed at 1day, 1 week and 6weeks post-op at the BOC. Surgical outputs between the BOC and a BGEC were compared.

**Results** Between January 2009 and June 2010, IRIS eye camps screened over 3275 individuals and performed 962 surgeries. In one camp in which the authors assisted, 76 surgeries were performed. VA was good(6/6 - 6/18) in 28 (37%), borderline(6/18 - 6/60) in 41 (54%) and poor(6/60) in 7 (9%) at 1day Post-Op. VA was good in 52 (69%), borderline in 20 (26%) and poor in 4 (5%) at 2weeks post-op.

In 2,358 cataract surgeries performed at the BOC, VA was >6/18 in 1,807 (76.63%),(Less) <6/18 to 6/60 in 423(17.94%) and <6/60in 128(5.43%). At 1week, VA was good in 1385 (69.08%), borderline in 526 (26.23%) and poor in 94 (4.69%). At 6 weeks, VA was good in 483 (69.30%), borderline in 191 (27.40%) and poor in 23 (3.30%).

Between January 2008 to June 2009, two BOC surgeons performed 4,679 surgeries. By comparison, one surgeon at the GEC performed 800 surgeries over the same period. BOC ophthalmologists shared their approach with the BGEC surgeon, improving his efficiency from 800 surgeries in 18 months to 1800 per year.

**Conclusions** Post-operative visual acuity data demonstrates that IRIS and BOC provide effective surgical intervention. Strategies used by these NGO's including outreach eye camps serve as a model for providing eye care to resource poor areas. NGO's, backed by dedicated physicians, provide more efficient eye care than government run institutions in Battambang Cambodia. Both NGOs target areas that are without eye care specialists, thus providing an essential service.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#16

### Can high school children be trained as key informants in detection of childhood blindness?

Seung-Ho Baik, Ashwin Mallipatna

**Purpose** In rural India, late-diagnosis barriers better prognosis in children with vision- or life-threatening eye diseases. For example, retinoblastoma is a rare paediatric eye cancer where survival rates in India can range from 45% to 75%, while in Canada shows 98%.

In order to perform a cost-effective survey of childhood blindness in rural regions, the key-informants method has been tested in different developing nations. Mallipatna et al (2007) showed that children were able to identify vision threatening cataracts in photos of adults.

We studied the ability of school children to identify normal and abnormal eyes to assess their capability as key informants for childhood blindness.

**Study Design** This is a pilot testing of a screening tool. This is testing the cost-effectiveness of the key-informant method in the rural regions of India.

**Methods** First, a teaching module was created. The teaching script and slides were designed to teach children about obvious external signs of serious eye disorders. Tests consisting of 5 normal eyes of children, and 5 abnormal eyes of children were shown in random order, testing for statistically significant improvement. Testing and teaching errors were identified and modified.

After getting statistically significant improvement on the test scores post-teaching, we took the teaching module on the field. After training, we asked the participating children to refer any children they come across in their daily lives with obvious external signs of serious eye diseases over a one week period of time. All references were seen by an ophthalmologist.

**Results** All pilot teaching sessions showed testing scores improved (pre-test scores: 53.6%, 67.3%, 67.3%; post-test scores: 61.9%,  $p=0.028$ , 85.0%,  $p<0.001$ , 82.5%,  $p<0.001$ , respectively).

Field testing also showed improvement in score (pre-test score: 61.6%, post-test score: 70.1%,  $p<0.001$ ).

A total of 16 referrals were made by the high school children, 10 referrals were interested being seen by an ophthalmologist, 8 of them with ocular problems.

**Conclusions** The teaching module has successfully showed children can be trained as key-informants. This method needs to be furthered implemented in order to perform cost-effective and rapid surveys of large rural populations of children in India for vision and life threatening eye diseases.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#17

### **Burden and Depression among Family Members Providing Care to Blind Patients in India.**

**Puneet S. Braich, Simon Hollands, David Almeida**

**Purpose** To describe the degree of burden and the prevalence of depression among individuals caring for their legally blind family members.

**Study Design** Cross Sectional Survey

**Methods** Self-rated questionnaires were completed by 522 family members who were the primary caregivers of legally blind patients registered at the Krishna Devi (KD) Dalmia Eye Hospital in Rampur, Uttar Pradesh (UP). The patients were stratified into three categories by severity of blindness: (1) 20/200 to 10/200, (2) 10/200 to light perception (LP), and (3) no light perception (NLP). Patients with additional medical conditions requiring regular assistance from a caregiver (e.g., neurological deficit) were excluded from the study. This criterion was implemented to isolate those caregivers that needed to provide care solely due to a patient's visual impairment. The validated Burden Index of Caregivers (BIC) was used to measure care burden and the Center for Epidemiologic Studies Depression (CES-D) scale was applied to determine depression.

**Results** Severity of vision loss in patients directly correlated with rates of depression in caregivers. The prevalence of caregiver depression increased from 16% in the 20/200 group to 48% in the NLP cohort ( $P<0.01$ ). Daily hours required for close supervision of the patient, intensity of care-giving, and low household income were independently related variables for depression ( $P<0.01$ ). In assessing burden, daily hours spent care-giving and the intensity of care-giving were the definitive factors linked to high Burden Index of Caregivers (BIC) scores ( $P<0.01$ ). Parents providing care to their blind adult children reported the highest burden scores whereas caregivers who were spouses, siblings, and adult children reported lower scores.

**Conclusions** The intensity of care-giving and hours spent providing care were the main variables significantly related to burden. Caregivers of patients with NLP experience greater burden and depression than caregivers of patients with lesser degrees of blindness. Depression rates were alarmingly high with cause for concern regarding availability of support organizations. Corollary investigation in developed nations with dedicated support organizations is underway.

## INTERNATIONAL & PUBLIC HEALTH OPHTHALMOLOGY- POSTERS

#18A

### Identifying the prevalence of ocular and auditory manifestations of Congenital Rubella Syndrome in school-aged children from Mbingo, Cameroon

**Imran Jivraj, Christopher Rudnisky, Emmanuel Tambe, Graham Tipples, Matthew Tennant**

**Purpose** Congenital rubella syndrome (CRS) is a global cause of preventable hearing impairment, blindness, and intellectual disability. The purpose of the present study was to estimate the prevalence of CRS in the population of non-vaccinated school-aged children in two schools in Mbingo, Cameroon.

**Study Design** Using a cross-sectional design, students at two schools, one for children with hearing impairment, were screened for ocular and serological evidence of congenital rubella syndrome including cataracts, congenital glaucoma, and pigmentary retinopathy.

**Methods** Patients underwent seven-field digital photography of the retina through a dilated pupil using a Topcon NW200 non-mydratic retinal camera. Serological evidence of rubella infection was obtained using standardized Rubella IgG antibody titers. Serological and clinical evidence were integrated to form case definitions (probable, suspicious, confirmed, and infection only) for CRS based on modified Center for Disease Control and Prevention guidelines.

**Results** Between September 2009 and May 2010, 320 students from two schools participated in this study. Of 268 cases with complete serology and fundus photography, there were 46 (17.2%) suspected CRS cases, 10 (3.7%) probable CRS cases, 72 (26.9%) confirmed CRS cases, and 11 (4.1%) cases of isolated rubella infection. Rubella IgG serology was positive in 79 (48.7%) of children with hearing impairment and 11 (7.4%) of children with normal hearing. The present study identified 72 confirmed cases of CRS all of whom fell in the population of hearing impaired school children. Rubella seropositivity rates were also much higher in the children with hearing impairment ( $p < 0.0001$ ).

**Conclusions** Introduction of rubella vaccinations to the population of Cameroon offers the potential of reducing the rates of hearing impairment and other complications from rubella.

## OCULOPLASTICS- POSTERS

#21

### Aggressive adnexal carcinoma requiring radical orbitectomy

Albert Y. Wu, Ihab El-Shinnawy, John T. Harvey

**Purpose** To present a case of an aggressive adnexal carcinoma requiring radical orbitectomy including all four bony walls and orbital contents and free vascularized scapular flap for the bone, muscle and skin reconstruction.

**Study Design** Case Report

**Methods** Patient's clinical history, operative summary, radiological images, and pathology slides will be reviewed.

**Results** A 28 year-old man presented to the plastic surgery service with an ulcerated, non-healing lesion of the right eyebrow of 4 months duration as well as a right ptosis for the past 2 months. The oculoplastics service was consulted, and an operation of the right eyelid was performed, looking for a possible foreign body, by exploring along the superior lateral aspect of the right orbit. Multiple biopsies and multiples cultures were obtained. No foreign body was found. All the structures biopsied showed microcystic adnexal carcinoma. Cultures were positive for Staph but did not reveal mycobacterium. A radical orbitectomy, including partial nasillectomy and ethmoidectomy, anterior maxillectomy together with anterior craniotomy and resection of lateral orbital wall was performed. A right partial parotidectomy and neck dissection, to harvest the nodes to which the tumor may have spread, and to obtain vessels for the free flap reconstruction was carried out. The reconstruction used a right scapular flap to provide adequate bone and soft tissue. Pathology revealed that the tumor was formed of atypical cuboidal epithelial cells that infiltrated fibrotic to densely sclerotic tumor stroma into the dermis and muscle. The tumor cells were positive for cytokeratin 5/6, cytokeratin 7, p63 and vimentin, and were negative for CEA and CAM 5.2. The findings were consistent with microcystic adnexal carcinoma.

**Conclusions** We present a case of an aggressive adnexal carcinoma in a young man requiring radical orbitectomy with en-bloc resection of tumor involving all four orbital walls.

## OCULOPLASTICS- POSTERS

#22

**A rare case of sino-nasal squamous cell carcinoma with optic nerve and orbital invasion**

**King Chow, Kulbir Gill, Brian Rotenberg, Larry H. Allen, Rookaya Mather**

**Purpose** To report the case of a 58-year-old gentleman who was referred for orbital cellulitis. Diagnosis of poorly differentiated sino-nasal squamous cell carcinoma with optic nerve and orbital involvement.

**Study Design** Case report

**Methods** We discuss the initial presentation of this case, with its differential diagnosis, work-up and inter-disciplinary management. The challenge was the surgical approach and effective treatment for this malignancy.

**Results** This 58-year-old gentleman presented to the Emergency Eye Service with a 2 month history of right eye pain and a 2 week history of decreased vision right eye. Upon examination, there was a right relative afferent pupillary defect, elevated intraocular pressure, proptosis, restricted abduction and vertical gaze that were accompanied with pain. Vision was counting fingers at 3 feet. Clinically appearing as an orbital cellulitis, an urgent CT and subsequent MRI surprisingly revealed an extensive nasal tumour extending into the right orbit, involving the optic nerve as well as the medial rectus muscle, measuring 4.6cm in AP x 3.7cm intransverse x 5.2cm in craniocaudal maximal dimensions. Pathology obtained via endoscopic transnasal transorbital biopsy performed by the Ear Nose and Throat Service demonstrated a poorly differentiated squamous cell carcinoma.

After initial treatment with induction chemotherapy, the patient underwent a wide-field resection consisting of a right orbital exenteration, craniofacial resection and bifrontal craniotomy. This was followed by subsequent adjuvant radiotherapy. Despite this, the patient is recovering satisfactorily 3 months from surgery and 2 weeks from last chemoradiation.

**Conclusions** The management and outcome of this case demonstrates the importance of a multi-disciplinary approach to complex and unusual patient presentations. It also outlines a wide spectrum of medical and surgical options employed for an aggressive malignant process.

## OCULOPLASTICS- POSTERS

#23

**Multiple chalazia after administration of Bortezomib (Velcade) in multiple myeloma**

**Pierre Lepage-Létourneau, Yvonne Molgat**

**Purpose** To report a case of multiple chalazia in a patient under Bortezomib therapy for multiple myeloma.

**Study Design** Case report

**Methods** The patient was treated with topical and systemic antibiotic regimen for acute phase. Pathologic specimens were obtained.

**Results** Pathology of the tarsus confirmed the diagnosis of chalazion.

**Conclusions** Meibomian gland dysfunction seems to be induced by Bortezomib therapy, which may, given the immunosuppression state, leads to multiple chalazia. Multiple chalazia in diseases of cousin spectrum have been described and suggests a potential confounding factor.



## OCULOPLASTICS- POSTERS

#24

### **An unusual case of optic neuropathy secondary to sinusitis**

**Michael Dollin, Matthew Bromwich, Michael D. O'Connor**

**Purpose** To highlight the clinical presentation of a rare but important complication of sinusitis, and emphasize the importance of urgent management in such cases.

**Study Design** Case report.

**Methods** We describe a case of combined optic neuritis and compressive optic neuropathy secondary to sphenoid sinusitis and associated epidural abscess. An 18 year-old male undergoing treatment for a nasal septal abscess complained of acute monocular vision loss. Urgent ophthalmic assessment revealed hand motion visual acuity and a relative afferent pupillary defect in his right eye. The remainder of the ocular examination was unremarkable. Magnetic resonance imaging demonstrated pansinusitis with associated epidural abscess over the planum sphenoidale, along with abnormal enhancement of the right pre-chiasmal optic nerve, suggesting optic neuritis. Within four hours of the initial assessment, subjective visual loss was noted in the fellow eye as well.

**Results** Broad-spectrum intravenous antibiotic therapy and high dose-steroid were initiated promptly and the patient was taken for urgent surgery. Immediately following endoscopic and image-guided posterior ethmoidectomy, sphenoidectomy, and drainage of the epidural abscess, vision improved to count fingers, suggesting a compressive component to this patient's optic neuropathy.

**Conclusions** Rapid and severe vision loss in a patient with sinusitis and lack of obvious orbital inflammation may be an important sign of intracranial spread. In such a setting, combined optic neuritis and compressive optic neuropathy is possible. Urgent imaging and treatment is imperative to avoid vision-threatening and potentially life-threatening complications.

## OCULOPLASTICS- POSTERS

#23

**Non-infectious inflammatory reaction to a gold weight eyelid implant: a case report and review of the literature.**

**Yiannis Iordanous, Brian Evans**

**Purpose** To present a rare case of a non-infectious inflammatory response to a gold weight eyelid implant. To review and summarize the current available literature describing this inflammatory reaction.

**Study Design** Case report and literature review.

**Methods** The clinical presentation of a single patient with a non-infectious inflammatory response to a gold weight eyelid implant is described. We utilized PubMed to perform a literature review for other cases reporting reactions to a gold weight eyelid implant. We have summarized the findings of those articles.

**Results** A 48-year old female presented to the Division of Plastic Surgery (University Hospital, London, Ontario) with incomplete left eyelid closure secondary to a trauma. She elected to have a gold weight inserted into her eyelid to improve closure. Seven weeks post-operatively she presented with edema and erythema of the eyelid. She had no improvement with a course of oral antibiotics. Oral steroid therapy resulted in prompt resolution of her symptoms, but the inflammation recurred after discontinuing steroid use. She subsequently required removal of her gold weight implant for permanent resolution of her eyelid inflammation.

Only three previous reports (six patients in total) describe a non-infectious inflammatory response to a gold weight eyelid implant. Although rare, most patients with this complication will eventually require removal of their gold weight implant, as antibiotics are ineffective, and both topical and systemic steroids appear to be ineffective in providing permanent resolution.

Current literature suggests that these inflammatory reactions are detected as early as one week post-operatively, and as late as twelve weeks. The cause of this reaction, however, is not certain. Based on pathology specimens some suggest that the mechanism of this reaction is type IV hypersensitivity.

**Conclusions** A non-infectious inflammatory response to a gold weight eyelid implant is an uncommon complication of an otherwise quite effective procedure. Studies suggest that the mechanism of this reaction is type IV hypersensitivity; thus, one should explore the possibility of a gold allergy pre-operatively with a thorough history and patch testing if necessary. Most patients with this complication will eventually require removal of their gold implant. For patients who require removal of their gold weight eyelid implant, the possibility of using another inert material, such as platinum, should be considered.

## RETINA- POSTERS

#34

### **Assessment of Drusen and Inflammatory Mediators in the Postmortem Human Eye: An Immunohistochemical Study**

**Kailun Jiang, Eleanor To, Jing Z Cui, Joanne A Matsubara**

**Purpose** Purpose: Components of drusen promote inflammation through the up-regulation of multiple proinflammatory pathways in RPE cells. In this study, we evaluated the association between increasing age/presence of drusen and levels of selected cytokines and proinflammatory mediators in the retina of the postmortem human eye.

**Study Design** Experimental in vivo masked study.

**Methods** Methods for securing human donor eyes were humane and included proper written informed consent, in compliance with the Declaration of Helsinki (Eye Bank of BC). All tissue samples in this study were considered normal and excluded tissues from donors with any of the following: evidence of systemic or local infection; progressive central nervous system disease or systemic disease of unknown etiology; lymphoproliferative or myeloproliferative disorders; intrinsic eye disease or previous ocular surgery. Tissues were formalin-fixed, embedded in paraffin and sectioned at 6 $\mu$ m. Paraffin sections were probed with antibodies against IL-1 $\beta$ , CFI, RSAD2, STAT3, and CXCL-11. Donors were characterized either by age groups (<57 years old, n=17 verses >70 years old, n=17) or size and presence of drusen independent of age.

**Results** Level and activity of IL-1 $\beta$  and STAT3 respectively, increase dramatically with both advanced age and presence of larger drusen (>63 $\mu$ m in diameter). RSAD2 expression/accumulation appears to be independent of age but does significantly increase in donors with drusen deposits. Like RSAD2, CXCL-11 levels are also higher in donors with drusen deposits. Previously, Ab-stimulation of RPE cells in vitro resulted in increased mRNA of CFI, an important negative regulator of the complement pathway. However, in retinal tissue, we only observed a significant increase in accumulation of the CFI protein with respect to age. Donors with drusen did not appear to express more CFI than those donors without drusen.

**Conclusions** We found that with increasing age and drusen accumulation, the environment of the eye tends to shift towards a pro-inflammatory state through either IL-1 $\beta$  and/or possibly INF- $\gamma$  pathways. Little change is induced in CFI, a negative regulator of the complement system, suggesting that the complement system may not yet be affected in these normal donors. Our studies now set the stage for future experiments testing the function of each factor in the pathogenesis of AMD. One potential approach would involve testing the role of each factor in the A $\beta$ -induced AMD animal model.

## RETINA- POSTERS

#33

### **Bevacizumab and Ranibizumab for Neovascular Age-Related Macular Degeneration: a Treatment Approach Based on Individual Patient Needs**

**Claudine Bellerive, Benoît Cinq-Mars, Gilles Lalonde, Mario Malenfant, Éric Tourville, Yvon Tardif, Marcelle Giasson, Marc Hébert**

**Purpose** Multicenter clinical trials have shown that monthly intravitreal injections of ranibizumab during the first year is an effective treatment for CNV in AMD. At present, the optimal frequency for VEGF inhibitor injections has not been established. In attempt to reduce the number of treatment required, there is a trend among retina specialists to use a treatment regimen based on patient needs. Patients receive an initial treatment of three monthly intravitreal injections of ranibizumab or bevacizumab and retreatment is individually considered for each patient on the basis of OCT, angiography and clinical examination. The aim of the study was to compare the VA outcomes of ranibizumab and bevacizumab with this therapeutic regimen at 1 year.

**Study Design** A retrospective study consisting to review 654 files of patients with either predominantly, minimally classic or occult CNV.

**Methods** Data were collected at the Centre Oculaire de Québec between June 2006 and December 2009. All eyes with prior treatment or additional treatment for AMD were excluded. Clinical data included VA at baseline and 12 months (Snellen chart), and number of injections received over 12 months. For analysis, Snellen VA was converted into logMar.

**Results** A total of 192 eyes were included; 50 eyes treated with ranibizumab and 142 eyes with bevacizumab. Mean age at baseline was  $76.9 \pm 8$  years and  $76.4 \pm 8$  years in the ranibizumab and bevacizumab group respectively. Mean logMar equivalent of VA improved from 0.69 to 0.55 at 12 months in the ranibizumab group and 0.70 to 0.67 logMar in the bevacizumab group. At 1 year, 92% of eyes treated with ranibizumab had lost fewer than 0.3 logMar, as compared with 83% in the bevacizumab group. These observations are similar to those observed in the MARINA (94.6%), ANCHOR (96.4%) and PIER (90.2%) studies. The ranibizumab group received a mean of 4.92 injections over 12 months, compared to 4.75 injections in the bevacizumab group. After the first three injections, 20% of patients in the ranibizumab group and 26% in the bevacizumab group never needed another injection.

**Conclusions** VA outcomes of eyes treated with ranibizumab and bevacizumab correlate closely with the results from multicenter clinical trials but with fewer injections. These findings suggest that an approach based on clinical onset and CNV progression at angiography may provide benefit by reducing the risks of adverse events associated with intravitreal injections.

## RETINA- POSTERS

#36

### **Prevalence of Depression and Quality of Life Impairment in Patients with Age Related Macular Degeneration.**

**Jamil Jivraj, Imran Jivraj, Christopher Rudnisky, Matthew Tennant**

**Purpose** Age-related macular degeneration (AMD) is the most common cause of irreversible vision loss in the elderly population and is associated with significant functional impairment and depressive symptomatology. This study sought to identify the point-prevalence of depressive symptoms and quality of life impairment in patients with AMD in retina clinic in Edmonton, Alberta.

**Study Design** A cross-sectional design was employed. Approval was granted by the University of Alberta Research Ethics Board.

**Methods** Patients with AMD were randomly invited to participate in the study. Demographic data, medical, ophthalmic, and psychiatric history were collected. The Mini-Mental Status Examination (MMSE) was used to screen patients for dementia. Participants completed the Center for Epidemiological Studies Depression Scale (CES-D) and the Visual Function Questionnaire (VFQ-25) scales to quantify the burden of depressive symptoms and vision-related quality of life impairment. Appropriate follow up was organized for patients with severe symptoms.

**Results** One hundred and one patients participated. Twenty three (22.8%) individuals were identified to have severe symptoms of depression using the CES-D, three (13.0%) of whom had been previously diagnosed with depression. Demographic data and the results of the VFQ-25 will be presented upon completion of data analysis.

**Conclusions** In this study, 22.8% of patients with AMD endorsed severe symptoms of depression; this concurs with the prevalence found in the literature of approximately 33%. Conclusions related to the prevalence of previously undiagnosed depression and functional impairment will be presented upon completion of data analysis.

## RETINA- POSTERS

#35

### Ranibizumab for idiopathic epiretinal membranes

**Michel J. Belliveau, Marwan A. Abouammoh, David Almeida, Jeffrey Gale, Sanjay Sharma**

**Purpose** To study the effect of intravitreal ranibizumab on idiopathic epiretinal membranes (ERM) using optical coherence tomography (OCT).

**Study Design** Retrospective consecutive case series.

**Methods** Patients receiving intravitreal ranibizumab for ERM were identified by reviewing a claims database linked to electronic medical records. Each patient received a total of three 0.05mg/0.1ml ranibizumab injections at monthly intervals. The primary outcome measure was improvement in the central macular thickness (CMT) as measured by spectral-domain OCT. Change in best-corrected Snellen visual acuity (BCVA) was also assessed.

**Results** All four patients completed 3 months follow-up after the last ranibizumab injection. The mean baseline CMT was 509 microns (SD=111). There was a trend toward reduction in CMT,  $p=0.08$  ( $\Delta=41$  microns). Three patients showed a one line improvement in their BCVA. One patient maintained the same BCVA. No complications were observed.

**Conclusions** This study shows that intravitreal ranibizumab may have an effect on idiopathic ERM. There was a trend toward reduced CMT and mild improvement in BCVA in some patients. Larger prospective studies are warranted to establish the role of ranibizumab in the treatment of ERM, a condition in which vascular endothelial growth factor has a pathogenetic role.