

9th

International Congress
on Glaucoma Surgery



ICGS 2018

September 6-8 2018

Palais des Congres de Montréal
Montreal, Canada

ABSTRACT BOOK



9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

FREE PAPERS

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

WHAT WORKS
free papers I



September 6-8 2018 | Montreal, Canada

ICGS 2018

FPI.1

TWENTY-YEAR OUTCOMES IN NEWLY DIAGNOSED GLAUCOMA PATIENTS: MORTALITY, VISUAL FUNCTION AND SURGICAL OUTCOMES

Gokulan Ratnarajan¹, Christopher King², Justin Sherwin², John Salmon²

¹Department of Ophthalmology, East Grinstead - United Kingdom, ²Oxford Eye Hospital, Oxford - United Kingdom

Background/Aims: To determine the mortality and surgical outcomes within 20 years of diagnosis of chronic open-angle glaucoma (COAG) and visual acuity and visual field progression of a cohort followed for 20 years.

Methods: Twenty years following the diagnosis of COAG in 68 of 436 (16%) patients seen in a glaucoma case-finding clinic, visual and mortality outcomes were audited from medical records. Causes of death were obtained from general practitioner records and death certificates. Probability of death was calculated using a Kaplan-Meier survival curve. The visual field of each eye of survivors was graded using a nine-stage severity scale. Visual and surgical outcomes were analysed at the 20-year follow-up visit.

Results: From 68, 14 (21%) were lost to follow-up. In the remaining 54, 20 (37%) were alive 20 years after diagnosis. Of 63% who died, mean age of death was 84 years, most commonly due to vascular disease. Mean age at presentation of those who died was 73.7 years versus 63.2 years for survivors ($p = 0.001$). The median time to death was 16 years. On visual field analysis, nearly half (48.9%) of eyes did not deteriorate, but 28.3% eyes deteriorated by more than two stages. Trabeculectomy was performed in 47.5% of the survivors, with a mean time from glaucoma diagnosis to surgery of 8 years. Trabeculectomy was performed in 23.5% of those who died, with mean time from glaucoma diagnosis to surgery of 5.3 years. Medication use was similar in both groups at 1.6 medications at final visit. Those who died had worse final visual acuity than survivors ($p < 0.001$). Three who died were registered severely visually impaired mainly from macular disease, but no survivors were registered ($p < 0.001$).

Conclusion: In this cohort, approximately two-thirds of patients with glaucoma died within 20 years of diagnosis. In most older patients with glaucoma, the overall goal of preventing visual handicap and blindness is achievable 20 years after diagnosis with half the survivor group having had trabeculectomy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FPI.2

THE EFFECT OF TRABECULECTOMY SURGERY ON THE CENTRAL VISUAL FIELD IN PATIENTS WITH GLAUCOMA USING MICROPERIMETRY AND OPTICAL COHERENCE TOMOGRAPHY

Helen Chan¹, Gokulan Ratnarajan¹, Jasleen Jolly¹, Imran Yusuf¹, John Salmon¹

¹Oxford Eye Hospital, Oxford University Hospitals NHS Trust, Oxford - United Kingdom

Purpose: To determine the functional and structural effects of trabeculectomy surgery on patients with advanced glaucoma and central visual field defects in the early post-operative period.

Methods: Thirty consecutive adult subjects with advanced glaucoma requiring trabeculectomy surgery and an established visual field defect within 10 degrees of fixation underwent microperimetry (MAIA MP-1, CenterVue, Padova, Italy) and optic disc Optical Coherence Tomography (OCT) imaging (Spectralis, Heidelberg Engineering, Germany) pre-operatively, and 1 month and 3 months following trabeculectomy surgery. Main outcome measures were post-trabeculectomy change in mean threshold on microperimetry and nerve-fibre layer thickness on OCT. Fellow eyes were used as controls.

Results: The mean change in MP average threshold values from pre-operative to post-operative was 0.6 ± 1.9 dB for treated eyes and 0.1 ± 1.3 dB for control eyes ($p = 0.14$) at 1 month and 0.2 ± 2.3 dB and -0.3 ± 1.6 dB at 3 months ($p = 0.22$). Mean change in global nerve fibre layer thickness was $-0.6 \mu\text{m}$ and $-0.5 \mu\text{m}$ for operated and control eyes respectively ($p = 0.83$) at 1 month and $0.8 \mu\text{m}$ and $-0.4 \mu\text{m}$ at 3 months ($p = 0.88$). The kappa agreement for structure-function correlation between OCT and MP was 0.735 (CI 0.59-0.88) $p < 0.005$.

Conclusion: Central visual function, and retinal nerve fibre layer thickness appear to be preserved in glaucoma patients with central visual field defects undergoing trabeculectomy surgery in the early post-operative period. These data may inform glaucoma surgeons considering trabeculectomy surgery in this patient group.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FPI.3

OUTCOME OF AHMED GLAUCOMA VALVE SURGERY AS PRIMARY TREATMENT

Arpita Basia¹

¹ASG Eye Hospital, Bhopal - India

Purpose: To report outcome of Ahmed glaucoma valve surgery as Primary treatment.

Method: Patients refractory to medical management underwent primary Ahmed glaucoma valve surgery. These patients were 5 in number and were on maximal medical therapy with mean IOP cut off > 21 mmHg. AGV implanted by a single surgeon and the Surgical technique consisted of limbal-based conjunctival incision to create a conjunctival flap between 2 recti muscles, in the superotemporal quadrant. Body implant was positioned 8-10 mm from the limbus. The plate was then sutured to the sclera with a 10.0 nylon suture. The drainage tube was trimmed to permit a 2-3 mm insertion in the AC and was bevel cut to an angle of 30°, to facilitate AC entering. The AC was then entered 1-3 mm posteriorly to the corneoscleral limbus with a 22-23G needle. The needle tract was anterior and parallel to the plane of the iris. The tube was covered by sclera patch graft. Longest follow up of 6 month available.

Result: Mean IOP after 3 months after hypertensive phase was 15 ± 2 mmHg and there was no further progression on visual fields. One of the patient was steroid responder and IOP off treatment was 25 mmHg but IOP is under control on one Antiglaucoma medication. One of the patient sclera graft melt with tube exposure developed for which regraft with conjunctival autograft was done.

Conclusion: Ahmed Glaucoma valve surgery as primary treatment is very effective with good control of IOP and almost nil complications and progression.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FPI.4

EVALUATION OF THE EARLY TO MID-TERM EFFICACY AND SAFETY OF DEEP SCLERECTOMY FOR OPEN-ANGLE GLAUCOMA IN AN AUSTRALIAN POPULATION

Colin Clements¹, Michelle Hui²

¹Department of Glaucoma, Sydney Eye Hospital, Sydney - Australia, ²Concord Repatriation General Hospital, Sydney - Australia

Purpose: The aim of this study is to evaluate the early to the mid-term efficacy of deep sclerectomy (DS) for open-angle glaucoma patients.

Methods: 102 patients with open-angled glaucoma who underwent DS were recruited into the study in a consecutive order following informed consent. Intraocular pressure (IOP) was collected post operation over a period of 60 months. Criteria of success were defined as qualified success (QS) or complete success (CS) with IOP level less than 21, 18 and 15 mmHg and a reduction of more than 20% IOP from baseline. QS includes additional medication or surgery post-DS, while CS requires no additional medications or surgery post-DS.

Results: The probability of QS at 60 months for IOP less than 21, 18 and 15 mmHg is 70.3% (45.12 ± 2.46 months), 65.2% (40.41 ± 2.75) and 45.6% (35.62 ± 2.85), respectively. The probability of CS at 60 months for IOP less than 21, 18 and 15 mmHg are 68.7% (47.51 ± 2.77), 57.6% (40.41 ± 2.75) and 45.6% (35.62 ± 2.85), respectively. There was no significant difference between QS and DS post-DS based on the level of experience of the surgeon; intra-operation complication; age and pre-DS IOP.

Conclusion: DS is observed to be an effective surgical method with a favorable safety profile to manage patients with open-angled glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FPI.5

NONPENETRATING DEEP SCLERECTOMY WITH MITOMYCIN C: 5 YEAR FOLLOW-UP WITH ANALYSIS OF IOP CONTROL AND VISUAL FIELD SURVIVAL

Grant Slagle¹, William Sponsel², Sylvia Groth³

¹Midwestern University Chicago College of Osteopathic Medicine, Downers Grove, IL - USA, ²Vision Sciences, WESMDPA/UIW/UTSA, San Antonio, TX - USA, ³Glaucoma Service, Stanford University Department of Ophthalmology, Stanford, CA - USA

Purpose: Document 5 year outcomes of eyes treated with NPDS in a new patient cohort comparable to one reported on in 2013 that demonstrated visual field Improvement up to 18 months after surgery.

Methods: All eyes of patients undergoing NPDS between January 2008 and June 2012 were included. Each variable (IOP, medications, MD, and CPSD) was statistically evaluated and compared to pre-operative baseline using two-tailed paired t-test.

Results: 122 eyes underwent NPDS with MMC. Mean IOP with standard error of the mean was 19.7 ± 0.5 mmHg preoperatively, 11.9 ± 0.5 at 3 months postoperative, 12.5 ± 0.6 at 6 months, 12.4 ± 0.5 at 12 months, 12.6 ± 0.6 at 18 months, 11.1 ± 0.6 at 2 years, 11.8 ± 0.5 at 2.5 years, 11.0 ± 0.5 at 3 years, 11.7 ± 0.5 at 3.5 years, 10.7 ± 0.7 at 4 years, 11.6 ± 0.5 at 4.5 years, and 12.4 ± 0.7 at 5 years. At 5 years, IOP was reduced by 7.8 mmHg or 37% ($p < 10^{-6}$); 92% had stable IOP at 5 years. Mean number of preoperative anti-glaucoma medications was 2.7 ± 0.1 , reduced to 0.40 ± 0.09 three months postoperatively, 0.51 ± 0.1 at 6 months, 0.38 ± 0.08 at 12 months, 0.49 ± 0.09 at 18 months, 0.41 ± 0.09 at 2 years, 0.39 ± 0.09 at 2.5 years, 0.49 ± 0.1 at 3 years, 0.58 ± 0.1 at 3.5 years, 0.49 ± 0.1 at 4 years, 0.64 ± 0.1 at 4.5 years, and 0.52 ± 0.1 at 5 years. This corresponded to average reduction of 2.2 medications (81%), with $p < 10^{-22}$.

Conclusions: This study indicates that with post-operative management, eyes treated with NPDS can maintain IOP control, require less medication, and function with stable visual fields for an extended period of time.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

BETTER BASICS
free papers 2



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP2.1

TRABECULECTOMY: COMPARISON OF LONG TERM EFFICACY OF INJECTION OR SPONGE APPLICATION OF MITOMYCINE-C

Mathieu Carrière¹, Caroline Lajoie², Emmanuelle Chalifoux²

¹Faculté de Médecine, Université Laval, Québec - Canada, ²Département d'Ophtalmologie, CHU de Québec; CUO-Recherche-Clinique, Québec - Canada

Trabeculectomy is effective in reducing IOP in glaucoma patients. This study compares short and long term efficacy of trabeculectomy using injection or sponge application of mitomycin-C.

Retrospective study in glaucoma patients where a trabeculectomy surgery, with or without cataract surgery, was performed. IOP, visual acuity (BCVA), number of antiglaucoma agents, post-surgical interventions and complications were collected at 1, 2, 3 and 10 years.

There were 34 patients in the injection group and 27 patients in the sponge group. Both groups were comparable at baseline with respect to mean age (75-69y-o) ($p = 0.05$), IOP (19.1-20.3 mmHg $p = 0.4$) and number of antiglaucoma agents (3.3-3.3 $p = 1$). IOP decreased ($p < 0.05$) from baseline in both groups at 1 (13.1-10.2 mmHg), 2 (10.0-10.5 mmHg), 3 (10.5-9.7 mmHg) and 10 years follow-up (7.3-10.0 mmHg) with no statistical difference between them ($p > 0.2$), except at 1 year ($p = 0.03$). The number of antiglaucoma agents was reduced ($p < 0.05$) from baseline similarly in both groups with comparable amount ($p > 0.1$) at 1 (0.8-0.4), 2 (0.6-0.5), 3 (0.7-0.6) and 10 years (1.0-1.2). BCVA decreased similarly in both groups. The number of further interventions (i.e. needlings) was higher with the injection but complications (i.e. choroidal effusion) were higher with sponge use.

Both methods of MMC application during a trabeculectomy offer excellent short and long term efficacy. The higher complications rate using the sponge method makes the injection preferable.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP2.2

EFFICACY AND SAFETY OF SUBCONJUNCTIVAL INJECTION OF LOW-DOSE MITOMYCIN-C COMPARED TO INTRAOPERATIVE APPLICATION IN DEEP SCLERECTOMY

Pouya Alaghband¹, Nitin Anand²

¹Leeds Teaching Hospitals NHS Trusts, Leeds - United Kingdom, ²Cheltenham General Hospital, Cheltenham - United Kingdom

Aim: To study the efficacy and safety of subconjunctival injection of low-dose Mitomycin-C (MMC) compared to intraoperative application in Deep Sclerectomy (DS).

Background: The amount of MMC delivered by intraoperative MMC soaked sponges can vary according to the width, posterior extension of subconjunctival dissection and the material of sponges. Subconjunctival injection of fixed dose of MMC bypasses these limitations. The concern is the increased contact time of MMC with tissues and diffusion to ciliary bodies. We therefore chose a low dose of MMC 0.008 mg.

Methods: Data for 264 eyes of 214 consecutive patients undergoing DS with MMC was extracted.

Results: In all, 83 eyes had subconjunctival MMC injection (SC-MMC) whilst 181 eyes had intraoperative application of MMC (IO-MMC). The mean follow-up was significantly longer in IO-MMC group (26.4 ± 9.0) compared to the SC-MMC group (18.9 ± 6.5 , $p < 0.001$). Kaplan-Meier plots for success rates for intraocular pressure (IOP) less than 21 mmHg and/or 20% reduction and less than 16 mmHg and/or 40% reduction from preoperative IOP without additional glaucoma medications or further glaucoma procedure at two years were 92% and 88% in SC-MMC while success rate for IO-MMC groups were 69% and 74.5% ($p = 0.07$). Mean IOPs at 2 years were 13.5 ± 3.6 mmHg in the SC-MMC and 13.8 ± 4.0 mmHg in the IO-MMC group ($p = 0.7$). Cystic blebs were seen in 32 eyes (39.0%) in the SC-MMC and 37 eyes (20.4%) of the IO-MMC group ($p = 0.002$) by the last follow-up.

Conclusions: The use of low-dose subconjunctival MMC is as effective and safe as standard intraoperative application during DS. There was a higher incidence of cystic avascular blebs associated with subconjunctival MMC injections.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP2.3

“SMART TRAB” – 2.5 YEARS RESULTS OF MODIFIED TRABECULECTOMY. SUCCESS RATE AND COMPLICATIONS

Chryssa Terzidou¹, Alexandra Trivli¹, Georgios Dalianis¹

¹Ophthalmology, Konstantopouleio General Hospital, Nea Ionia, Athens - Greece

Purpose: Evaluation of 2.5 years efficacy of modified trabeculectomy (SMART-trab: Stab Incision MMC-Assisted Rapid Technique of Trabeculectomy).

Methods: Glaucoma surgery was performed in 15 uncontrolled POAG patients (22 eyes), with mean age 73.22 years. 13 cases (59%) underwent glaucoma and 9 cases (41%) combined cataract-glaucoma surgery with the SMART trab technique: superiorly subconjunctival injection of lidocaine/MMC 0.05 µg solution, small fornix base conjunctival opening, 2.4 mm stab incision entering AC 1 mm post limbus, double 1mm punch, peripheral iridectomy and 1 releasable suture. Matrix sutures to close conjunctiva. During follow-up, modulation of the bleed with 5-FU injections was performed as needed. Pre-operative mean IOP was 24,4 mmHg (17-40 mmHg) with 3.5 mean number of medications.

Results: Strict follow-up protocol was followed with immediate intervention when needed. At 1 year, mean IOP was 10.86 mmHg (5-15 mmHg) and 20 out of 22 eyes had needed 5-Fu injections. At 2.5 years, 4 patients had deceased and for the remaining 18 eyes mean IOP was 11.83 mmHg (4-15 mmHg), A/C was normal in all cases, 3 blebs were cystic but functional and no additional 5-FU injection was done. Mean number of anti-glaucoma medication was 0.72.

Conclusions: SMART-trab with wound modulation, appears to be a safe and quicker alternative to classic trabeculectomy. Few minor and no major complications were observed during the first 2.5 years, with good IOP control.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP2.4

IMPACT OF PHACOEMULSIFICATION ON FILTERING BLEB MORPHOLOGY IDENTIFIED VIA THREE-DIMENSIONAL ANTERIOR SEGMENT OPTICAL COHERENCE TOMOGRAPHY

Akiko Narita¹, Tomoe Miyake¹, Kae Sugihara¹, Tomoko Ishikawa¹, Jiro Seguchi¹

¹Department of Ophthalmology, Okayama Saiseikai General Hospital, Okayama - Japan

Purpose: To identify the cross-sectional morphological changes of successful filtering blebs within 6 months post-phacoemulsification using three-dimensional anterior segment optical coherence tomography (3D AS-OCT).

Methods: Thirty-one phakic eyes at the time of trabeculectomy were included in this retrospective consecutive case series study. Subjects were classified into two groups according to whether they had undergone phacoemulsification or not post-trabeculectomy. Blebs were examined using 3D AS-OCT and evaluated for quantitative parameters, including maximum height, maximum wall thickness and ratio of hypo-reflective space of the wall.

Results: Seventeen eyes were assigned to the study group, and 14 eyes to the control group. In the study group, the mean IOP was 8.2 ± 3.3 mmHg pre-phacoemulsification and significantly increased to 10.5 ± 4.3 mmHg at 6 months post-phacoemulsification. Regarding the 3D AS-OCT parameters, the eyes showed a significant decrease in the maximum bleb height and maximum bleb wall thickness between 1 and 6 months post-phacoemulsification, and a significant decrease in the ratio of hypo-reflective space of the bleb wall between 1 and 3 months. In contrast, the eyes in the control group showed no significant differences in the IOP or all the 3D AS-OCT parameters in the observation period matched to that of the study group.

Conclusion: Phacoemulsification could have a negative impact on filtering bleb morphology, which may lead to IOP increase.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**HOW ONE
free papers 3**



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.1

SHORT-TERM SURGICAL OUTCOME OF MODIFIED GONIO-ASSISTED TRANSLUMINAL TRABECULOTOMY WITH DOUBLE-MIRROR GONIOLENS FOR PRIMARY ANGLE CLOSURE GLAUCOMA

Kazuhiko Mori¹, Yuji Yamamoto², Kojiro Imai³, Yoko Ikeda⁴, Morio Ueno¹, Chie Sotozono¹, Shigeru Kinoshita⁵

¹Department of Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto - Japan, ²Baptist Eye Clinic, Kyoto - Japan, ³Department for Medical Innovation and Translational Medical Science, Kyoto Prefectural University of Medicine, Kyoto - Japan, ⁴Oike Ikeda Eye Clinic, Kyoto - Japan, ⁵Department of Frontier Medical Science and Technology for Ophthalmology, Kyoto Prefectural University of Medicine, Kyoto - Japan

Purpose: To evaluate the short-term outcome of modified gonio-assisted transluminal trabeculotomy (mGATT) with double-mirror goniolens (DMG) for primary angle closure glaucoma (PACG).

Methods: MGATT with DMG was performed in 29 eyes of 29 PACG patients (age 73.4 ± 8.5 years) from August 2016 to January 2018. Lensectomy (LE) or goniosynechialysis (GSL) was performed if lens or peripheral anterior synechia exists. From initial small goniotomy, rounded 5-0 nylon was inserted into Schlemm's canal, pulled out to anterior chamber, cutting trabecular meshwork (TM). Intraocular pressure (IOP), glaucoma drug usage, and TM excised arc were evaluated retrospectively.

Results: LE and GSL was performed in 25 and 24 out of 29 cases, respectively. Mean TM excised arc was 181.6 ± 45.8 degree. IOP were controlled from 22.7 ± 6.0 to 14.5 ± 2.4 mmHg at 3 month, and glaucoma drug decreased significantly from 3.4 ± 1.4 to 1.1 ± 1.4 . Blood reflux was observed, but absorbed in a few days.

Conclusion: Residual resistance of TM often causes failure of phaco GSL in chronic PACG patients. Applying mGATT with DMG, one of the micro-invasive glaucoma surgery procedures with phaco GSL to PACG patients, improves the surgical outcome reducing the resistance of TM in short-term.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.2

EVALUATION OF SAFETY AND EFFICACY OF IMPLANTATION OF A COLLAGEN IMPLANT IN THE SUPRACILIARY SPACE IN DECREASING INTRAOCULAR PRESSURE IN PATIENTS HAVING COEXISTING PATHOLOGIES - PRELIMINARY RESULTS

Vinod Kumar¹, Ahmad Shradqa¹, Galina Dushina¹, Mikhail Frolov¹,
Andrei Bezzabotnov²

¹Department of Ophthalmology, Medical Institute, People's Friendship University of Russia, Moscow - Russia, ²Ophthalmic Unit of Skhodnya City Hospital, Moscow Region - Russia

Aim: To evaluate the safety and efficacy of implantation of a collagen implant in the supraciliary space in management of glaucoma in cataract patients.

Methods and Material: A collagen implant used for enhancing hypotensive effect of non-penetrating glaucoma surgery was customized to be placed in supraciliary space and the same was implanted in 10 cases (avg. age - 71.3 ± 7.7 yrs) with coexisting pathologies following phacoemulsification with intraocular lens implantation and ab-externo tunnel shaped cyclodialysis. The scleral incisions were closed water tightly. Follow-up > 3 months. Cases were evaluated as per World glaucoma association's guidelines.

Results: At 3 months baseline intraocular pressure (IOP) decreased from 21.3 ± 3.3 mmHg to 11.3 ± 3.5 mmHg (a decrease by $46.2 \pm 17.9\%$; $p = 6.3 \text{ E-}05$); target IOP achieved in 9 cases; medication usage reduced from $2.1 \pm .7$ to $.2 \pm .4$; complete success achieved in 8 cases, partial - in 2 cases and visual acuity improved from $.9 \pm .7$ logMar to $.8 \pm .7$ logMar. Intra-operatively, some hemorrhage occurred during cyclodialysis in all cases, which stopped simultaneously. Postoperatively there was 1 case with hyphema which required repeat visit to operation theatre. There were 3 cases of hypotony, which were taken care of conservatively.

Conclusion: Implantation of a collagen implant in the supraciliary space in patients with coexisting pathologies is safe and effectively decreases IOP.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.3

SAFETY AND EFFECTIVENESS OF IMPLANTATION OF A STAINLESS STEEL IMPLANT IN THE SUPRACILIARY SPACE IN DECREASING INTRAOCULAR PRESSURE IN GLAUCOMA PATIENTS

Ahmad Shradqa¹, Vinod Kumar¹, Galina Dushina², Andrey Bezzabotnov¹, Mikhail Frolov²

¹Ophthalmic Unit of Skhodnya City Hospital, Moscow Province, Moscow - Russia, ²People's Friendship University of Russia Medical Institute Department of Ophthalmology, Moscow - Russia

Aim: To evaluate the safety and effectiveness of implantation of an original stainless steel implant (SSI) in the supraciliary space (SC) after reverse meridional cyclodialysis ab interno (RMCai) in decreasing intraocular pressure (IOP) in glaucoma patients.

Material and Methods: A double armed implant made from Vanadium stainless steel wire was implanted in the SC after RMCai in 30 patients (implant group) to keep the cleft open. Twenty-one patients having RMCai without SSI served as control. A 5-6 mm deep and 1.5 mm wide RMCai was performed through 2.75 mm corneal incision using specially designed spatula followed by SSI implantation in the cleft. Follow-up > 1 year. Cases were evaluated as per World glaucoma association's guidelines.

Results: At 1 year the baseline IOP in implant group (23.0 ± 5.4 mmHg) was decreased by $28.7 \pm 12.0\%$, mean medication usage reduced from 2.7 ± 0.8 to 1.1 ± 0.9 and overall success was 93.3%, where as in control group IOP (24.2 ± 8.2 mmHg) decrease was by $29.1 \pm 17.1\%$, medication usage reduced from 2.6 ± 0.9 to 0.8 ± 0.9 and overall success was 66.7%. In relation to IOP change, medication usage and adverse events the difference between groups was non-significant. Repeat surgery was required more frequently in control group - 5 times more (6.7% vs 33.3%, $p = 3E-05$).

Conclusion: Implantation of SSI in SC to keep the cyclodialysis cleft open is safe and effective and substantially decreases the need for repeat glaucoma surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.4

COMBINED XEN-BAERVELDT IMPLANTATION FOR REFRACTORY CHILDHOOD GLAUCOMA

Franz Grehn¹, Esther Hoffmann², Tschingis Arad²

¹Department of Ophthalmology, Wuerzburg - Germany, ²Department of Ophthalmology, Universitaetsmedizin Mainz, Mainz - Germany

Purpose: Refractory childhood glaucomas often need tube implants for long-term IOP control. Conventional tube implants in children often develop corneal decompensation after decades. We used Mermoud's technique of a combined XEN-Baerveldt implantation in childhood glaucoma cases assuming that the small XEN tube in the anterior chamber may have less impact on the cornea.

Methods: Hitherto 9 children with refractory glaucoma and numerous previously failed surgeries were operated with a combined XEN Baerveldt implant. After suturing the Baerveldt 250 implant, the XEN was introduced from outside into the anterior chamber and connected with the Baerveldt tube under a scleral flap. In 7 cases a loop of the Baerveldt tube was formed to secure enough tube length in case a direct Baerveldt tube implant would be needed at a later stage.

Results: Eight cases had successful IOP control (≤ 18 mmHg), three of them with medication. One case needed direct implantation of the Baerveldt tube due to insufficient IOP control. In one case the XEN was blocked by fibrin. A second XEN was connected with the Baerveldt resulting in good IOP control. Hypotony was transient (1-3 days) and without sequelae in all cases.

Conclusion: This method is delicate but technically feasible even in buphthalmic eyes. It is an attempt to reduce corneal complications of tube implants. Although the preliminary results are promising, the use of the smaller intraocular stent regarding IOP control and corneal preservation still needs further observation.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.5

PATHOGENETICALLY DIRECTED TREATMENT METHOD OF CILIOCHOROIDAL DETACHMENT AFTER GLAUCOMA SURGERY

Tatiana Sokolovskaya¹, Yuriy Kovalenko¹, Yulia Gorodetskaya¹

¹The S. Fyodorov Eye Microsurgery Federal State Institution, Moscow - Russia

Purpose: To analyse results of application of spenopalatine-orbital blockade (SOB) in case of treatment the ciliochoroidal detachment (CCD) after a sclerectomy.

Materials and Methods: The study included 28 patients with open-angle glaucoma. The timing of the development of the CCD ranged from 1 to 3 days after surgery. Before treatment of a CCD on all eyes were diagnosed: "a syndrome of the small anterior chamber", the expressed hypotonia (intraocular pressure (IOP) >10 mm Hg), according to B-scanning all patients had a serous detachment. The first group - 16 patients (16 eyes) which carried out SOB with bupivacaine-epinephrine 0.5% 2-4 ml + etamsylate 1.5 mg/kg + sodium caffeine benzoate 1.5 mg/kg + betametazone dipropionate 25 mg/kg once a day in number of 2-4 depending on a clinical current of a complication. The second group - 12 patients (12 eyes) who received as treatment subconjunctival injections of dexamethasone of sodium phosphate 0.4% - 0.3 ml + sodium caffeine benzoate 10% - 0.1 ml + phenylephrine hydrochloride 0.5% - 0.2 ml.

Results: The IOP of patients after treatment in the first and the second groups reached on average 15 mmHg, but the speed of normalization of an ophtalmotonus at patients of the first group was higher and constituted 2-4 days, in the second group constituted 5-7 days. According to B-scanning the complete fit of a CCD occurred in 1-2 days after normalization of IOP at patients in both groups. The convalescence patients after treatment in the first group CCD advancing on day 3-6 after the beginning of treatment, in contrast to the second group, where time is 7-9 days.

Conclusion: The use of a pathogenetically directed method with the carrying out of SPB for treatment of the CCD has proved effective. The presented technology allows achieving a significant reduction in the timing of relief of this complication, which, in turn, reduces the period of rehabilitation of patients.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.6

IS A DAY 1 POSTOPERATIVE REVIEW REQUIRED FOLLOWING AB INTERNO XEN GEL STENT SURGERY?

Southern UK Xen Audit Group¹, Ayesha Karimi², Dan Lindfield²

¹Department of Ophthalmology, University Hospital Southampton, Southampton - United Kingdom,

²Department of Ophthalmology, Royal Surrey County Hospital, Guildford - United Kingdom

Aims: To assess whether a first day review is needed following Xen surgery in glaucoma patients.

Methods: Retrospective case note review on all Xen surgeries performed across four centres between August 2015 and May 2017. Intraocular pressure (IOP), number of medications, complications and all further procedures were recorded.

Results: 259 cases from 226 patients were analysed. 78 of 259 cases (30.1%) had numerical hypotony (< 6 mmHg) on Day 1, but 60 had resolved by Week 1. Zero cases of hypotony required intervention at Day 1. 2 of 259 cases (0.8%) had transient IOP of ≥ 20 mmHg due to air bubble / iris blockage on Day 1. One case (0.4%) required IOP lowering medications at Day 1. All other complications and interventions in our series occurred at 1 week or beyond. Day 1 intraocular pressure (IOP) was not shown to be a reliable indicator for outcomes at Week 1 ($r^2 = 0.2155$), Month 1 ($r^2 = 0.0574$) or Month 12 ($r^2 = 0.1580$).

Conclusion: The presence of significant complications requiring intervention at Day 1 was 0%. Only one case (0.4%) required topical IOP lowering medications at Day 1. Day 1 IOP is not a reliable indicator of long term outcomes in Xen surgeries. Clinicians could consider discarding Day 1 review following routine Xen gel stent implantation.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP3.7

SAFETY AND EFFICACY OF AB-EXTERNO SCHLEMM'S CANAL DILATION USING KUMAR'S 3-RD GENERATION METALLIC SCHLEMM'S CANAL EXPANDER IN MANAGEMENT OF GLAUCOMA IN CATARACT PATIENTS

Galina Dushina¹, Vinod Kumar¹, Andrej Bezzabotnov¹, Ahmat Shradqa¹, Mikhail Frolov¹

¹Peoples' Friendship University of Russia, Moscow - Russian Federation

Aim: To evaluate safety and efficacy of ab-externo Schlemm's canal dilation using 3-rd generation metallic Schlemm's canal expander (MSCE-III) in management of glaucoma in cataract patients.

Methods and Material: Twenty-eight patients suffering from cataract and glaucoma were operated upon. In all cases a two-site combined procedure - phacoemulsification with intraocular lens implantation and ab-externo segmental Schlemm's canal dilation using 3-rd generation MSCE-III was performed by one surgeon. Kumar's MSCE-III is a spiral device made from Vanadium stainless steel wire of .05mm thickness. Its length varies from 5 to 6 mm, outer diameter is .25mm, inner diameter - .15mm. It repeats the curvature of SC. Follow-up > 2 year. Cases were evaluated as per World glaucoma association's guidelines.

Results: At 2 years baseline intraocular pressure decreased from 28.1 ± 5.1 mmHg (95% confidence interval - CI - 26.1-30.0) to 21.5 ± 4 mmHg (95% CI 18.2-24.8) ($p < .05$) and medication usage reduced from 2.5 ± 1 (95% CI 2.1-2.9) to 0.4 ± 0.7 (95% CI 0.2-1.0). Complete success was achieved in 61% cases (17 patients), partial - in 32% (9 patients) and there were 2 cases with failure (7%). YAG-laser trabeculotomies were required to control IOP in 2 cases (7%).

Conclusion: MSCE-III is a safe and effective device to be used during combined surgical procedures to decrease intraocular pressure in cases having coexisting pathologies.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**HOW TWO
free papers 4**



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.1

EYEPLATE, A NEWLY DESIGNED IMPLANT COMBINED WITH THE ADJUSTABLE EYEWATCH DEVICE

Adan Villamarin¹, Sylvain Roy², Constantinos Stergiopoulos¹, Nikos Stergiopoulos¹, Christoph Kniestedt³, Fotis Topouzis⁴, Efstathios Detorakis⁵,
André Mermoud²

¹Swiss Federal Institute of Technology, Lausanne - Switzerland, ²Montchoisi Clinic, Lausanne - Switzerland, ³Talacker Augen Zentrum Zürich, Zürich - Switzerland, ⁴AHEPA, Thessaloniki - Greece, ⁵University of Crete, Heraklion - Greece

Purpose: To report the first surgical cases of a continuously adjustable glaucoma drainage device (GDD) combined with a newly designed plate used as a glaucoma filtering implant.

Methods: Prospective, multi-centric clinical study. The eyePlate exists in two plate surface sizes: 200 mm² and 300 mm². The shape was designed for an easy implantation between the extraocular muscles. Contrary to Baerveldt implant the eyePlate is not inserted under the extraocular muscles, but in between them. After securing the implant onto the sclera, the eyeWatch is inserted into the anterior chamber and connected to the eyePlate. IOP can be controlled by finely adjusting the outflow resistance using the eyeWatch system at any time.

Results: Ten patients were operated, the mean follow-up was 3 ± 1 months. Mean baseline IOP was 29.6 ± 9.8 mmHg and number of antiglaucoma medications (AGM) was 2.9 ± 0.7. The mean postoperative pressure and AGM were 9.4 ± 6.2 mmHg and no medications after 1 week, 12.7 ± 3.8 mmHg and 0.4 ± 0.8 after 1 month, and 13.0 ± 2.0 mmHg and 1.0 ± 0.9 after 6 months, respectively. No serious adverse events were observed.

Conclusion: The eyePlate was easy to insert. IOP was well controlled throughout the entire follow-up period, no cases of effective hypotony were recorded. This implant is efficient to reduce IOP when used in combination with the adjustable eyeWatch implant.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.2

CO₂ LASER ASSISTED DEEP SCLERECTOMY (CLASS)

Amr Aref¹, Sylvain Roy², André Mermoud², Tarek Shaarawy³

¹Research Institute of Ophthalmology, Giza - Egypt, ²Centre de Montchoisi, Lausanne - Switzerland,

³Hopitaux universitaires de Genève, Genève - Switzerland

Purpose: To evaluate the safety and performance of the IOPTiMate™ (OT-I35P) System in CO₂ Laser Assisted Deep-Sclerectomy (CLASS) glaucoma surgery in primary and pseudoexfoliative open-angle glaucoma.

Methods: Patients for primary filtration surgery underwent CLASS with a CO₂ laser system. This self-controlled system gradually ablates and removes sclera layers until percolating fluid absorbs the energy, attenuating further tissue ablation. The study included 27 patients. Four were excluded from the performance analysis. Mitomycin (MMC) was used at a concentration of 0.02 % for 2 minutes in all cases. No device malfunctions occurred.

Results and Conclusions: There were 2 intraoperative perforations. Transitory complications were recorded. The preoperative IOP of 26.0 mmHg ± 4.3 (mean ± SD) dropped to 13.0 ± 3.4 mmHg at 6 months and 13.1 ± 4.8 mmHg at 12 months postoperatively, yielding average IOP reductions at 6 and 12 months of 52% in both time point ($p < 0.001$). Complete success rate was 67% and the qualified success rate was 88%, respectively. The preoperative use of hypotensive medications dropped from 3.11 ± 1.05 to 0.22 ± 0.52 at 6 months and 0.35 ± 0.65 at 12 months ($p < 0.001$). Four needling procedures were carried out in 4 patients after surgery. Fourteen patients needed a Nd:YAG laser goniopuncture procedures to better control the IOP in the postoperative period. These short term and intermediate results suggest that CLASS may become a simple, safe, and effective means of choice for the treatment of open-angle glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.4

PARS PLANA EX-PRESS SHUNT FOR MANAGEMENT OF PERSISTENT GLAUCOMA AFTER SILICONE OIL REMOVAL IN VITRECTOMIZED EYE. A POTENTIAL NOVEL TECHNIQUE

Abdussalam Abdullatif¹, Heba El Saied¹

¹Department of Ophthalmology, Cairo University, Cairo - Egypt

Purpose: To evaluate the efficacy and safety of novel approach to implant Express mini shunt via the pars plana under a scleral flap in patients with secondary refractory glaucoma in vitrectomized eyes after silicone oil removal.

Methods: Prospective and interventional case series of 3 patients presenting to Kasr Al Ainy Hospital, Cairo University with secondary glaucoma after pars plana vitrectomy. Express mini shunt via pars plana was implanted. Control of intraocular pressure (IOP) and the development of intra- and postoperative complications were evaluated.

Results: Follow up time ranges 3-6 months. Control of IOP was achieved in the three patients with no antiglaucoma treatment with a posterior bleb. No complication has been encountered neither intraoperative or postoperative. Ultrasound Biomicroscopy (UBM) showed suprachoroidal fluid as a new additional filtration route.

Conclusions and Relevance: Implantation of Express mini shunt via the pars plana is promising safe and effective in patients with secondary glaucoma in vitrectomized eyes.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.6

IS THE TIMING OF LASER GONIOPUNCTURE AFTER DEEP SCLERECOTOMY IMPORTANT?

David Holmes¹, Michelle Hui¹, Colin Clement¹

¹Eye Associates Sydney, Sydney - Australia

Purpose: To compare the outcome of early versus delayed Nd:YAG laser goniopuncture (LGP) after deep sclerectomy (DS) for open-angle glaucoma (OAG).

Methods: A retrospective study of consecutive OAG eyes that underwent an LGP following DS were recruited between June 2012 to November 2015. Success was defined as intraocular pressure (IOP) less than 21, 18 and 15 mmHg and a reduction of more than 20% IOP from baseline with medications (qualified success) or without medications (complete success).

Results: 102 eyes with OAG that underwent DS were recruited into the study. Of these, 49 (47.6%) eyes had undergone LGP post DS. The probability of qualified success at 60 months for all LGP eyes with IOP less than 21, 18 and 15 mmHg was 70.5%, 62.3 and 35.3%, respectively. When eyes that had early LGP post DS (< 3 months, n = 22) were compared to eyes with delayed LGP post DS (< 3 months, n = 27), there were no significant differences found for each of the defined levels of success ($p > 0.05$). There was no significant difference in complications between early and delayed LGP groups.

Conclusion: There appears to be no difference in the efficacy and safety of LGP performed early compared to delayed after DS. This study corroborates previous published data confirming LGP is an effective and safe procedure for lowering IOP post DS procedure.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.7

TRASCLERAL CYCLOPHOTOCOAGULATION DIODE LASER: OUR EXPERIENCE IN IMPROVING SAFETY AND EFFICACY

Sidi Mohammed Ezzouhairi¹

¹Glaucoma Center, Mohammedia - Morocco

Introduction: The physical and surgical techniques, which reduce the production of aqueous humor in glaucoma, are less numerous and less employed. The diode laser applied on closed eyeball through sclera on ciliary body is a technique known to reduce the production of aqueous humor but it also has several drawbacks.

Material and Method: The diode laser is a light having 810 nm wavelengths; the probe is connected to a generator. We have conducted a comparative study on patients with refractory glaucoma who had undergone cyclophotocoagulation. Depending on the protocol used, we divided our patients in two groups. A group, called one row, of 60 eyes were treated as usual with series of applications, around almost the entire circumference of the eyeball sparing 3 an 9 o'clock positions, and a second group called 3 rows of 108 eyes, the protocol was similar to the one row group except that each application was followed by 2 supplementary applications posteriorly as a pattern of three rows. Trans-illumination and lower laser energy were used systematically. All laser impacts were guided by trans-illumination, and energies used were reduced less than 1,2 watts, applied during two seconds, in both groups.

Results:

- Sex ratio was 0,67 in the one row group and 0.71 in the 3 rows group
 - The success rate was 62% in the one row group versus 86,5% in the 3 rows group
- The mean reduction of IOP was 40.5% in the one row group versus 57.6% in the 3 rows group
The efficacy was significantly improved in the 3 rows group, without impairing visual acuity

Discussion: Trans-scleral cyclophotocoagulation diode laser is not well perceived in connection with old publications, which associated it with serious complications. In fact cyclodiode was devoted only to advanced glaucoma, above the others therapeutical resources. However the recent randomized comparative studies with medical treatment, gold standard surgery (trabeculectomy), and glaucoma drainage devices, showed that cyclodiode is quite efficient and safe. Modern innovations are continuously improving results, either continuous wave mode or micropulse mode. We used a systematic trans-illumination and lowered energies applied during the procedure and enlarged the scleral area treated in the 3 rows group. Our aim is to improve the targeting of the ciliary body, to obtain a slow coagulation rather than cyclodestruction and to likely activate the supra-choroidal pathway. Our study, which a high total energy delivered in a soft mode, would seem responsible for fewer complications such as hypotony, inflammation or visual acuity impairment. In addition, retreatments are uncommon in our study (mean sessions in the 3 rows group: 1.05); indeed, multiples sessions appear to be a risk factor for hypotony and other worse results 3.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP4.8

COMPARISON OF SURGICAL OUTCOMES BETWEEN AB-INTERNO TRABECULECTOMY USING A KAHOOK DUAL BLADE AND ISTENT TRABECULAR MICRO-BYPASS STENT

Dayeong Lee¹, Josh King¹, Samuel Thomsen², Jella An²

¹Faculty of Medicine, University of Missouri, Columbia - United States, ²Department of Ophthalmology, University of Missouri, Columbia - United States

Purpose: Compare surgical outcomes of patients who underwent phacoemulsification combined with iStent implantation versus phacoemulsification combined with ab-interno trabeculectomy using Kahook Dual Blade (KDB).

Methods: A retrospective, nonrandomized case series. Patients who underwent combine phacoemulsification/iStent between 2016 and 2018 were compared to those who underwent combined phacoemulsification/KDB. Preoperative data and postoperative data until 6 months were included. Primary outcomes included change in intraocular pressure (IOP), final IOP, and medication reduction. All complications, both common and vision-threatening, were compiled.

Results: 61 patients in iStent group and 51 patients in KDB group with similar type and severity of glaucoma ($p = 0.064, 0.559$) were included. Mean IOP for both the iStent and KDB groups decreased 2.46 mmHg at 6 months compared to pre-operative IOP ($p < 0.0001, p < 0.05$). There was no significant difference comparing the IOP change between the two groups ($p = 0.9941$). Both groups had similar results for final IOP at 6 months ($p = 0.605$). Over the 6-month post-operative period, more patients who had KDB were able to reduce the number of medications (1.7 ± 1.1 to 0.8 ± 1.0) compared to the iStent group ($p < 0.05$), which remained on 1.4 ± 1.1 medications. There was no vision threatening complications in either group.

Conclusion: Our study may suggest both procedures can effectively reduce IOP, but only phaco/KDB may reduce the medication burden required to achieve this goal.



September 6-8 2018 | Montreal, Canada

ICGS 2018

**WHY AND WHEN
ONE
free papers 5**



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.1 PHACO-ENDOCYCLOPLASTY VS PHACO- TRABECULECTOMY IN PACG: 1-YEAR RESULTS OF A PILOT STUDY

Vanita Pathak Ray¹, Swati Badakare², Vani Puri³, Divya Rao²,
Nikhil Choudhari²

¹Centre for Sight, Hyderabad - India, ²VST Centre for Glaucoma, LVPEI, Hyderabad - India,

³Department of Ophthalmology, Goa - India

Aim: To investigate the efficacy and safety of endocycloplasty compared with trabeculectomy, when these are combined with phacoemulsification in Primary Angle Closure and Glaucoma (PAC/G).

Methods: Study was IRB approved, registered with Clinical Trials Registry and informed consent obtained from each participant. Prospective, interventional, comparative trial where PAC/G subjects above 30 yrs and visually-significant cataract underwent computer generated randomized sequence of either procedure (Phaco-Endocycloplasty, PE or Phaco-Trab, PT) for standard indications of combined surgery. Primary outcome measure was IOP. Secondary: best corrected visual acuity (BCVA), number of anti-glaucoma-medication (AGM), complications.

Result: A total of forty-five eyes of 39 subjects were included in the study. Twenty-five eyes underwent phaco-ECPL and these were compared to 20 eyes that underwent phaco-trab. Two subjects in phaco-ECPL group were excluded as their laser parameters were not as per protocol. Median follow up in each group was 12 months. Median IOP, AGM and BCVA pre-operative ($p = 0.7, 0.93$ and 0.9) and post-operative ($p = 0.76, 0.44$ and 0.33 respectively) did not differ between the groups. However, rate of complications ($p = 0.003$), and interventions for it ($p = 0.02$), was greater in the phaco-trab group. None of the subjects lost vision in either group.

Conclusion: Both procedures are equally efficacious in lowering IOP in angle closure disease, but rate of complication is more in the phaco-trab group. Larger scale studies with longer follow-up are required to assess whether phaco-endocycloplasty could be a viable option in angle closure glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.2

TUBE SHUNT REVISION WITH EXCISION OF FIBROTIC CAPSULE, WITH MMC AND A COLLAGEN MATRIX IMPLANT: A 3-YEAR FOLLOW-UP STUDY

Ali Salimi¹, Paul Harasymowycz²

¹Faculty of Medicine, McGill University, Montreal - Canada, ²Department of Ophthalmology, University of Montreal, Montreal - Canada

Purpose: In case of surgical interventions for failed glaucoma drainage devices, tube shunt revision has been shown to be effective; however, the literature is limited to the short-term outcomes, up to 2-year follow-ups with varying success rates. We aimed to evaluate the long-term outcomes of tube shunt revision.

Methods: In this retrospective observational case series, 17 eyes underwent fibrotic capsule excision for uncontrolled glaucoma. Qualified success was defined as an IOP \leq 21 mmHg with or without medications. Changes in IOP and medications were evaluated using repeated measure ANOVA.

Results: 10 eyes were treated with excision and topical Mitomycin C (MMC) only, and 7 with MMC plus collagen matrix implant. The mean survival time for qualified success was 37.5 ± 5.7 months and the success rate was 59% at 3 years. Revision lead to a significant decrease in IOP (from 28.4 ± 6.6 mmHg to 15.1 ± 4.3) and medication score (from 3.6 ± 1.1 to 2.3 ± 1.4) at 3 years ($p = 0.000$). Outcomes and success were not significantly different across the two groups; though, tube erosion happened in 20% of the eyes in the MMC only group which required excision of the tube and plate.

Conclusion: Revision of a failed tube shunt surgery by excision of the encapsulated bleb has good long-term outcomes by reducing the IOP and number of medications at 3 years, and application of a collagen matrix implant can help prevent plate erosions.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.3

EFFICACY AND SAFETY OF ABiC IN PRIMARY OPEN ANGLE GLAUCOMA (POAG) OVER A 24-MONTH PERIOD

Mahmoud Khaimi¹

¹Dean McGee Eye Institute, University of Oklahoma, Oklahoma City - USA

Purpose: To investigate the efficacy and safety of ABiC alone and combined cataract surgery-ABiC in reducing IOP and medication use in mild to moderate POAG.

Methods: This was a single center, prospective, nonrandomized study. Primary endpoints were mean IOP and mean number of glaucoma medications.

Results: The study included 83 patients (mean age, 71.0 ± 10.2 years). In 26 patients who underwent standalone ABiC, mean IOP and medications were reduced respectively from 20.7 ± 5.9 mm Hg and 2.1 ± 1.0 preoperatively to 16.9 ± 3.3 mm Hg (18.4% reduction, $p = 0.002$) and 0.9 ± 0.9 (47.7% reduction, $p = 0.002$). In 57 patients who underwent combined cataract and ABiC, mean IOP and medications were reduced respectively from 17.9 ± 5.2 mmHg and 1.9 ± 0.9 preoperatively to 15.6 ± 2.2 mmHg (12.8% reduction, $p = 0.005$) and 0.4 ± 0.7 (83.1% reduction, $p < 0.001$). The percentage of patients with an IOP reduction greater than 20% was 14% and 39% at 18 and 24 months for standalone ABiC and 29% and 27% at 18 and 24 months for combined ABiC.

Conclusion: ABiC is an effective treatment option for POAG to both reduce IOP and eliminate medication. ABiC combined with cataract might further reduce glaucoma medications.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.4

OUTCOMES OF AHMED VALVE IMPLANTS IN CHILDHOOD GLAUCOMA AT A TERTIARY EYECARE CENTER IN THE MIDDLE EAST

Alaa Mofti¹, Amjaad Al-Harbi², Marya Alsuhaibani², Ahmed Aljaber³,
Lamees Altamimi⁴, Ibrahim Al-Jadaan⁵, Sameer Ahmad⁶, Rizwan Malik⁵

¹Department of Ophthalmology, King Abdulaziz Medical City, Jeddah - Saudi Arabia, ²Qassim University, Qassim - Saudi Arabia, ³College of Medicine, King Saud Bin Abdulaziz University for Health Science, Riyadh - Saudi Arabia, ⁴College of Medicine, King Saud University, Riyadh - Saudi Arabia, ⁵Glaucoma division, King Khalid Eye Specialist Hospital, Riyadh - Saudi Arabia, ⁶Glaucoma Consultants of Washington, Herndon - USA

Purpose: To describe the long-term outcomes of Valved-Glaucoma Drainage Devices (GDD) in children with glaucoma operated at KKESH.

Methods: A 10-year retrospective cohort review of Children with glaucoma, who underwent GDD implantation from 2005-2015. Those with trauma, Uveitis, insufficient post-op follow-ups, post combined procedures or previous GDD were excluded.

Results: A Total of 178 patients were included with a median age of 5.8 ± 5.5 years. The majority were diagnosed with PCG ($n = 125$). The pre-operative Mean IOP (SD) was 32 (8.1) mmHg. 1-yr, 4-yrs, 10-yrs qualified percentage survival estimates were 44%, 22% & 14%, respectively. Rate of intra-operative complications was 6% while post op complications occurred in 48.31%. $\approx 60\%$ of patients needed a subsequent intervention/s, but over a 10-year period, $> 80\%$ achieved an IOP ≤ 21 mmHg with medication.

Conclusion: Serious Intraoperative complications were low. Approximately $\frac{2}{3}$ of operated patients required subsequent intervention, but most achieved satisfactory IOP control long-term.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.5

THE SURGICAL OUTCOME OF GLAUCOMA DRAINAGE DEVICE IMPLANTS IN PEDIATRIC GLAUCOMA; A FOURTEEN-YEAR EXPERIENCE

Mansoureh Bagheri¹, Kamiar Mireskandari¹, Asim Ali¹, Nasrin Najm-Tehrani¹

¹Department of Ophthalmology and Vision Sciences, University of Toronto, Toronto - Canada

Purpose: To evaluate the outcomes of glaucoma drainage device (GDD) implantation in pediatric glaucoma.

Methods: This was a retrospective chart review of children under 18 with glaucoma, who underwent Ahmed or Baerveldt valve implantation from 2003 to 2017. Surgical success was defined as a final IOP of 5 to 21 mmHg or a 30% reduction from baseline IOP after 3 months, and no secondary glaucoma surgery, loss of light perception, or devastating complications. Kaplan-Meier survival analysis, paired t-test and Wilcoxon were used to analyze the data. A p-value of ≤ 0.05 was considered statistically significant.

Results: Forty-nine patients (63 eyes) and 11 patients (13 eyes) had undergone Ahmed and Baerveldt valve implantation, respectively. The mean age at the time of surgery was 7.85 ± 5.21 years and the mean follow up duration was 4.15 ± 3.02 years. The mean preoperative and postoperative IOP was 32.05 ± 6.81 mmHg and 17.76 ± 4.46 mmHg, respectively ($p < 0.0001$). The mean number of glaucoma medications decreased from 4.09 ± 1.17 to 2.42 ± 1.46 after the operation ($p < 0.0001$). The cumulative probability of success at 1, 2, 4, 5, and 9.5 years of follow up were 94.5%, 91.1%, 77.0%, 63.9%, and 59.9%, respectively.

Conclusion: In this study, GDD implantation effectively reduced IOP in pediatric patients with glaucoma. Control of IOP was achieved in 60% up to 9 years after surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.7

XEN-45 IMPLANT AS TREATMENT FOR UVEITIC HYPERTENSIVE CRISES

Amreen Qureshi¹, Leon Au¹, Nicholas Jones¹

¹Department of Ophthalmology, Manchester Royal Eye Hospital, manchester - United Kingdom

Purpose: Evaluate efficacy and safety of XEN-45 implant in uveitic glaucoma, including use as an emergency procedure.

Methods: Consecutive cases of 22 eyes with medically uncontrolled uveitic glaucoma receiving XEN-45 implant. Primary outcomes included VA, IOP, degree of inflammation and glaucoma medications. Data was collected preoperatively, 1 day, 1 week, 1, 3, 6 and 12 months postoperatively. Postoperative complications included hypotony and decompressive retinopathy. Subsequent glaucoma surgery, including bleb needling, was documented.

Results: Preoperatively all patients were on 3 or more ocular hypotensive medications, 77% of whom were on oral acetazolamide. 50% were on systemic immunosuppression and all on topical steroids. Mean preoperative IOP was 32.5 mmHg (\pm SD 8.9) on average 3.6 (\pm SD 0.59) drops. The median time from decision to Xen to actual surgery was 6 days (range 1 - 120). Mean postoperative IOP was 14.3 mmHg (\pm SD 4.9) with an average 0.68 (\pm SD 1.2) drops at last follow up representing a 55% drop in IOP and 81% reduction in glaucoma medication. Bleb needling was required in 4 eyes (18%). Symptomatic hypotony occurred in 4 eyes requiring further interventions. No decompressive retinopathy found. 3 eyes (14%) failed needing BVT.

Conclusion: XEN-45 implant is an effective treatment for hypertensive crises in uveitic patients offering dramatic IOP lowering without significant uveitic flare up. Needling rate appeared lower than in POAG but risk of hypotony is higher. Good immunosuppression is essential.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.8

EFFICACY AND SAFETY OF AB-INTERNO XEN GEL STENT FOLLOWING FAILED TRABECULECTOMY

Keith Martin¹, Ayesha Karimi², Marina Hopes³, Dan Lindfield²

¹Eye Department, Cambridge University Hospitals NHS Foundation Trust, Cambridge - United Kingdom, ²Department of Ophthalmology, Royal Surrey County Hospital, Guildford - United Kingdom, ³Department of Ophthalmology, Addenbrooke's University Hospital, Cambridge - United Kingdom

Aims: To assess the efficacy of Xen in reducing intraocular pressure (IOP) in eyes with previous failed trabeculectomies. To determine frequency of postoperative complications and explore further bleb management needed.

Methods: Retrospective case note review of all patients with prior trabeculectomy undergoing Xen implantation across five centres from August 2015 to May 2017.

Results: 17 surgeries of 16 patients were reviewed. IOP reduced from 21.5 (± 2.4)mmHg preoperatively to 8.9 (± 2.4)mmHg on Day 1 ($p < 0.0001$) and 13.6 (± 3.4) mmHg at Month 12 ($p < 0.05$). Medication usage reduced from 2.8 (± 0.6) preoperatively to 1.0 (± 1.3) at Month 12 ($p < 0.05$). Adverse events included: numerical hypotony i.e. IOP < 6 mmHg in 4 cases (23.5%) that resolved spontaneously; IOP spikes of ≥ 30 mmHg in 2 (11.8%) cases, secondary filtration surgery required in 2 (11.8%) cases and transient occlusion of the implant by iris in 1 (5.9%) case. 9 cases (52.9%) required postoperative bleb management, usually in the first month of surgery.

Conclusions: Xen reduces IOP and medications at 12 months in eyes with failed trabeculectomies. Detailed pre-operative conjunctival assessment and targeted placement is required. Adverse events are uncommon. Postoperative bleb intervention is higher and this could reflect more proactive bleb management from the surgeons. Prospective data and follow up beyond 12 months is required but Xen appears to be a viable, effective and safe option post failed trabeculectomy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP5.10

THE LONG-TERM OUTCOMES OF ENDOCYCLOPHOTOCOAGULATION (ECP) IN MODERATE AND ADVANCED GLAUCOMA

Abhijit Mohite¹, Sam Lee¹, Shashidhar Murthy¹, Shankar Ramanathan¹,
Patrick Corridan¹

¹Department of Ophthalmology, New Cross Hospital, Wolverhampton - United Kingdom

Purpose: To report real-world outcomes following ECP in eyes with moderate and advanced glaucoma.

Methods: Retrospective study of eyes undergoing ECP for glaucoma. Procedures were performed by one of three glaucoma surgeons between 2011 and 2016. Success was defined as either A) IOP \leq 18 or B) IOP \leq 15 mmHg with (qualified) or without medications (complete), and without requiring additional glaucoma interventions. Data were recorded at regular time intervals up until further intervention was deemed necessary.

Results: 60 eyes of 47 patients underwent ECP, either combined with phacoemulsification (91.7%) or stand-alone (8.3%). 65.0% had advanced or severe glaucoma, 21.7% had moderate and 13.3% had early glaucoma. Mean follow-up was 3.1 years (\pm 1.8). Eyes with POAG represented the majority (53.3%) of the cohort, followed by angle closure glaucoma (20.0%) and NTG (13.3%). Fifteen eyes (25.0%) had no prior glaucoma interventions. IOP reduced from 21.1 mmHg (\pm 8.4) pre-operatively to 16.1 mmHg (\pm 4.2) at 2 years. Number of glaucoma medications reduced from 3.1 (\pm 1.3) to 2.6 (\pm 1.3), with the proportion requiring oral acetazolamide reducing from 21.7% to 6.7% at 2 years. Mean visual acuities pre- and post-operatively were 0.72 (\pm 0.79) and 0.77 (\pm 1.09) logMAR at 2 years, respectively. Success (criteria A) was achieved in 81.1% (5.4% complete, 35.1% qualified). One eye (1.7%) with end stage glaucoma had 'wipeout' following phaco-ECP. There were no cases of hypotony or endophthalmitis.

Conclusion: ECP achieves reasonable medium-term control with a good safety profile for moderate and advanced glaucoma.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**WHY AND WHEN
TWO
free papers 6**



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.1

THE SPECTRUM REGISTRY: 12 AND 24 MONTH RESULTS FROM A GLOBAL REAL WORLD STUDY OF 2400 GLAUCOMA EYES TREATED WITH MICRO INVASIVE GLAUCOMA SURGERY USING THE HYDRUS® MICROSTENT

Antonio Fea¹, Laura Dallorto¹, Carlo Lavia¹

¹Dipartimento di Scienze Chirurgiche, Torino - Italy

Purpose: The purpose of the SPECTRUM registry is to collect and evaluate real world safety and effectiveness outcomes for all forms of glaucoma treated with the Hydrus Microstent (Ivan-tis, Irvine CA) either in combination with cataract surgery or as a standalone surgery. The size of the registry will allow for assessment of the use of the Hydrus in multiple clinical and geographic. Spectrum investigators include both glaucoma and cataract surgeons from clinics world wide.

Setting: The SPECTRUM registry has been conducted in 51 clinics located in 17 countries in Europe, North America, South America, the Middle East, and Asia/Pacific Rim. Over 60 surgeons are participating in the registry.

Methods: SPECTRUM is an open label registry including open and closed angle forms of glaucoma. Participating surgeons are required to enter all Hydrus cases performed at their site in the data base through a secure web portal. Data includes baseline demographic and ocular status, IOP, medication count, visual field mean deviation, and history of prior glaucoma or ocular surgeries. A follow-up visit was conducted between 1 and 3 months and repeated annually. IOP, medication, and adverse event outcomes were collected. 2495 eyes were registered between 2013-2017. Follow-up is complete in 62% at 12 months and 32% at 24 months.

Results: The predominant diagnosis is primary open angle glaucoma (71%). Average MD is -7.2 ± 9.1 dB. 73% of procedures were performed in combination with cataract surgery; 27% were performed standalone (SA). 9.2% of SA eyes had prior filtration surgery. The majority of SA were performed in pseudophakes (62%). In the combination group, IOP was reduced by 19.6% and 20.6% ($p < 0.05$) and medications were reduced 59.2% and 51.2% ($p < 0.05$) at 12 and 24 months. In the SA group, IOP was reduced by 22.2% and 23.8% ($p < 0.05$) and medications were reduced 40.9% and 34.3% ($p < 0.05$) at 12 and 24 months.

Conclusion: This large scale online multicenter global registry shows that the Hydrus MIGS device can be broadly used in different classes of glaucoma, either in combination with cataract surgery or as a standalone procedure. IOP and medication use is significantly reduced at 12 and 24 months in both types of procedure. Follow-up is ongoing.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.2

STANDALONE MIGS: 3 YEAR DATA FROM THE SYDNEY MULTICENTRE HYDRUS STUDY

Ashish Agar¹, Colin Clement², Andrew White³, Ridia Lim⁴

¹Prince of Wales Hospital, University of New South Wales; Sydney Eye Hospital, Marsden Eye Specialists, Sydney - Australia, ²Glaucoma Unit, Sydney Eye Hospital, University of Sydney; Eye Associates, Sydney - Australia, ³Westmead Hospital, University of Sydney; Millenium Institute, Sydney - Australia, ⁴Glaucoma Unit, Sydney Eye Hospital, University of Sydney; Hunter Eye Specialists, Sydney - Australia

Purpose: Although MIGS aqueous shunts offer new surgical options for glaucoma, the majority of procedures are adjunctive to cataract surgery. Theoretically their use as solo operations would be more important in managing IOP. We studied the use of the Hydrus Microstent (Ivantis, Inc.) as a standalone glaucoma operation by several surgeons in a 'real world' (unrestricted surgeon discretion and no exclusion) audit of procedures and outcomes up to 3 years.

Methods: Prospective assessment of all consecutive cases of standalone MIGS with this device by participating surgeons in the Sydney Multicentre Hydrus study. Data collected by review of medical records, operative notes and post-operative ocular examinations. Study centres included university teaching hospitals and ophthalmic day surgeries. All participating surgeons were fellowship trained glaucoma specialists.

Results: A total of 42 eyes were treated from 2014 to the present; POAG 85%, PXFG 8% and other 7%. Hydrus implantation was in pseudophakic (75%) and phakic patients (25%), with one unsuccessful implantation and no significant device related complications. A cohort of 24 patients reached 24 mo follow-up; average pre-op IOP 23 mmHg on 3.3 meds and post-op 16 mmHg on 2.2 meds. Ten patients reached 36 mo; average pre-op IOP 24 mmHg on 3.8 meds and post-op 15 mmHg on 2.8 meds.

Conclusion: The Hydrus Microstent reduced average IOP at 24 mo (30%) & 36 mo (38%), and average meds at 24 mo (36%) & 36 mo (26%). The procedure was safe and versatile as a standalone operation, without the need for concurrent cataract surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.3

PROSPECTIVE RANDOMIZED CONTROLLED PIVOTAL STUDY OF SECOND-GENERATION TRABECULAR MICRO- BYPASS STENTS IMPLANTED IN CONJUNCTION WITH CATARACT SURGERY

David Lubeck¹

¹University of Illinois Eye Center, Chicago - USA

Purpose: Evaluate the effectiveness and safety of the second-generation trabecular micro-bypass stents (iStent inject®) implanted in conjunction with cataract surgery compared to cataract surgery alone in subjects with mild to moderate OAG.

Methods: Two-year, prospective, multicenter, randomized US IDE pivotal trial that enrolled subjects at least 45 years with mild to moderate OAG. Subjects were on 1-3 medications with a cataract eligible for surgery and with post-washout baseline IOP of 21-36 mmHg in the study eye. Subjects were randomized to iStent inject + cataract surgery or cataract surgery alone. Subjects were followed out to 2 years with annual washouts. Key assessments included IOP, medication usage, ocular health and AEs.

Results: A total of 505 subjects were randomized. Subject accountability at Month 24 was 96%. At M24, 75.3% of iStent inject + cataract surgery subjects achieved $\geq 20\%$ reduction in unmedicated IOP compared to baseline vs. 61.9% in the cataract surgery alone group (difference = 13.4%; $p = 0.004$). A high safety profile was observed through 2 years.

Conclusion: The study met its effectiveness endpoints; more iStent inject subjects achieved clinically significant reduction in unmedicated IOP. An overall high safety profile was demonstrated and was similar to cataract surgery alone. Additional safety and effectiveness results will be presented during the presentation.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.4

MULTI-CENTER, MULTI-SURGEON, REAL-WORLD EXPERIENCE WITH SECOND-GENERATION TRABECULAR MICRO-BYPASS STENTS IN PATIENTS WITH GLAUCOMA

Colin Clement¹, David Manning², Frank Howes³, Michael Shiu⁴

¹Glaucoma Unit, Sydney Eye Hospital, Sydney - Australia, ²Hunter Eye Centre, Newcastle - Australia, ³Eye and Laser Centre, Gold Coast - Australia, ⁴Bayside Eye Specialists, Melbourne - Australia

Purpose: This study aimed to evaluate safety and IOP effects of 2 iStent inject[®] devices implanted in combination with cataract surgery in glaucoma patients.

Methods: This retrospective case study represents pooled data of 4 surgeons in Australia. The majority of patients had OAG; however, ocular hypertension and other glaucoma types were included. Key assessments included IOP, medication use, ocular health, complications and AEs.

Results: A total of 309 eyes were implanted with iStent inject without surgical complications. Although long-term follow-up is planned, this report includes outcome data of the 172 eyes that completed 1-year follow-up. Mean pre-op IOP was 18.5 ± 5.5 mmHg on 1.7 ± 1.2 medications. Mean IOP at 1 year post-op was 14.2 ± 3.0 mmHg on 0.6 ± 1.0 medications, representing a 23% and 65% reduction in IOP and medications, respectively. Two-thirds of eyes achieved a reduction in medication usage. No medications were required in 66% of eyes at 1 year, an improvement from 18% at pre-op. Overall the high safety profile observed was consistent with routine stand-alone cataract surgery.

Conclusion: Implantation of iStent inject in combination with cataract surgery resulted in meaningful IOP and medication reduction in this cohort of patients. This Australian study with iStent inject[®] corroborated previous published data of effectively utilizing the second-generation trabecular-bypass stents as an effective and safe therapeutic intervention for glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.5

5-YEAR OUTCOMES OF A PROSPECTIVE STUDY OF TWO TRABECULAR MICRO-BYPASS STENTS COMPARED TO PROSTAGLANDIN IN NEWLY DIAGNOSED OPEN-ANGLE GLAUCOMA

Albert Khouri¹

¹Institute of Ophthalmology & Visual Science, Rutgers New Jersey Medical School, Newark, NJ - USA

Purpose: This study aimed to evaluate long-term safety and effectiveness of two trabecular micro-bypass stents (iStent®) as an initial standalone surgical procedure compared to initial medical therapy (travoprost) in subjects with newly diagnosed OAG.

Methods: This 5-year prospective, randomized, unmasked study enrolled subjects with OAG naïve to medical and surgical treatment. Enrolled eyes were phakic with normal angle anatomy having IOP 21-40 mmHg and vertical C/D ratio ≤ 0.9 . One-hundred one subjects were randomized (1:1) to implantation of 2 iStent devices ($n = 54$) or travoprost ($n = 47$). Ninety subjects completed 5-year follow-ups. Efficacy and safety measures were evaluated.

Results: Mean pretreatment IOP was 25.5 ± 2.5 mmHg (iStent group) and 25.1 ± 4.6 mmHg (travoprost group). Mean IOP through 5 years ranged between 13.5 to 16.5 mmHg in both groups. IOP ≤ 18 mmHg without additional therapy was reported in 77% of iStent versus 53% of travoprost eyes at 5 years. An excellent safety profile was observed in both groups. The most common event occurring over the 5-year period was progression of pre-existing cataract (~30% incidence in either group). Additional outcomes will be presented.

Conclusion: In this study, both groups showed long-term IOP reduction with favorable safety over 5 years. IOP ≤ 18 mmHg was achieved in more iStent eyes. The study supports efficacy of 2 iStent implantations as an initial therapy for patients newly diagnosed with OAG.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.6

MIGS WITH 2ND GENERATION TRABECULAR MICRO-BYPASS STENTS IN OAG EYES ON ONE PREOPERATIVE MEDICATION: 42-MONTH OUTCOMES

Sébastien Gagné¹

¹Department of Ophthalmologie, Université de Montréal, Montreal - Canada

Purpose: Evaluate long-term safety and IOP-lowering effects of 2nd generation trabecular micro-bypass stents (iStent inject[®]) implanted as a standalone procedure in subjects with OAG not controlled on one medication.

Methods: Prospective, single-arm study that enrolled 57 subjects with OAG not controlled on a single medication; preoperative medicated IOP 18-30 mmHg and 22-28 mmHg after medication washout. All subjects underwent uncomplicated implantation of 2 iStent inject stents as a standalone procedure. Assessments performed over the course of the study included IOP, medication burden, AEs, VA, slit-lamp, gonioscopy, and fundus/nerve.

Results: All 57 subjects completed 42 months of follow-up. Preoperative medicated mean IOP was 19.5 ± 1.5 mmHg and post-washout IOP was 24.4 ± 1.3 mmHg. Postoperative mean IOP was ≤ 14.6 mmHg at all study visits through 42 months. At 36 months postoperative, 95% of eyes achieved both a mean IOP ≤ 18 mmHg and IOP reduction of $\geq 20\%$ on no medication compared to pre-op unmedicated IOP. All but 3 subjects remained medication-free. Post-op safety was excellent with only 2 AEs noted. One subject underwent trabeculectomy for elevated IOP and the other reported progression of pre-existing cataract; both were unrelated to stent implantation.

Conclusion: This study demonstrates safe and sustained reduction of IOP to ≤ 15 mmHg with elimination of medication out to 42 months in eyes with OAG following implantation of iStent inject. This microinvasive technique may constitute a desirable alternative for patients with mild-moderate glaucoma and adds to the physicians' armamentarium of treatments.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.7

A UK COST ANALYSIS OF TRABECULAR MICRO-BYPASS STENTS IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA FROM AN NHS COMMISSIONER PERSPECTIVE

Keith Barton¹, Tim Jones², Heather Falvey³, Mary Cantu³, Leon Au⁴

¹Moorfields Eye Hospital NHS Foundation Trust, London - United Kingdom, ²HealthDynamix, Thame, Oxfordshire - United Kingdom, ³Glaukos, San Clemente - USA, ⁴Central Manchester University Hospitals NHS Foundation Trust, Manchester - United Kingdom

Purpose: To compare current pathway costs to an iStent inject pathway for treatment of primary open angle glaucoma (POAG) in combination with cataract surgery in the UK.

Methods: A cost model was designed to compare costs and resources utilised in the current pathway to a pathway including iStent inject to show overall impact to the NHS over 3 years. Medication use was identified from randomised controlled trial (RCT) data. Market forces factor of 1.264 was applied to activities for which national tariff price exists.

Results: For every 1,000 patients expected to undergo cataract surgery, it's estimated that 150 have comorbid POAG. RCT data showed a relative reduction of 0.4 medications/patient usage favouring iStent inject. Payor costs in current pathway at Year 1 was £245,305 and £237,383 in iStent inject pathway, a difference of £7,923. Current pathway costs at Year 3 were £753,349 and £729,018 in iStent inject pathway, a difference of £24,331, or 3.2%.

Conclusions: Overall results favour the iStent inject pathway due to reduced POAG related health resource use, leading to direct savings to payors, primarily from follow-up visits and medication usage. The benefit to commissioners is the difference in costs of activities under the current pathway compared to activities where a proportion of patients follow the iStent inject pathway.



September 6-8 2018 | Montreal, Canada

ICGS 2018

FP6.8

FP8 AHMED VALVES IN PATIENTS OLDER THAN 85

Paul Crichton¹, Andrew Crichton¹, Emi Sanders¹

¹University Of Calgary, Calgary - Canada

Purpose: To evaluate the efficacy and safety of the FP8 (pediatric) Ahmed Valve in patients over the age of 85
Methods: Retrospective chart analysis of all individuals greater than age 85 who underwent implantation of the FP8 Ahmed Valve by a single surgeon between 2011 and 2017.

Results: 52 eyes in 51 patients had implantation of which 33 patients were female and 18 male. The age range for implantation was between 85 and 97 years of age. Mean Pre-Op IOP was 25.20 mmHg and the mean number of glaucoma medications was 3.26. At 3 months post procedure (n = 49) the mean IOP was 17.33 mmHg and the mean number of glaucoma medications was 1.35. At 6 months (n = 43) the mean IOP was 17.42 mmHg and the mean number of glaucoma medications was 1.81. At 2 years (n = 27) the mean IOP was 14.44 and the mean number of glaucoma medications was 1.89.

Conclusion: The FP8 Ahmed Valve is effective in reducing the IOP and number of glaucoma medications in the majority of patients over the age of 85.

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

VIDEOS



September 6-8 2018 | Montreal, Canada

ICGS 2018

V01

CHALLENGES AND THEIR MANAGEMENT DURING PEDIATRIC SCHLEMM'S CANAL SURGERY

Zeynep Aktas¹

¹Gazi University Faculty of Medicine, Dept of Ophthalmology, Ankara - Turkey

Purpose: With this video presentation, difficulties in pediatric Schlemm's canal (SC) surgeries and practical solutions are aimed to be emphasized.

Methods: Case presented in the video was 20 days infant diagnosed with primary congenital glaucoma with a bilateral 40 mmHg intraocular pressures measured under the general anesthesia. Corneal diameters were measured as 12x12.5 mm bilaterally and corneal edema was significant.

Results: Circumferential trabeculotomy was chosen as a surgical method. Scleral radial incision was made without flap dissection and SC was found. 6-0 prolene suture was introduced into SC and distal tip was advanced but did not reach the ostium. As an alternative method, proximal suture tip was introduced into anterior chamber, and pulled to perform trabeculotomy up to where distal suture tip got stuck in the SC. 270 degree trabeculotomy was performed this way. Then 3 clock hour trabeculotomy was performed with Harms trabeculotome in the superonasal quadrant so that trabeculotomy was completed circumferentially.

Conclusion: Pediatric SC surgery might be challenging. Different surgical methods might be combined to overcome these challenges.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V02

**HYPERTROPHIC DYSAESTHETIC BLEB FOLLOWING
AB-INTERNO XEN GEL STENT GLAUCOMA SURGERY:
MANAGEMENT AND 'SWITCH AND STITCH' REVISION
SURGERY**

Dan Lindfield¹, Ayesha Karimi¹

¹Department of Ophthalmology, Royal Surrey County Hospital, Guildford - United Kingdom

Aims: To assess frequency of hypertrophic dysaesthetic blebs following ab-interno Xen gel stent surgery. To determine frequency of postoperative intervention.

Methods: Retrospective case note review of all patients undergoing Xen implantation across four centres from August 2015 to May 2017.

Results: 259 surgeries of 226 patients were reviewed. 6 cases (2.3%) developed large hypertrophic blebs. We describe a stepwise approach of observation, slit lamp lancing, bandage contact lens compression and a novel 'Switch and Stitch' revision surgery.

Conclusion: Bleb dysaesthesia may be more common following ab-interno Xen gel stent than other filtration surgery, especially if stent exit is nasal and bleb tissue is present in the interpalpebral aperture.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V03

RESCUE OPERATIONS AFTER GLAUCOMA FILTERING SURGERY

Arjun Desai¹, Jyoti Shakrawal¹, Ashwini Behera¹, Talvir Sidhu¹, Tanuj Dada¹

¹Dr Rajendra Prasad Institute of Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi - India

Purpose: The use of anti-metabolites as an adjunct to conventional trabeculectomy has resulted in long term post-operative success. The cytotoxic effect from these drugs however, can lead to an over-filtering bleb or areas of scleral necrosis or ectasia, which can result in delayed post-operative hypotony. Such complications of surgery warrant urgent management. We aim to demonstrate some of the surgical options available to the glaucoma surgeon to manage this increasingly occurring long term complication.

Methods: We describe the following techniques practiced at our center: 1. Surgical management of over-filtering and over-hanging blebs - bleb revision surgery. 2. Ologen patch repair for thin sclera post trabeculectomy 3. Maumenee's repair of scleral flap necrosis 4. Cadaveric scleral patch repair in a unique case of large ciliary staphyloma.

Results: The techniques apart from being efficient, are useful to the ophthalmic surgeon and can be practiced in even the most basic surgical set ups.

Conclusion: This serves to be a video based surgical demonstration to aid a glaucoma surgeon to better plan the course of surgery in complicated trabeculectomy surgery. The same clinical problem can be addressed with one of the multiple available surgical options best suited to the case.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V04

OMNI – A NEW SURGICAL TECHNIQUE FOR GLAUCOMA TREATMENT

Ioan Alexandru Placinta¹, Jorge Vila Arteaga¹, Clara Martínez Rubio¹,
Paula Martínez López-Corell¹, Rodrigo Molina Pallete¹, Ingrid Kane²

¹University and Polytechnic Hospital la Fe, Valencia - Spain, ²Sight Sciences, Menlo Park, California - USA

Purpose: This video presentation illustrates the OMNI surgical procedure.

Methods: Video recording of OMNI surgical technique.

Results: OMNI combines two glaucoma surgical procedures, using a single device and a single corneal clear incision. A 360-degree viscodilation of Schlemm's canal, followed by transluminal trabeculotomy, is performed under gonioscopic guidance. After a temporal clear corneal incision, the anterior chamber is pressurized with cohesive viscoelastic. Under a gonioscopic view, the OMNI device tip is inserted into the anterior chamber. The cannula tip of the OMNI device opens Schlemm's canal and the catheter is inserted into nasal part of Schlemm's canal and advanced along the inferior hemisphere 180°. The catheter is then retracted. During retraction, a cohesive viscoelastic is injected in order to viscodilate Schlemm's canal and collector channels. This procedure is repeated in the superior hemisphere 180°. After viscodilation is finished in the superior hemisphere the catheter is advanced again 180° degrees in the same superior hemisphere. At this point, the entire device is retracted from the anterior chamber in order to create a trabeculotomy across Schlemm's canal. This trabeculotomy procedure is then repeated at the inferior hemisphere 180°.

Conclusions: Using an ab-interno approach through a small corneal clear incision, and combining viscodilation and trabeculotomy, the OMNI device successfully addresses all 3 areas of outflow resistance: the trabecular meshwork, Schlemm's canal and distal collector channels in order to reduce IOP.

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

V05

BENT AB INTERNO NEEDLE GONIECTOMY

Arsham Sheybani¹

¹*Washington University School of Medicine in St. Louis, St. Louis - USA*

Bent Ab Interno Needle Goniectomy (BANG) can be performed to remove a sample of trabecular meshwork for research as well as for a therapeutic goniectomy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V06

GONIOSCOPY ASSISTED TRANSLUMINAL TRABECULOTOMY IN A CASE WITH JUVENILE GLAUCOMA WITH SCLERAL THINNING

Zeynep Aktas¹, Ozcan Ocakoglu²

¹Gazi University Faculty of Medicine, Dept of Ophthalmology, Ankara - Turkey, ²Istanbul University, Cerrahpasa Faculty of Medicine, Dept of Ophthalmology, Istanbul - Turkey

Purpose: Challenges of GATT surgery in juvenile glaucoma patients with ground glass appearance of the angle and high iris insertion are aimed to be emphasized.

Methods: This case was 14 years old male patient with a refractory glaucoma in both eyes. His left eye had a history of trabeculectomy then Ahmed glaucoma valve (AGV) implantation and a scleral thinning of unknown etiology. Shortly after the AGV implantation, hypotonia had occurred, tube ligation and then extraction had been performed finally. Since he had a history of scleral thinning and related complications after filtering surgery and AGV implantation on the left eye, he was referred to our clinic for GATT surgery for the treatment of right eye this time. Intraocular pressure was 20 mmHg in the left eye with brinzolamide/brimonidine tartrate fixed combination and visual acuity (VA) was 20/200. However, IOP was 45 mmHg in the right eye with maximum tolerated medical therapy and VA was 20/20.

Results: 6-0 prolene suture is used for suture GATT surgery. After the successful surgery, in this case, IOP in the right eye was 13 with brinzolamide/brimonidine tartrate fixed combination treatment.

Conclusion: GATT surgery might be challenging in juvenile glaucoma. GATT might be an option in juvenile patients with scleral problems and a history of complicated filtering and tube surgeries.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V07

WHAT TO DO WHEN THE SUTURE STOPS DURING PROLENE GATT (GONIOSCOPY ASSISTED TRANSLUMINAL TRABECULOTOMY)

Zeynep Aktas¹

¹Gazi University Faculty of Medicine, Dept of Ophthalmology, Ankara - Turkey

Purpose: Some important tips and tricks are emphasized to demonstrate what to do when suture stops in Schlemm's canal (SC) during gonioscopy assisted transluminal trabeculotomy (GATT) surgery.

Methods: 60 years old case with a pseudoexfoliative glaucoma and a previous history of failed filtering surgery has been presented in the video.

Results: Gonioscopy assisted transluminal trabeculotomy (GATT) with 6-0 prolene suture was performed in this case. After the introduction of the suture into the Schlemm's canal (SC), suture stopped somewhere in the SC. Since the blunted tip of the prolene suture got stuck in the SC, proximal end of the suture was pulled in appropriate direction to do trabeculotomy up to the point where it stopped instead of pulling it back. Then goniotomy was performed with MVR blade in the superonasal quadrant to complete circumferential trabeculotomy.

Conclusion: When the suture stops in SC during GATT surgery, it is possible to make trabeculotomy circumferential, combining new and conventional trabeculotomy techniques.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V08

INNOVATIONS IN TRABECULECTOMY

Meghal Gagrani¹, Talvir Sidhu¹, Jyoti Shakrawal¹, Aswini Behera¹, Tanuj Dada¹

¹Dr R.P. Centre for Ophthalmic Sciences, New Delhi - India

Purpose: Surgical innovations to enhance outcomes of glaucoma filtering surgery.

Methods: We describe 5 different techniques developed at our center for improving outcomes of trabeculectomy and restoring function of failing filters. 1. Trabeculectomy enhanced with cyclodialysis and a spacer implant at three sites. 2. Use of 24 G intravenous cannula as a low cost stent for filtering surgery. 3. Conjunctival rotation pedicle flap and lamellar scleral flap for management of hypotony maculopathy. 4. Intraoperative OCT (iOCT) guided bleb needling done for failing filtering blebs. 5. Bleb needling combined with subconjunctival biodegradable collagen implantation using an IOL injector system.

Results: This will be a video assisted educational training on small innovations trabeculectomy surgery along with peri-operative anterior segment imaging and anterior segment OCT documentation which can be used to enhance success of trabeculectomy surgery.

Conclusion: These techniques are effective, economical and safe options to achieve target IOP and minimize complications in trabeculectomy and especially relevant to developing countries where expensive surgical devices/implants are not available.

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

V09

END STAGE/ ADVANCED GLAUCOMA WITH FAILED SURGERY: A SHORT CASE SERIES OF OUR APPROACH

Lalit Tejwani¹, Reetika Sharma²

¹ASG Eye Hospitals, Jodhpur - India, ²ASG Eye Hospitals, Patna - India

Purpose: End stage glaucoma/ advanced glaucoma is not uncommon scenario in a tertiary speciality ophthalmology set up, with such cases being already having operated trabeculectomy. We present our approach to such cases.

Methodology: Twenty one eyes, all of which were failed trabeculectomy and were on topical antiglaucoma medications, along with most on systemic medications when on presentation to us, were treated with retractorabeculectomy with mitomycin C (MMC) with collagen implant, with higher contact time for MMC (0.04% for 4 mins).

Results: Twenty one eyes of 21 patients, age range 8 yrs to 78 yrs were included in the study. MMC and ologen matrix implant was used in all cases, bevacuzimab was used to soak implant in 11 eyes. In seven eyes, phacotrabeulectomy was done. Follow up was from 10 months to 52 months. Two cases failed – both JOAG, one had been operated thrice, age 8 yrs, with IOP on presentation was over 40 on topical and systemic medications, other being 40 yrs, JOAG case operate twice, with IOP high on systemic and topical. In 19 eyes, we were able to maintain vision, and keep IOP under 12 mmHg, till the last follow up.

Conclusion: Using collagen matrix implant with high contact time of MMC along with anti-VEGF to soak matrix, for local regulation of fibrosis, collagen modulation and angiogenic modulation can play an important role in advanced glaucoma cases, specially with failed surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

V10

INTRAVITREAL GAS INJECTION WITH AHMED'S VALVE IMPLANTATION IN PREVENTION OF SUPRACHOROIDAL HAEMORRHAGE IN APHAKIC ANIRIDIC VITRECTOMIZED GLAUCOMATOUS EYES: A PILOT STUDY

Heba El-Saied¹, Abdussalam Abdullatif¹

¹Ophthalmology Department, Cairo University, Cairo - Egypt

Purpose: We aimed to assess the value of intravitreal injection of non expansile SF₆ 20% in the prevention of suprachoroidal haemorrhage (SCH) after Ahmed's valve implantation for the treatment of secondary glaucoma in vitrectomized, aphakic, and aniridic eyes following blunt trauma.

Methods: This is a case series of 6 patients presented with traumatic secondary glaucoma in vitrectomized aphakic aniridic eyes. Vitrectomy was done to all eyes after the trauma for the treatment of the vitreous hemorrhage. Ahmed's valve implantation with complete filling of the vitreous cavity with non expansile SF₆ was done 4 ± 0.2 months after vitrectomy.

Results: In spite of the multiple risk factors present in our patients in the form of aphakia, vitrectomized eyes and aniridia, no patient developed postoperative hypotony or suprachoroidal hemorrhage during the postoperative period. The gas was absorbed over two weeks and IOP was maintained during the early postoperative period. Mean postoperative IOP was 15.2 ± 1.09 , 12.2 ± 1.09 , 18.4 ± 7.12 , 15.2 ± 2.28 , 14.8 ± 1.09 mmHg at 1 day, 1 week, 1 month, three months and six months respectively. The final postoperative BCVA was 0.66 ± 0.13 .

Conclusion: Complete filling of the vitreous cavity with non expansile gas can prevent postoperative suprachoroidal haemorrhage after Ahmed's valve implantation in treatment of secondary glaucoma in vitrectomized, aphakic and aniridic eyes.



September 6-8 2018 | Montreal, Canada

ICGS 2018

VII

NOVEL USE OF MATERIALS IN COST-EFFECTIVE DRY LAB MODEL CONSTRUCTION FOR OPHTHALMIC SURGERY

Yih-Horng Tham¹, Miles Parnell², Mohammed Abubakra², James McHugh²,
Gerassimos Lascaratos², Sophie Jones², Emma Hollick², Dominic McHugh²,
Avinash Kulkarni²

¹Moorfields, London - United Kingdom, ²King's College London, London - United Kingdom

Introduction: Modern dry lab models are expensive and yet the demand for training in a non-patient-threatening environment continues to mount.

Purpose: To determine the feasibility of creating an ultra low cost, low waste, re-usable, low carbon footprint solution. To construct a dry lab model that satisfied the below requisites for < £10.00 (excluding consumables eg.sutures) for practising suturing techniques in glaucoma, corneal, strabismus and oculoplastic scenarios.

Patients and Methods: The materials sourced were from readily available online websites were tested for the following:

- Economy
- Re-usability
- Ease of availability and acquisition
- Sustainability of availability
- Approximation to ocular tissue
- Can the model be used at home.

Results: The cost of the each model was £5.03. The techniques that could be simulated were as follows (not exhaustive):

- Lid laceration repair and horizontal lid shortening procedures
- Tarsorrhaphy
- Lateral canthotomy and cantholysis
- Lateral tarsal strip
- Penetrating keratoplasty suturing
- Trabeculectomy flap construction
- Trabeculectomy flap suturing
- Recess-resect strabismus procedures.
- Extra-ocular muscle transposition and re-attachment

Conclusion: The models received excellent feedback by trainees and consultants alike. Both models were successfully used under office and surgical microscope conditions, indicating the feasibility for home use. An experiment of repeated use of the models yielded an improvement in surgical speed by 25% after just 3 attempts. Simulation at home may provide a more effective and accessible alternative to simulation courses.

(2123)



September 6-8 2018 | Montreal, Canada

ICGS 2018

VI2

IRIDO-ZONULO-HYALOIDO-VITRECTOMY DECODED

Vanita Pathak Ray¹, Isha Gulati², Divya Rao², Varun Malhotra¹

¹Centre for Sight, Hyderabad - India, ²VST Centre for Glaucoma, Hyderabad - India

Purpose: To demonstrate the reversal of Aqueous Misdirection by the technique of Iridio-Zonulo-Hyaloido-Vitrectomy (IZHV) performed by an anterior segment surgeon, through various routes – corneal, ostial and pars plana, using anterior vitrector.

Methods: Aqueous misdirection is a serious, though rare complication, usually of interventional surgery and up until recently required the expertise of a posterior segment surgeon for resolution, in cases where surgical intervention was indicated. However, recurrence following pars plana vitrectomy is not uncommon and may be an indicator of incomplete hyaloidectomy. A relatively new technique (IZHV) will be demonstrated with specific cases, to emphasize the simplicity and ease of the technique, being performed by a glaucoma specialist, eliminating need for skilled, specialized and costly surgery. The procedure is undertaken with an anterior vitrector, utilizing either a corneal, ostial or pars plana route.

Results: In all cases demonstrated, successful reversal occurred per-operatively with deep AC and soft eye. Post-operatively there was good control of IOP without need for anti-glaucoma medication. No recurrence was seen in the follow-up period of more than 1 year. We did not encounter any serious complications.

Conclusion: IZHV can be successfully utilised by the anterior segment surgeon for resolution of AM, through various incisional routes with an anterior vitrector, thereby reducing burden on the resources and skills required in a vitreo-retinal procedure.



September 6-8 2018 | Montreal, Canada

ICGS 2018

VI3

BILATERAL TOTAL IRIS ATROPHY AND REFRACTORY GLAUCOMA FOLLOWING COSMETIC ARTIFICIAL IRIS IMPLANTS

Wisam Shihadeh¹, Mohammed Bilal²

¹Department of Ophthalmology, YU JUST - Jordan, ²Department of Ophthalmology, Middle East Hospital Amman - Jordan

Case report

A thirty-eight-year-old Jordanian lady presented with a 2-week history of bilateral progressive visual loss. Her past ophthalmic history is significant for cosmetic iris implant bilaterally (BrightOcular®) 3 years prior to consulting us. Her intraocular pressure (IOP) was reported to have had been 60 mmHg OD and 38 mmHg OS. She had undergone an unsuccessful attempt to remove the prosthesis OD, also an Ahmed glaucoma valve (AGV) has been implanted OD less than 1 week prior to her visit to us.

On presentation, her best corrected visual acuity was 6/40 OD and 6/9 OS. IOP was 5 mmHg OD and 17 mmHg OS. The cornea was diffusely edematous OU. The light-blue iris prostheses were in situ OU with a small vertical inferior crack OD. No visible iris tissue was visible from behind the prosthesis except for some black-colored wide peripheral scattered anterior synechiae (PAS). The lens showed 1+ cortical cataractous spokes OU.

Gonioscopy showed no visible angle structures 360° with scattered PAS. The cup-to-disc ratio of 0.8 OD and 0.5. The retina exam was unremarkable OU.

Endothelial cell count was 832 OD 638 OS. Retinal nerve fiber layer (RNFL OCT) showed diffuse moderate thinning OD and superior and inferior moderate thinning OS.

Under general anesthesia, both implants were explanted through a temporal corneal wound OU (Video). For our surprise, we found no remnants of her natural iris tissue under the prosthesis. IOP spiked up again postoperatively for which she underwent micropulse diode laser in both eyes.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

POSTERS

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

CATARACT AND GLAUCOMA SURGERY



September 6-8 2018 | Montreal, Canada

ICGS 2018

P02

EVALUATION OF THE EFFICACY AND SAFETY OF COMBINED PHACOTRABECULECTOMY SURGERY IN NON-CONTROLLED PRIMARY OPEN-ANGLE GLAUCOMA ASSOCIATED WITH CATARACT

Acheli Asma¹, Mohamed Tahar Nouri¹

¹Department of Ophthalmology, University Medical Center of Benmessous, Algiers - Algeria

Purpose: To evaluate the short-term outcome of phaco-mini-trabeculectomy at two sites with fornix-based conjunctival flap and adjustable scleral sutures.

Material and Method: A prospective study of a cohort of 114 eyes of 76 patients, operated between 2012-2015 by a combined procedure and monitored for one year. The patients had a mean age of 67.47 years. The surgery was augmented by Mitomycin C in 47 eyes or (41.22%). The number of sutures on the scleral flap were adjusted according to filtration.

Results: The patients had a mean age of 67.47 years. The mean preoperative IOP was 21.45 ± 5.17 mmHg, the number of antiglaucoma drugs was 2.97 ± 0.56 / eye. After a follow-up of 12 months, the mean IOP was 11.96 ± 2.013 mmHg with antiglaucoma of 0.22 ± 0.56 . The average follow-up was 19.03 ± 9.47 months. Visual acuity has been improved by 12.7 lines. Intraoperative complications were dominated by complications related to phacoemulsification such as vitreous loss (10.5%), choroidal hematoma (0.9%). Early complications were 48 Seidels (42.1%), 7 hypothalamies (6.1%), 2 choroidal detachments (1.8%), 30 hyphema (26%), and 1% iris incarceration (0.9%). The late complications were 47 cases of fibrosis of the bubble.

Conclusion: Our study demonstrates the effectiveness of this phacotrabeculectomy technique on IOP control and improvement of visual acuity, with a low incidence of complications compared with classical phacotrabeculectomy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P03

OUTCOMES AFTER COMBINED PHACOEMULSIFICATION AND YAG-LASER ACTIVATION OF TRABECULA (YAG-LAT) IN CONTROLLED OPEN-ANGLE GLAUCOMA

Tatiana Sokolovskaya¹, Dzhavid Magaramov¹, Viktoriya Teplovodskaya¹,
Valeriya Yashina¹

¹The S. Fyodorov Eye Microsurgery Federal State Institution, Moscow - Russia

At present, combined surgical interventions for complicated cataract and primary open-angle glaucoma (POAG) become widespread. The application of YAG-laser activation of trabecula (YAG-LAT, Magaramov D.A, Doga A.V., 2005) in combination with cataract surgery.

Purpose: To study the effect of combined phacoemulsification and YAG-LAT on intraocular pressure (IOP) and medication use in POAG patients.

Methods: Treatment outcomes analyzed included IOP, medication use, and corrected distance visual acuity (CDVA). Treatment success was defined as a 20% or more IOP reduction or discontinuation of at least 1 medication. The first step was YAG-LAT (Nd-YAG laser, 1064 nm, 0.8-1.2 MJ, 30NS pulse duration, 10-15 μ m - a spot diameter, 55-70 pulses in the circle). The second step – cataract phacoemulsification was carried out 30-60 minutes later.

Results: Twenty-eight eyes of 28 patients were included in the analysis. At 1 year, the mean IOP was significantly reduced from 23.7 ± 2.6 mm Hg (SD) to 16.1 ± 2.5 mm Hg ($p < 0.01$), the mean medication use decreased from 1.7 ± 0.63 to 1.1 ± 0.41 ($p < 0.01$). Treatment success at 1 year was achieved in 96.4% of patients, 21.4% of patients were medication free at 1 year. The CDVA was improved from 0.3 ± 0.1 , at baseline to 0.8 ± 0.2 at 1 year ($p < .0001$).

Conclusion: Combined phacoemulsification and YAG-LAT was statistically effective in reducing IOP and/or medication burden in POAG patients.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P04

MALIGNANT GLAUCOMA DURING FEMTOSECOND LASER ASSISTED CATARACT SURGERY

Ju-Chuan Cheng¹, Ming-Hsuan Chiang¹, Chien-Liang Wu¹

¹Department of Ophthalmology, Wanfang Hospital, Taipei City - Taiwan

Purpose: Intraoperative malignant glaucoma or aqueous misdirection syndrome is a rare condition during cataract surgery. There is no previous report of the occurrence during femtosecond laser assisted cataract surgery. We report a case of intraoperative malignant glaucoma during femtosecond laser assisted cataract surgery.

Methods: Case report.

Results: An 84-year-old female underwent cataract surgery using LensAR femtosecond laser system and Alcon Infiniti Vision System on Jan.9, 2018. After femtosecond laser capsulotomy and lens fragmentation, the nucleus was emulsified and removed successfully. Sudden onset of anterior chamber flattening was encountered and intraocular pressure elevated with iris prolapsed and viscoelastic material extruded during infusion and aspiration removal of cortical material. Dry aspiration with 23G needle through pars plana was performed first with inadequate response. Anterior vitrectomy with 20G vitrectomy probe followed by viscoelastic injection successfully restored the anterior chamber and the intraocular lens was implanted in the capsular bag. The postoperative IOP (intraocular pressure) was normal with normal chamber depth.

Conclusion: Malignant glaucoma may occur during femtosecond laser assisted cataract surgery. Pars plans vitrectomy is effective management for this rare complication.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P05

LONG-TERM SAFETY AND EFFECTIVENESS OF ONE, TWO, OR THREE TRABECULAR MICRO-BYPASS STENTS AS TREATMENT FOR OAG: 54 MONTH OUTCOMES

Arsham Sheybani¹

¹Washington University School of Medicine in St. Louis, Creve Coeur - USA

Purpose: To evaluate safety and effectiveness of 1, 2, or 3 trabecular micro-bypass stents (iStent®) implanted as a standalone procedure in OAG.

Methods: This prospective, randomized study enrolled subjects with OAG on 1-3 ocular hypotensive medication(s) with preoperative medicated IOP 18-30 mmHg and unmedicated IOP 22-38 mmHg following washout. Subjects were randomized (1:1:1) to 1 stent (n = 38), 2 stents (n = 41), or 3 stents (n = 40) implanted as a standalone procedure. IOP, medication burden, ocular health, and AEs were assessed. Annual medication washouts were performed to assess unmedicated IOP.

Results: Preoperative mean medicated IOP (19.8 ± 1.3 mmHg on 1.7 ± 0.6 meds, 20.1 ± 1.6 on 1.8 ± 0.5 meds, 20.4 ± 1.8 on 1.5 ± 0.7 meds) and post-washout IOP (25.0, 25.0, 24.9 mmHg) were similar amongst the 1-, 2-, and 3-stent groups, respectively. At all postoperative visits through 54 months, mean medicated IOP was ≤ 17.1 mmHg for all groups. More eyes in the multiple stents groups remained medication-free; medication was added to manage elevated IOP in more 1-stent eyes (21 eyes) vs. the 2- and 3- stent eyes (4 and 3 eyes, respectively). Safety was favorable with no operative complications.

Conclusion: Outcomes through 54 months following single- or multiple-stent implantation as a standalone procedure demonstrated substantial IOP reduction, reduced medication burden, and an overall favorable safety profile in patients with OAG. The study demonstrated incrementally greater IOP reduction with more eyes remaining medication-free in the multiple-stents groups.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P08

INTERMEDIATE RESULTS OF A NEW TWIN SITE PHACO-TRABECULECTOMY

Divya Rao¹, Vani Puri², Vanita Pathak Ray³

¹VST Centre for Glaucoma, Hyderabad - India, ²Department of Ophthalmology, Goa - India, ³Centre for Sight, Hyderabad - India

Aim: To report the efficacy and safety of a new modified fornix-based separate-site phaco-trabeculectomy in the intermediate term.

Methods: Retrospective chart review of consecutive subjects who underwent combined separate-site phaco-trabeculectomy with mitomycin C, via a modified fornix-based conjunctival incision, by a single fellowship-trained surgeon, between April 2011 to March 2017. In this new separate-site technique, both phaco and filtration are accommodated superiorly, hence called twin-site. All secondary glaucomas other than pseudoexfoliation and angle-recession were excluded. Primary outcome measure: IOP [complete success - IOP > 5 and \leq 18 mmHg without anti-glaucoma medications (AGM); qualified success - with AGM]. Failure to meet above and/or requirement for reoperation (trabeculectomy, GDD or trans-scleral diode laser) was defined as failure. Secondary outcome measure was number of AGM, best corrected visual acuity (BCVA), complications.

Results: 126 of 139 eyes met the study criteria and were included. Mean age was 61 years (SD 9.7); follow up 21.8 months (SD 18.3). Both IOP and requirement for AGM was significantly reduced ($p < 0.001$) when compared to pre-surgery. Total success was seen in 92.8% eyes and 9 (7.1%) failed. Intra-operative complications occurred in 9 (7.1%); early post-operative complications (< 3 months) occurred in 17 (13.5%) and late (> 3 months) in 6 (4.8%). Sight threatening complications included choroidal detachment ($n = 3, 2.4\%$) and aqueous misdirection ($n = 2, 1.6\%$); however, none lost vision. BCVA improved in 93.6% ($n = 118$).

Conclusion: Both phaco and filter can be accommodated superiorly in an efficacious and safe manner in this new superior twin-site phaco-trabeculectomy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P09

COMPARISON OF VISUAL FIELD PROGRESSION BEFORE AND AFTER AHMED GLAUCOMA VALVE (AGV) AND TRABECULECTOMY WITH MITOMYCIN C (MMC) SURGERY IN ASIAN EYES WITH GLAUCOMA

Yijun Lim¹, Victor Koh¹, Wei Han Tong¹, Elvine Neo¹

¹Department of Ophthalmology, National University Hospital, Singapore - Singapore

Purpose: Comparing visual field (VF) progression in AGV and trabeculectomy with MMC.

Methods: Inclusion criteria: glaucoma patients who underwent trabeculectomy (n = 43) or AGV (n = 27) between January 2011 and December 2015; follow-up period of at least 5 years; static automated perimetry on Humphrey Field Analyzer (Carl Zeiss Meditec, Dublin, CA) with 24-2 SITA Standard algorithm; reliable fields (< 20% fixation losses, < 30% false-negatives, < 30% false-positives); at least 2 VF pre- and post-surgery. VF progression was determined by linear regression analyses of Visual Field Index (VFI) and Mean Deviation (MD). Paired t-test was used for analysis within each group and McNemar test for analysis between the two.

Results: Subjects were aged 70 ± 10 years (61% male). 54 (77%) had primary open angle glaucoma, 9 (13%) primary angle closure glaucoma and 6 (9%) secondary glaucoma. Duration of follow-up was 1.95 ± 1.33 years pre-surgery and 2.83 ± 1.39 years post-surgery. Before trabeculectomy, mean reduction in VFI/year and MD/year were 2.22% and 0.52 dB respectively. Post-surgically, they became 1.90% (p = 0.83) and -0.030dB (p = 0.34), with mean IOP of 8 mmHg. Before AGV, mean reduction in VFI/year and MD/year were 4.63% and 0.34 dB respectively. Post-surgically, they became 0.36% (p = 0.034) and 0.17 dB (p = 0.88), with mean IOP of 11 mmHg.

Conclusion: Only VFI/year is significantly reduced after AGV. No surgery supercedes the other in controlling VF progression.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P10

OUTCOME OF PHACOTRABECULECTOMY WITH DOUBLE PLACEMENT OF COLLAGEN MATRIX IMPLANT AND MMC- 0.04% WITH/ WITHOUT ANTIVEGF

Reetika Sharma¹, Lalit Tejwani²

¹ASG Eye Hospitals, Patna - India, ²ASG Eye Hospitals, Jodhpur - India

Purpose: The purpose of this article is to analyze the results achieved in lowering intraocular pressure (IOP) after combined surgery (phacotrabeculectomy) with mitomycin C (MMC- 0.04%, contact time 4 mins) using the Ologen Collagen Matrix (OLO), placed subsclerally and sub-conjunctivally, with or without anti-VEGF Bevacuzimab.

Methodology: This retrospective study included 61 eyes who underwent filtering surgery with MMC and double Ologen combined with cataract surgery. Bevacuzimab, as wound modulator, was used in 35 eyes. Follow up was from 6 months to 50 months.

Results: Sixty-one eyes of patients with mixed pathology were included in the study, age group being 40- 78 yrs. Twenty-four patients were using systemic medications before surgery. Twenty seven cases were CPACG, 28 CPOAG, 3 JOAG and 3 secondary glaucoma. All cases underwent reduction in IOP. Eleven cases needed AC reformation, 6 needed needling and one needed conjunctival resuturing. One case developed malignant glaucoma and needed PPV, this case later failed. Another case which failed was of JOAG, operated twice before and failed twice, with high IOP at presentation. One case needed intra-cameral gas injection for choroidal detachment. We added topical medications in all cases at 6 weeks after surgery to come closer to target IOP.

Conclusion: Double modulation can be a promising future in advanced high risk cases of glaucoma associated with cataract, and addition of anti-VEGF can further help in such cases.



September 6-8 2018 | Montreal, Canada

ICGS 2018

PII

LONG TERM OUTCOMES OF THE ISTENT TRABECULAR MICROBYPASS IN COMBINATION WITH PHACOEMULSIFICATION

Yogesh Patodia¹, Vinay Kansal², Jithin Yohannan¹, Devesh K. Varma¹,
Diamond Y. Tam¹, Iqbal Ike K. Ahmed¹

¹Department of Ophthalmology & Vision Sciences, University of Toronto, Toronto - Canada

²Department of Ophthalmology, University of Saskatchewan, Saskatoon - Canada

Purpose: To evaluate the IOP and medication reduction capabilities of iStent in combination with phacoemulsification in glaucoma patients with a minimum of 3-year follow-up.

Methods: 103 eyes of 77 patients with glaucoma and cataract who underwent iStent and phacoemulsification were included. Primary outcome was mean IOP (mmHg) at last follow-up visit. Secondary outcome was mean number of glaucoma medications at last follow-up.

Results: Mean follow-up time was 52.2 ± 10.1 months. Mean IOP was reduced from 18.50 ± 5.44 to 14.50 ± 3.48 mmHg ($p < 0.001$) which represented a 21.7% decrease from baseline. Mean number of IOP lowering medications decreased from 2.70 ± 1.31 to 1.90 ± 1.52 ($p < 0.001$). There were minimal complications and 6 re-operations.

Conclusion: iStent with phacoemulsification appears to be effective at long-term IOP and medication reduction in glaucoma patients.



September 6-8 2018 | Montreal, Canada

ICGS 2018

PI 12

EXCIMER LASER TRABECULOSTOMY (ELT), A MIGS PROCEDURE USING NO IMPLANTS, LOWERS INTRAOCULAR PRESSURE OVER 8 YEARS, BOTH ALONE AND WITH PHACO

Michael Berlin¹, Matthew Farajzadeh², Marc Toeteberg Toeteberg³, Vigan Roka⁴, Lea Kleineberg⁴, Richard Stodtmeister⁵, Ulrich Giers⁶

¹Department of Ophthalmology, Glaucoma Institute of Beverly Hills, Los angeles - USA, ²Department of Ophthalmology, Stein Eye Institute UCLA, Los angeles - USA, ³Department of Ophthalmology, University Hospital Zurich, Zurich - Switzerland, ⁴Praxisklinik Elisabethstr in Detmold, Germany, Detmold - Germany, ⁵TU Dresden, Dresden - Germany, ⁶University Eye Hospital, Prittwitzstrasse, Prittwitzstrasse - Germany

Purpose: To evaluate long term, 8-year, IOP lowering efficacy, consistency, and safety of Excimer Laser Trabeculostomy (ELT) both stand alone and combined with phacoemulsification (ELT+P) in patients with open-angle glaucoma (OAG) and with co-existing OAG and surgical cataract.

Methods: A prospective study of 83 eyes (83 patients). Inclusion criteria were OAG, uncontrolled IOP on maximum medications, increasing optic disc excavation and deteriorating visual fields. 46 eyes (46 patients) underwent ELT. 37 eyes (37 patients) with OAG and cataracts underwent ELT+P. IOP was monitored at post-operative months 1, 3, and 6; and years 1-8 as were: Number of medications, Vision, Complications, and Adverse Events (ELT: 21/46, ELT+P: 19/37).

Results: At 8 years, mean IOP in the ELT Alone group was 16.1 ± 3.4 mmHg compared to a non-washed out pre-op IOP of 22.9 ± 5.4 mmHg (p-value IOP < 0.001, 29.7% reduction). In the ELT+P group, the mean IOP was 14.2 ± 3.1 mmHg compared to non-washed out pre-op IOP of 25.1 ± 6.1 mmHg (p-value IOP < 0.001, 43.4% reduction). The number of glaucoma medications at 8 years for the ELT Alone group was 1.2 ± 1.2 medications compared to 1.6 ± 0.7 medications at pre-op (p-value meds 0.152). The number of medications for the ELT+P group was 1.8 ± 0.8 medications compared to 1.3 ± 0.7 medications at pre-op (p-value meds 0.087). No complications. No Adverse events.

Conclusion: ELT and ELT+P are safe, effective and long lasting MIGS procedures with no implants which enable long-term, consistent, and significant reductions in IOP in patients with OAG. 8 years post ELT, the IOP lowering was equivalent to 1- & 5-year data on IOP-lowering following combined iStent + Phaco.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**CONGENITAL /
PEDIATRIC
GLAUCOMA**



September 6-8 2018 | Montreal, Canada

ICGS 2018

PI 3 GLAUCOMA IN CHILDREN WITH FACIAL PORT WINE STAIN

Nader Bayoumi¹, Eman Elsayed¹

¹Department of Ophthalmology, Faculty of Medicine, Alexandria University, Alexandria - Egypt

Purpose: To report on the clinical presentation and surgical treatment of glaucoma in children with facial port wine stain (PWS).

Methods: A retrospective chart review of children with facial PWS referred to a university based pediatric ophthalmology practice in the period from 2005 to 2016. Data extracted included demographics, results of clinical ophthalmic examination and systemic examination findings. Stratification of study participants and eyes was done into "glaucoma", "glaucoma suspects" and "no glaucoma".

Results: The charts of 22 children (44 eyes) with facial PWS were reviewed. The average age of presentation was 18.2 (± 33.9) months. After a follow up over 16.1 (± 24.8) months, there were 34%, 30% and 36% of the study eyes diagnosed as glaucoma, glaucoma suspects and no glaucoma respectively. The majority (91%) of eyes presenting with glaucoma had clear corneas. The mean \pm SD of the IOP was 20.6 ± 5.1 , 13.6 ± 5.4 , 7.5 ± 1.7 mmHg for eyes with glaucoma, glaucoma suspects and no glaucoma respectively. Eleven eyes were operated upon for glaucoma. Success rate was 91%. Two eyes developed a postoperative exudative choroidal detachment, one resolved spontaneously and the other was successfully managed by intravitreal gas injection.

Conclusion: Glaucoma is a hazard in children with facial PWS that may not be evident on initial presentation and may present late. The presentation is usually with a clear cornea and surgical intervention is associated with a high success rate and a low rate of complications.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

EPIDEMIOLOGY



September 6-8 2018 | Montreal, Canada

ICGS 2018

PI4

CHANGING THE STRUCTURE OF CLINICAL AND EPIDEMIOLOGICAL CHARACTERISTICS OF PRIMARY OPEN-ANGLE GLAUCOMA OVER 10 YEARS IN PATIENTS COMING TO SURGICAL TREATMENT

Ekaterina Krinitsyna¹, Valerya Sergeeva², Vitaly Gorodnichy³,
Alexander Kuroyedov³

¹Pirogov Russian National Research Medical University, Moscow - Russia, ²Sechenov First Moscow State Medical University, Moscow - Russia, ³Mandryka Clinical Military Hospital, Moscow - Russia

Aim: To establish structural differences of particular clinical and epidemiological characteristics of patients diagnosed with primary open-angle glaucoma, who received surgical treatment in the department of ophthalmology Mandryka Central Clinical Hospital in 2005-2006 and 2015-2016 yy.

Material and Methods: In total, 204 patients (204 eyes) diagnosed with different stages of primary open-angle glaucoma (POAG).

Results: At the time of receiving the surgical treatment the age of patients averaged 71.63 ± 8.35 69.5 (64.5; 76.0) years old and 75.06 ± 7.61 74 (68.0; 79.6) years old correspondingly and the established age differences turned out to be statistically significant ($p < 0.004$). During the earlier period of time the majority of patients received surgery with their treatment including one or two drugs (90%), while in recent years the number of such patients has been reduced by nearly a half (50%) with the number of patients getting 3 or more drugs increasing significantly. The average period of time during which patients receive drug therapy before undergoing an operation in 2005-2006 was 2 (1.00;7.00) years, while recently it has significantly increased to 5.5 (2.00;11.00) years, $p < 0.0009$.

Conclusions: Despite the stage of the disease, glaucoma is diagnosed at a comparable age, but recently significantly older patients diagnosed with an advanced stage of glaucoma have received surgical treatment. Patients receiving treatment in 2015-2016 yy were on medication for a longer period of time; their therapy included 3 and 4 hypotensive drugs and their IOP level was considered lower before the surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P15

COMPARISON OF TREATMENT REGIMENS FOR PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA WITH THE CHARACTERISTICS OF DISEASE PROGRESSION. PART I. STATUS OF PARAMETERS OF THE IOP-LEVELS

Roman Avdeev¹, Alexandr Aleksandrov², Nataliya Bakunina³, Dariya Belaya⁴, Andrey Brezhnev⁵, Nataliya Volkova⁶, Lenar Gabdrakhmanov⁷, Aysylu Galimova⁸, Victor Gar'kavenko⁹, Anastasiya Getmanova¹⁰, Vitaliy Gorodnichiy², Anastasiya Gusarevich¹¹, Dmitriy Dorofeev¹², Yuliya Dyukareva¹³, Pavel Zavadskiy¹⁴, Azizbek Zakhidov¹⁵, Olga Zvereva¹⁶, Ulugbek Karimov¹⁷, Irina Kondrakova², Alexandr Kuroedov², Sergey Lanin¹⁸, Djamilya Lovpache¹⁹, Evgeniya Molchanova²⁰, Zoya Nagornova²¹, Oleg Onufriychuk²², Sergey Petrov²³, Yuliya Rozhko²⁴, Zhamilya Sangilbayeva²⁵, Alexey Seleznev²¹, Leyla Tashtitova²⁵, Sergey Usmanov¹⁶, Anna Khohlova²⁶, Anna Shahalova²⁷, Rodica Sevcuic²⁸

¹Burdenko State Medical Academy, Voronezh - Russia, ²Mandryka Medicine and Clinical Center, Moscow - Russia, ³Pirogov City State Government Hospital 1, Moscow - Russia, ⁴Bayandin Murmansk Regional Clinical Ophthalmology Hospital, Murmansk - Russia, ⁵State Medical Academy, Kursk - Russia, ⁶The Irkutsk Branch of the Fedorov Eye Microsurgery State Federal Institution, Irkutsk - Russia, ⁷Eroshevsky Samara regional Clinical Ophthalmologic Hospital, Samara - Russia, ⁸All-Russian Eye and Plastic Surgery Center, Ufa - Russia, ⁹Voyno-Yasenetsky State Medical University, Krasnoyarsk - Russia, ¹⁰Regional Eye Hospital, Kursk - Russia, ¹¹Railway Clinical Hospital of the «Russian Railways», Novosibirsk - Russia, ¹²Public Clinical City Hospital 3, Chelyabinsk - Russia, ¹³State City Hospital 52, Moscow - Russia, ¹⁴Medical Center «New Vision», Minsk - Belarus, ¹⁵«SAIF-OPTIMA» eye microsurgery clinic, Tashkent - Uzbekistan, ¹⁶Region Clinical Ophthalmology Hospital, Kazan - Russia, ¹⁷Region Ophthalmology Hospital, Gulistan - Uzbekistan, ¹⁸Makarov Ophthalmology Clinical, Krasnoyarsk - Russia, ¹⁹Helmholtz State Ophthalmology Institute, Moscow - Russia, ²⁰State Medical Academy, Omsk - Russia, ²¹State Medical Academy, Ivanovo - Russia, ²²Ophthalmic Diagnostic City Center 7, Saint Petersburg - Russia, ²³Scientific and Research State Federal Ophthalmology Institute, Moscow - Russia, ²⁴State Hospital, Gomel - Belarus, ²⁵Kazakh Scientific-Research Institute of Eye Diseases, Almaty - Kazakhstan, ²⁶Pacific State Federal Medical University, Vladivostok - Russia, ²⁷Medical Clinical Center «Tonus Amaris», Nizhny Novgorod - Russia, ²⁸Emergency Medicine Institute, Chisinau - Moldova

Purpose: To determine the effect of individual indicators of ophthalmotonus on the progression of the disease in patients with primary open-angle glaucoma.

Methods: This clinical multicenter cohort study was conducted between January and April 2017 (136 participants (237 eyes)).

Results: The mean IOP level after follow-up period was 19 (17;21) mmHg and has no significant

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

difference ($p = 0.557$, $H = 2.073$). Only in early-stage glaucoma cases the value of «inter visit IOP-level» corresponds to recommended by Russian Glaucoma Society values. Our results showed that the level of «inter-visit IOP» meet the recommended values only in early glaucoma cases, in moderate and advanced glaucoma it is significantly higher. There was no significant difference ($p = 0.597$, $H = 1.882$) in «optimal» IOP-level in patients with different glaucoma stages, «intolerant» IOP-level increased from stage to stage ($p < 0.001$; $H = 32.175$). The initial regimen was generally effective for patients with the initial stage of glaucoma: the IOP-level was decompensated only in 2.17% cases. «Inter-visit» IOP-level was decompensated in 38.1% cases (patients with moderate primary open-angle glaucoma), in 81.82% cases (patients with advanced primary open-angle glaucoma). The analysis of visual field change during the follow-up period showed that MD raised in 29.5% cases, decreased (70.5%) cases.

Conclusion: We used classical and introduced new terminological components that characterize the state of the ophthalmotonus in «inter-visit», «optimal», «intolerant» level of IOP time intervals.



September 6-8 2018 | Montreal, Canada

ICGS 2018

PI6

DO EYES WITH ESOTROPIA HAVE A HIGH PREVALENCE OF NARROW ANGLES

Oscar Kasner¹, Ahmad Alali², Rosanne Superstein¹

¹Department of Ophthalmology, Jewish General Hospital, Montreal - Canada, ²Department of Ophthalmology, McGill University, Montreal - Canada

Purpose: The purpose of this study is to determine if there is a relation between "Esotropia" and narrow appearance of the eye's drainage system "occludable angle".

Methods: The study was conducted in the Ophthalmology Department at the Jewish General Hospital (Montreal, Quebec). Medical chart review: collect clinical information regarding age, gender, type of strabismus, refraction error, eye pressure, gonioscopy, appearances of the optic nerve, past eye disease history, past medical history, and ocular medication or surgery history. 30 patients were included in this study, 17 patients with Esotropia and 8 patients with other types of strabismus.

Inclusion criteria:

- Capable adults >18 years of age
- Willingness to participate.
- Patient in the Jewish General Hospital.
- Diagnosed with strabismus.

Exclusion criteria:

- Unwillingness to participate.
- History of eye surgery.
- Pregnant and nursing mothers.

Results:

- 30 patients were included in this study, 21 patients with Esotropia and 9 with other types of strabismus.
- 28.5% of the Esotropia patients were found to have occludable angles compared to 25% of the other strabismus patients.
- Only 19% of the Esotropia patients are Hyperopic, and 14.2% are plano.

Conclusion:

- To our knowledge this is the first study that looks at the direct relation between Esotropia and occludable angles.
- Significant number of Esotropia patients have occludable angles although the majority of these patients are not hyperopic.
- This study is opening the door to look in more depth at the direct relation between Esotropia and the angle appearance.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P17

UNIQUENESS OF CHANGE ANALYSIS PRINTOUT FOR PREDICTING GLAUCOMA SEVERITY

Tutul Chakravarti¹

¹Department of Ophthalmology, Kolkata - India

Purpose: This study proposes a predictive formula for identifying glaucoma disease stages in primary glaucoma patients using the change analysis printout.

Method: STATPAC (HFA II 720) gives an analytical summary of changes in protracted visual field through box plot, a summing up of global indices, & a linear regression of MD. The box plot, a modified histogram, summarizes total deviation test values for each test with reference to the age-related STATPAC database. This retrospective chart review studied 13 patients (22 eligible eyes: 7 glaucoma suspects, 5 early glaucoma, 1 moderate, 6 advanced & 3 end-stage glaucoma) using the change analysis printout. We studied: 1. the overall shape of the box; 2. the location of median value; 3. the top & bottom endpoints in each case. Mean follow-up was 5 years.

Results: Early glaucoma was characterized with long tail (the worst point down ≥ 19 dB & the 15th percentile point; down ≥ 7 dB) with increased variability. In advanced glaucoma, all the box plots were consistently tall, the 85th percentile was down -9 to -15 dB & the median point between -10 to -13 dB. In end-stage, even the best points were down between -5 to -8 dB & 85% of the points were down -22 dB in moderate glaucoma degree of abnormality varied widely.

Conclusions: A long box plot indicates severe deviations in some locations than in others, so that the 15 & 85 percentile deviations are dissimilar. Thus, calculating the position of 15th, median & 85th percentile different glaucoma disease stages can be differentiated & presented graphically by box plot.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

GLAUCOMA MEDICATIONS



September 6-8 2018 | Montreal, Canada

ICGS 2018

P18 THE EFFECT OF PROSTAGLANDIN ANALOGUES ON CENTRAL CORNEAL THICKNESS

Umut Duygu Uzunel¹

¹Private Sector, Izmir - Turkey

Purpose: To evaluate the long-term effect of prostaglandin analogues on central corneal thickness (CCT) in patients with glaucoma.

Methods: This retrospective study included 73 eyes of 73 glaucoma patients and 75 eyes of 75 individuals with glaucoma suspect (control group). Newly diagnosed glaucoma patients with no previous glaucoma treatment were administered latanoprost 0.005% (n = 27) or bimatoprost 0.03% (n = 24) or travoprost 0.004% (n = 22) monotherapy once a day. CCTs were measured by ultrasound pachymetry before treatment and followed up annually for 5 years.

Results: A significant reduction in mean CCT was observed in the glaucoma group ($552.9 \pm 33.7 \mu\text{m}$ vs. $523.6 \pm 31.4 \mu\text{m}$, $p < 0.001$), but not in the control group ($550.2 \pm 28.2 \mu\text{m}$ vs. $550.1 \pm 28.2 \mu\text{m}$, $p = 0.276$) at 5-year follow-up. We observed a decrease in CCT $4.7 \mu\text{m}$ in latanoprost group, $6.7 \mu\text{m}$ in bimatoprost group and $6.4 \mu\text{m}/\text{per year}$ in travoprost group. Both baseline and final CCT were positively correlated with the baseline and final IOP in glaucoma group ($r = 0.243$, $p = 0.039$; $r = 0.334$, $p = 0.004$, respectively).

Conclusions: PG analogues significantly reduced CCT in glaucoma patients after 5 years of treatment. In clinical practice, corneal thinning after topical PG analogues treatment could result in underestimation of IOP levels as measured by GAT.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P19

RESULTS OF THE STUDY OF NEURONAL MARKERS IN RETINOPROTECTION OF PRIMARY OPEN-ANGLE GLAUCOMA

Aniya Gabdrakhmanova¹, Sadyrbec Kurbanov², Gulchachak Abizgildina³

¹Department of Ophthalmology, Bashkir State Medical University, Ufa - Russia, ²City Clinical Hospital No.10, Ufa - Russia, ³DuplexMed, Sterlitamak - Russia

Introduction: To study the results of retinoprotective therapy on patients with primary open-angle glaucoma based on the determination of specific biochemical neurotrophic and neurodegeneration markers.

Materials and Methods: A lacrimal fluid (LF) was analyzed in 23 patients with POAG in second and third stages, and control group (CG) of 12 healthy individuals. Treatment included local antihypertensive therapy and Retinalamin[®] injection 5mg daily for 10 days. The quantity of BDNF and NSE was determined.

Results: The BDNF of CG in LF was 0.83 ± 0.06 ng/ml, the NSE -0.51 ± 0.06 ng/ml. In patients with POAG, the indices were higher with BDNF -1.39 ± 0.85 , NSE -4.31 ± 2.02 ng/ml ($p < 0.05$). After treatment with Retinalamin[®], the content of BDNF was 1.02 ± 0.53 ng/ml ($p > 0.05$), while the NSE decreased to 1.69 ± 0.73 ng/ml ($p < 0.05$). Significant increase of the BDNF with II (1.37 ± 0.41 ng/ml, $p < 0.05$) and III (1.52 ± 1.39 ng/ml, $p < 0.05$) stages of POAG. The NSE marker was high in both stages (4.16 ± 2.44 and 5.78 ± 2.80 ng/ml, $p < 0.05$), which is an indication of degeneration of RGC. After treatment levels of BDNF were reduced to the values of the CG: stage II - 0.95 ± 0.49 ng/ml and stage III - 1.18 ± 0.72 ng/ml ($p > 0.05$). After neuroprotective Retinalamin[®] therapy the level of NSE in patients with stage II decreased to the values of the CG (0.43 ± 0.04 ng/ml), while in stage III - it remained high (1.71 ± 0.44 ng/ml).

Conclusion: POAG causes a compensatory increase of the BDNF level and a pathological increase in NSE in the LF. The change in the quantity of neuromarkers is determined depending on the stage of POAG.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P21

MEIBOMIAN GLAND DYSFUNCTION IN PATIENTS TREATED WITH TOPICAL PROSTAGLANDIN ANALOGUES

Jun Young Ha¹, Mi Sun Sung¹, Sang Woo Park¹

*¹Department of Ophthalmology, Chonnam National University Medical School and Hospital,
Gwangju - Korea*

Purpose: To investigate the effect of topical prostaglandin analogues (PGA) on meibomian gland in patients with normal tension glaucoma.

Method: This observational, cross-sectional study included the 52 normal tension glaucoma patients receiving topical PGA monotherapy more than 3 months. Age- and sex-matched subjects were included as control group (n = 50). Meibum quality score (MQS), meibum expression score (MES), lid margin abnormality score (LAS), and meibomian gland dropout (meiboscale) by meibography were performed. In addition, Ocular Surface Disease Index (OSDI), Tear break-up time (TBUT), Schirmer test, and ocular surface staining score were also investigated. In addition, risk factors for severe MGD were investigated.

Results: Patients with topical PGA showed higher meibomian gland parameters (MQS, MES, LAS, meiboscale) and poorer ocular surface parameters (TBUT, Schirmer test, ocular surface staining) than control group (all p < 0.05). Patients with severe MGD used longer duration of PGA and showed poorer compliance than mild or moderate MGD (all p < 0.05). Age (OR = 2.65, 1.14-6.21), female sex (OR = 0.51, 0.44-0.76), mean difference of visual field (OR = 2.47, 1.75-11.13), and duration of treatment (OR = 2.47, 1.75-11.13) were identified as risk factors for severe meibomian gland loss.

Conclusion: PGA use can induce MGD in glaucoma patients. Factors associated with severe MGD were old age, female sex, severe glaucoma and longer duration of PGA treatment.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P22

GLAUCOMA SEVERITY, SOCIOECONOMIC FACTORS AFFECTING GLAUCOMA COST IN INDIA

Tutul Chakravarti¹

¹Department of Ophthalmology, Kolkata - India

Purpose: To evaluate the association of Socio Economics Status with severity of glaucoma, and assess the impacts of both SES and disease-severity factors on the costs of glaucoma medications among different glaucoma subtypes in West Bengal, India.

Methods: This cross-sectional study (2014-16) followed the treatment of 304 primary glaucoma patients for 18 months. The visual field based glaucoma staging was followed for stages 0-3; patients with field of vision $< 10^\circ$ were categorized as stage-4 (end-stage). We checked only the mean cost of glaucoma medications per patient and not "direct costs". The individuals' monthly incomes were classified into: low, moderate & higher SES.

Results: Urban residence (OR 0.6, $p < 0.009$), higher SES (OR 0.3, $p < 0.001$) and higher awareness (nearly 50%, $p < 0.007$) significantly lowered the odds of having end-stage glaucoma. 69% PACG and 79% JOAG belonged to low SES, forming the bulk of end-stage glaucoma. Overall medical cost from stage 0 to advanced stage in all subtypes rises except in POAG. Only 28% eyes from low SES were treated with branded drugs in early disease and that too declined to 16% in stage-4, while 57% higher SES used branded medications in early disease stage. Expenditure as a percent of income was the highest in JOAG (16%), followed by PACG (15%) and POAG (14%) among low SES.

Conclusions: Results indicate SES-influences on disease outcome, the clinical management and the glaucoma medication expenses in West Bengal. Medical costs of glaucoma increase with worsening disease severity; greater use of generic drugs does not always ensure direct cost savings.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P23

INTERIM RESULTS OF A PROSPECTIVE, RANDOMIZED PHASE II STUDY EVALUATING THE SAFETY AND EFFICACY OF NOVEL SUSTAINED-RELEASE TRAVOPROST INTRAOCULAR IMPLANTS

L. Jay Katz¹

¹Professor of Ophthalmology, Thomas Jefferson University; Attending Surgeon, Wills Eye Hospital, Philadelphia, PA - USA

Purpose/Relevance: Assess safety and initial efficacy of two Travoprost Intraocular Implants (iDose-slow [slow-elution], iDose-fast [fast-elution]) vs. Timolol in subjects with OAG or OHT on 0-3 medications.

Methods: This multicenter randomized study enrolled phakic or pseudophakic subjects at least 18 years of age with mild-moderate OAG or OHT on 0-3 medications, with a baseline mean diurnal IOP 21-36 mmHg in the study eye (a washout was required for subjects on medications). Subjects were randomized (1:1:1) to implantation with iDose-fast or iDose-slow as a standalone procedure, or treatment with Timolol BID. Key study assessments included IOP, medication usage, ocular health, and AEs.

Results: 154 subjects were randomized to the study: iDose-slow (n=54), iDose-fast (n=51), timolol (n=49). All subjects completed the 12-week follow-up visit with continued ongoing follow-up through 3 years. Initial efficacy was demonstrated through Week 12 with all 3 study groups achieving at least 30% IOP reduction. The subset of eyes implanted with iDose that have reached 1-year postop achieved 32-33% IOP reduction. An excellent safety profile has been observed with no reports of hyperemia, intraoperative or serious ocular AEs to date in the iDose groups.

Conclusion: The interim results of this trial demonstrate initial efficacy and an excellent safety profile of both iDose implants out to 1 year. The iDose implant has the potential to change the treatment paradigm in glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P24

EXPERIENCE OF THE COMBINED TREATMENT OF AN ATROPHY OF THE OPTIC NERVE BY GLAUCOMATOUS

Gulchachak Abizgildina¹

¹LTD «DUPLEXMED» R&D Department, Sterlitamak - Russia

One of the first reasons for the development of an irreversible blindness, hypovision and disability is glaucoma. Development of the glaucomatous atrophy of an optic nerve (GAON) is degenerated by a degeneracy process that damages nervous tissue, with marginal cupping of optic disk and retina photosensitivity decrease related to it. The treatment of a glaucomatous atrophy of an optic nerve is aimed at dysmetabolism correction, haemodynamics improvement and neuroprotection.

The influence of xenoplasty with Retinalaminy® on the dynamics of visual functions has been studied. The highest curative effect has been reached by combined application of xenoplasty with Retinalaminy® and endonasal electrophoresis with Semaksy due to the visual acuity improvements and a pathological process stabilization.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

GLAUCOMA SURGICAL COMPLICATIONS



September 6-8 2018 | Montreal, Canada

ICGS 2018

P26

SUBCONJUNCTIVAL FRAGMENTATION OF A PREVIOUSLY EFFICIENT XEN GEL STENT IMPLANTATION AND SUCCESSFUL BLEB FORMATION: A CASE REPORT

Katia Novak - Lauš¹, Lana Knežević¹, Goran Maric², Mia Zoric Geber¹, Zoran Vatauvuk³

¹Department of Ophthalmology, Clinical Hospital Center Sestre milosrdnice, Zagreb - Croatia, ²D, Zagreb - Croatia, ³Department of Ophthalmology, Clinical Hospital Center Sestre milosrdnice, Zagreb - Djibouti

Purpose: The XEN gel stent, a new generation implant, is designed to reduce intraocular pressure in patients with primary open angle glaucoma if past medical treatments have failed.

Methods: A 70-year-old male patient was treated for primary open angle glaucoma. He underwent successful phacoemulsification and intraocular lens implantation two years ago. Due to medical therapy failure in controlling glaucoma, XEN gel stent implantation was suggested to the patient. The implant was successfully placed in both eyes, and extended bleb and drainage aqueous humor from anterior chamber to the subconjunctival space was obtained.

Results: Surgery was successful in both eyes, with an uneventful three-month postoperative period, and no adjunctive procedures (e.g. needling) were needed in either eye. Slit lamp biomicroscopy confirmed proper positioning of the XEN implant and successful bleb formation. IOP was 14 mmHg in the right eye and 15 mmHg in the left eye (with no IOP lowering medications) one and two months after surgery. Three months after surgery the regular follow-up visit showed an uncommon adverse event. We noticed three fragments of subconjunctival part of XEN gel implant in the patient's left eye as slit-lamp and anterior segment optical coherence tomography showed. The IOP was 14 mmHg despite the fact that there was no bleb formation at the area of the previous XEN implantation. The inflammation signs were not seen either. Gonioscopic view showed the intracameral part of the implant correctly located inside the Schlemm's canal.

Conclusions: A new potential complication of the XEN gel implant is described.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P27

AN UNEXPECTED COMPLICATION AFTER MINIMALLY INVASIVE GLAUCOMA SURGERY

Helena J.M. Beckers

University Eye Clinic, Maastricht, The Netherlands

Purpose: Case report: To describe an unusual complication, eleven months after successful implantation of a MicroShunt.

Methods / Case: A 67-year-old female POAG patient received an uneventful MicroShunt implantation combined with application of mitomycin C into the left eye. Postoperatively, the filtering bleb was well formed and IOP dropped from 19 mmHg and 3 glaucoma medications to 14 mmHg with no glaucoma medications after nine months of follow-up. Two months later she visited the outpatient clinic with complaints of a painful eye and blurred vision. The IOP was 42 mmHg and the bleb was flat and slightly hyperemic. Nuclear cataract had formed. The patient had visited a beautician, who gave her a facial massage (including the skin around the eyes), several days before the onset of her symptoms.

Results / Follow-up: The patient was treated with topical glaucoma medications and oral acetazolamide. Surprisingly, the filtering bleb spontaneously reformed over several days (but not to its original height). IOP dropped again to a stable 12 mmHg, however now with 3 topical medications. Cataract caused the decreased visual acuity and cataract surgery is planned.

Conclusions: Tube flow was temporarily blocked after massaging the skin around the eyes, including the upper eye lid. The applied pressure may have pushed the tube into Tenon's capsule. Tube flow was slowly restored without surgical intervention or needling, however not to its former level.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

INTERNATIONAL OUTREACH



September 6-8 2018 | Montreal, Canada

ICGS 2018

P28

THE CHALLENGE OF GLAUCOMA SURGERY IN ISOLATED AND REMOTE SETTINGS: IS MIGS THE ANSWER FOR OUTREACH SERVICES?

Ashish Agar¹, Claire Ruan¹, Jenna Besley¹

¹Outback Eye Service, Department of Ophthalmology, Prince of Wales Hospital, University of New South Wales, Sydney - Australia

Purpose: The favourable safety & post-operative-care profile of MIGS compared to conventional filtering procedures could enable wider availability of glaucoma surgery in outreach services. Especially in geographically remote areas like the Australian outback, where accessibility can be a barrier. We investigate the utility of the Hydrus Microstent (Ivantis, Inc.), in meeting this special challenge in glaucoma surgery.

Methods: Surgeon confidence in new technology is critical in remote settings. After analyzing our 3-year metropolitan data we felt confident in the Hydrus's safety & efficacy. Engagement with stakeholders began: hospital administration, industry and prospective patients. A business and clinical case for MIGS was presented for use in the remote desert mining city of Broken Hill.

Results: After several months discussion the proposal was accepted. MIGS surgery was conducted at Broken Hill Hospital, a government public hospital. Hydrus Microstents were donated by Ivantis and hand delivered. Four pseudophakic patients underwent device implantation; three standalone and one combined with cataract phacoemulsification, with no complications. After 3 months IOP was reduced from an average of 20 mmHg pre-operatively to 11 mmHg and medication use reduced from an average of 4 to 2.

Conclusion: Australia's first remote area MIGS surgery was successfully performed in the mining city of Broken Hill. The Hydrus Microstent achieved an average 42% reduction of IOP with a 50% reduction in medications at 3 months. The procedure was safe, as standalone or with cataract surgery. MIGS may be a viable option for glaucoma patients where accessibility to outreach specialist surgical services is a challenge.

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

LASERS



September 6-8 2018 | Montreal, Canada

ICGS 2018

P29

MICROPULSE VERSUS CONTINUOUS WAVE TRANSCLERAL CYCLOPHOTOCOAGULATION IN REFRACTORY PEDIATRIC GLAUCOMA

Yasmine El Sayed¹, Ahmed Abdelrahman¹

¹Department of Ophthalmology, Cairo University, Cairo - Egypt

Purpose: To compare the safety and efficacy of micropulse and continuous wave transscleral cyclophotocoagulation for the treatment of refractory glaucoma in the pediatric age group.

Methods: This prospective study included 45 eyes of 36 children requiring transscleral cyclophotocoagulation in the period from September 2016 to August 2017, using micropulse (MP-CPC) or continuous wave (CW-CPC) modes. The IOP reduction, success rates and complications were compared for both groups. Success was defined as IOP of 5 to 21 mmHg with a single treatment, in the absence of vision threatening complications at 6 months.

Results: The MP-CPC group included 17 eyes, aged 67.8 ± 48 months, and the CW-CPC group included 28 eyes, aged 61.3 ± 38.3 months. IOP reduction was 63% in the MP-CPC group and 67% in the CW-CPC group (p -value = 0.6). The success rate was higher in the MP-CPC group (77% vs 50% in the CW-CPC group) but the difference was not significant (p -value = 0.08). No significant complications were noted in the MP-CPC group whereas in the CW-CPC group one eye developed phthisis bulbi and two eyes had severe pain and uveitis.

Conclusion: Both the micropulse and continuous wave cyclophotocoagulation are effective in lowering the IOP in children with refractory glaucoma. However, the rate of complications, pain and inflammation seem to be lower with the micropulse mode making it a safer alternative for cyclophotocoagulation, especially that retreatments are often needed.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P30

TREATMENT OUTCOMES OF MICROPULSE TRANSCLERAL CYCLOPHOTOCOAGULATION (MP-CPC) IN JAPANESE REFRACTORY GLAUCOMA

Koichiro Sugimoto¹, Shotaro Asano¹, Takashi Fujishiro¹, Rei Sakata¹,
Megumi Honjo¹, Makoto Aihara¹

¹Department of Ophthalmology, Graduate School of Medicine, The University of Tokyo, Tokyo - Japan

Purpose: Micropulse transscleral cyclophotocoagulation (MP-CPC; MicroPulse[®] P3 Glaucoma Devise, IRIDEX[®], USA) is a new glaucoma laser treatment to lower intraocular pressure (IOP). The purpose of this study is to evaluate the efficacy and safety of MP-CPC.

Method: Eighteen patients with refractory glaucoma underwent MP-CPC. MP-CPC procedure was delivered with 2000 mW applied for 80 seconds to the upper and lower sclera of the eye. IOP was measured at baseline and after the treatment. The choroidal space of the inferior sclera was measured with anterior segment optical coherent tomography (AS-OCT; CASIA2[®], TOMEY, Japan). The medication score was evaluated.

Result: The mean age of patients was 68.2 ± 15.6 years. The mean IOP was 36.2 ± 9.4 at baseline. After the treatment the mean IOP was 32.8 ± 8.2 at 1 day, 30.7 ± 11.4 at 2 week, 26.8 ± 12.5 at 1 month, 26.5 ± 6.5 at 3 months ($p < 0.05$, paired t-test with bonfferoni correction). The medication score before the treatment was 4.2 ± 0.7 and decreased to 2.8 ± 2.0 at 3 months. Ciliochoroidal effusions were imaged in 9 (50%) of 18 eyes at 1 day, and disappeared at 2 weeks. In this study, there were no significant complications.

Conclusion: MP-CPC was effective and safe to lower the IOP in cases of refractory glaucoma. This treatment was relatively easy and can be repeated if necessary.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P31

TRANSCLERAL DIODE CYCLOPHOTOCOAGULATION IN REFRACTORY GLAUCOMA IN EYES WITH GOOD VISION

Natalia Palarie¹, Tatiana Pasenco², Irina Virlan²

¹Department of Ophthalmology, International Clinic, Orhei - Moldova, ²Ophthalmology Department, State University of Medicine and Pharmacy «Nicolae Testemitanu», Chisinau - Moldova

Purpose: This prospective study was conducted to evaluate the efficacy and safety of transscleral diode laser cyclophotocoagulation (TSCPC) in eyes with refractory glaucoma and best corrected visual acuity (BCVA) better than 0.3.

Methods: The study included 19 eyes with refractory glaucoma of 17 consecutive patients treated with TSCPC. BCVA varied from 0,3 to 0,5; mean IOP prior to procedure was 40 ± 12 mm Hg. The 810 nm infrared diode laser was delivered at 1200 mW for 4 seconds over 270° - 300° . A reduction in IOP of 11-21 mmHg at the last follow-up visit was defined as success. Patients were followed at baseline, week 1, month 1, 3 and 6 after the TSCPC.

Results: A mean of 1.3 treatments were given per eye, with 5 eyes (26%) requiring retreatment at the 1st month of follow up. Mean IOP decreased to 26.5 ± 5.0 mmHg at 1 week, 20.0 ± 5.3 mmHg at 1 month, 19.7 ± 3.4 mmHg, 18.2 ± 2.7 mmHg at 6 month. The overall success rate was 84%. No patient had hypotony. TSCPC procedure failed in 3 patients with neovascular refractory glaucoma.

Conclusions: TSCPC as an effective, safe and rapid method of treatment in patients with refractory glaucoma with good vision over a 6-month period. IOP becomes stably reduced only by the 3rd month after the TSCPC.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P32

EARLY RESULTS OF SUBCYCLO SUBTHRESHOLD DIODE LASER TRANSSCLERAL CYCLOPHOTOCOAGULATION

Sukru Bayraktar¹, Muharrem Karakaya², Belma Karini², Sinan Albayrak², Seren Pehlivanoglu², Zerrin Bayraktar², Omer Faruk Yilmaz²

¹Department of Ophthalmology, Biruni University, Istanbul - Turkey, ²Department of Ophthalmology, Yeni Yuzyl University, Istanbul - Turkey

Purpose: To investigate the efficacy and safety profile of transscleral SubCyclo diode laser subthreshold cyclophotocoagulation with Supra 810 Quantel Medical in refractory glaucoma cases.

Methods: In this prospective study we investigate the early clinical results of 24 patients with refractory glaucoma who underwent transscleral diode laser cyclophotocoagulation by using SubCyclo mode of the Supra 810 device. The transillumination technique was used to ascertain the exact position of the ciliary body. Laser power of 1.8 watts (W) with duty cycle of %31.25 applied (50 seconds for superior and 50 seconds for inferior quadrants). Preoperative and postoperative visual acuity, intraocular pressure (IOP), number of anti-glaucomatous drops were compared. Any possible macular edema was investigated by optical coherence tomography and pupillary diameter were evaluated.

Results: 24 eyes of 24 patients with refractory glaucoma consisting of multiple previous ophthalmic surgeries (7 eyes keratoplasty, 4 eyes trabeculectomy, 4 eyes pars plana vitrectomy and 1 eye goniotomy) were included. The mean preoperative IOP was 28.2 ± 8.5 mmHg. All of the patients had at least one month of follow-up. The mean postoperative IOP at the last follow-up was 20.5 ± 8.9 mmHg. The mean number of glaucoma medications dropped from preoperative 2.96 ± 1.2 to 2.0 ± 1.2 postoperatively. No significant complications leading to any reduction of visual acuity or macular edema were noted. The difference between preoperative and postoperative pupillary diameter was not significant.

Conclusion: SubCyclo cyclophotocoagulation was found to be effective and safe in our study group. A significant IOP reduction accompanied by discontinuation of one of the pretreatment anti-glaucomatous medications was noted.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P33

CLINICAL OUTCOME OF MICROPULSE TRANSLERAL CYCLOPHOTOCOAGULATION IN GLAUCOMA PATIENTS WITH NO PRIOR INCISIONAL GLAUCOMA SURGERY

Parth Shah¹, Oshin Rai², Vineela Varikuti¹, Boon-Ang Lim², Syril K Dorairaj²,
Sandra Fernando Sieminski¹

¹Ross Eye Institute, State University of New York at Buffalo, Buffalo - USA, ²Department of
Ophthalmology, Mayo Clinic, Jacksonville - USA

Purpose: To evaluate the clinical outcome of MP-TSCPC (MicroPulse-P3, Iridex) in patients with open angle glaucoma and had no prior incisional glaucoma surgery.

Methods: We conducted a retrospective study for patients who visited the clinic and institute from July 2016 to Dec 2017 with a minimum of 3 months follow-up after MP-TSCPC. 49 eyes of 36 patients with a mean age of 68.63 ± 12.95 years underwent MP-TSCPC performed at 2000 mW with a mean laser duration of 78.94 ± 5.21 sec (superior) and 79.17 ± 5.39 sec (inferior) hemifield.

Results: At baseline, patients were on average of 3.59 ± 0.67 topical glaucoma medications with mean Intraocular Pressure (IOP) of 28.8 ± 6.41 mmHg and 0.19 ± 0.19 mean LogMAR visual acuity (VA). At POM1 mean IOP was significantly reduced by 30.9%, 37.5% at POM3, 34.9% at POM6 and 37.8% at POM12 ($p < 0.001$). At POM1 mean glaucoma medications were significantly reduced by 0.96 ± 0.41 , 0.94 ± 0.38 at POM3, 0.83 ± 0.53 at POM6 and 0.81 ± 0.52 at POM12 ($p < 0.001$). At POM1 mean VA was insignificantly improved by 0.01 ± 0.11 , -0.005 ± 0.11 at POM3, 0.003 ± 0.11 at POM6 and reduced by 0.018 ± 0.13 at POM12 ($p > 0.05$).

Conclusion: MP-TSCPC is safe and effective procedure for POAG and can be considered as an alternative to incisional glaucoma surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P34

DIODE LASER CYCLOPHOTOCOAGULATION IN TREATMENT OF PATIENTS WITH REFRACTORY GLAUCOMA

Aleksandar Miljkovic¹, Vladimir Canadanovic¹, Nikola Babic¹

¹Clinical Centre of Vojvodina, University of Novi Sad, Faculty of Medicine, Novi Sad - Serbia

Purpose: The aim of the study was to determine the intraocular pressure (IOP) lowering efficacy of transscleral diode laser cyclophotocoagulation (DCPC) treatment in the management of pain and IOP in patients with refractory glaucoma.

Methods: This nonrandomized, retrospective study, included 95 patients (95 eyes) with refractory glaucoma. All the eyes were treated with transscleral DCPC. Patient's symptoms, bests corrected visual acuity and IOP were recorded 7 days, and 1, 3 and 6 months after the DCPC treatment.

Results: Out of 95 patients enrolled in this study 24 (25.2%) were with primary (group I), and 71 (74.5%) with secondary (group II) glaucoma. The mean baseline IOP in these two groups was similar: 36.08 ± 8.39 mmHg vs 37.36 ± 8.19 mmHg. The mean IOP in the group I showed the following results: after 7 days IOP was 13.96 ± 8.30 mmHg (62.1% decrease of the baseline value), after 30 days 18.44 ± 8.85 mmHg (48.9%), after 3 months 22.44 ± 7.36 mmHg (37.8%), and after 6 months 25.92 ± 7.65 mmHg (28.2%). Measurement of IOP in the group II showed the following results: after 7 days IOP was 15.77 ± 9.73 mmHg (57.8% decrease of the baseline value), after 30 days 20.14 ± 10.20 mmHg (46.1%), after 3 months 23.46 ± 9.83 mmHg (37.2%) and after 6 months 27.23 ± 9.87 mmHg (27.2%).

Conclusion: Our study confirmed that transscleral DCPC is a useful, effective and safe procedure with predictable amount of IOP decrease, which makes it the treatment of choice for refractory glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P35

PIGMENT DISPERSION SYNDROME IN A FILIPINO WITH IRIS BOMBÈ: A CASE REPORT

Kristine Pormida¹

¹Department of Health Eye Center, East Avenue Medical Center, Quezon City - Philippines

Purpose: To present atypical clinical characteristics of a Filipino woman with bilateral pigment dispersion syndrome (PDS).

Methods: This is a case report.

Results: A 51-year old hyperopic Filipino woman presented with blurring of vision and foreign body sensation of both eyes. Slit lamp exam showed shallow anterior chambers, Krukenberg spindles, peripheral lenticular pigment deposits, but absent iris transillumination defects on both eyes. Gonioscopy showed open angles with homogenous and heavily pigmented trabecular meshworks 360 degrees with a prominent Sampaolesi's line at the inferior angle on both eyes. Intraocular pressure (IOP) was 33 mm Hg on both eyes but with normal optic discs with a vertical cup to disc ratio (VCRD) of 0.3. Visual field and Optical Coherence Tomography (OCT) showed no definite findings compatible with glaucoma. Ultrasound biomicroscopy (UBM) and anterior segment OCT revealed bilateral convex irides (Iris bombe') that had a pupillary block configuration. After IOP lowering medication, bilateral peripheral laser iridotomy was done which flattened the iris configuration (confirmed by repeat UBM) in both eyes which also lowered the IOP.

Conclusion: PDS is an ocular condition rarely documented in Asians, and one of the first documented in a Filipino. This case highlights the unusual presence of iris bombe' (pupillary block) which resolved after laser iridotomy and lowered the IOP.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

NEW GLAUCOMA DRAINAGE DEVICES



September 6-8 2018 | Montreal, Canada

ICGS 2018

P36

GLAUCOMA GEL IMPLANT LEARNING CURVE IN A TEACHING TERTIARY HOSPITAL

Luis Abegão Pinto¹, Raquel Esteves Marques¹, Nuno Pinto Ferreira¹,
David Cordeiro Sousa¹, Andre Barata¹, Joana Medeiros Pinto¹, Paula Sens¹

¹Department of Ophthalmology, Centro Hospitalar Lisboa Norte, Lisboa - Portugal

Purpose: XEN[®] gel stent is a minimally invasive surgical device aimed at the creation of an aqueous humour subconjunctival drainage. Being a novel device, doubts remain regarding the efficacy and safety of its implantation in the early stage of new users. This paper aims to illustrate the XEN[®] implantation learning curve, assessed through several surgeons of different expertise.

Patients and Methods: Retrospective study on the first 6 XEN[®] implants performed by each of 10 certified ophthalmic surgeons, at a Portuguese tertiary healthcare center. Simultaneous cataract surgery was allowed (phaco-XEN[®]). Primary outcomes: surgical time; intra- and postoperative surgical complications. Secondary outcomes: intraocular pressure (IOP); number of topical drugs in use; need for needling procedures. Outcome data were collected pre-operatively and at postoperative days 1, 7, 15, 30, 60 and 90. Statistical analysis was performed with STATA 14.1 and SPSS.

Results: Sixty patients were included (56.7% females). Mean age was 73 years [range: 45-89]. Mean preoperative IOP was 23.8 ± 8.95 mmHg. From the included patients, 29 (48.3%) were submitted to simple XEN[®] implant (isolated procedure), and 31 (51.7%) to phaco-XEN[®]. In both groups, mean surgical time decreased 9 minutes throughout the six-implant learning curve. In average, patients decreased two topical IOP-lowering drugs. No differences were found between outcomes of specialists and residents.

Conclusions: XEN[®] gel stent was associated with fast learning curve, by experienced surgeons as well as by novice residents. By the sixth implant, both groups of surgeons had considerably decreased mean surgical time and complication rates.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P37

A MULTI-CENTRE INTERVENTIONAL CASE SERIES OF 259 AB-INTERNO XEN GEL IMPLANTS FOR GLAUCOMA, WITH AND WITHOUT COMBINED CATARACT SURGERY

Ayesha Karimi¹, Andrew Turnbull², Chrys Dimitriou³, Bhairavi Bhatia³, Mahmoud Radwan³, Pieter Gouws⁴, Abdul Hanifudin², Nishani Amerasinghe², Aby Jacob², Dan Lindfield¹

¹Department of Ophthalmology, Royal Surrey County Hospital, Guildford - United Kingdom,

²Department of Ophthalmology, University Hospital Southampton, Southampton - United Kingdom,

³Department of Ophthalmology, Essex County Hospital, Colchester - United Kingdom, ⁴Department of Ophthalmology, Conquest Hospital, Hastings - United Kingdom

Aims: To assess efficacy of Xen in reducing intraocular pressure (IOP) in a varying glaucoma subtypes. To assess effect of combined phacoemulsification. To determine frequency of postoperative complications and explore further bleb management needed, compared to trabeculectomy outcomes.

Methods: Retrospective case note review of all patients undergoing Xen implantation across four centres from August 2015 to May 2017.

Results: 259 surgeries of 226 patients were reviewed. IOP reduced from 19.3 (± 0.7)mmHg preoperatively to 7.8 (± 0.5)mmHg on Day 1 ($p < 0.0001$), 14.2 (± 0.9)mmHg at Month 12 ($p < 0.0001$) and 13.5 (± 1.1)mmHg at Month 18 ($p < 0.0001$). Medication usage reduced from 2.6 (± 0.1) preoperatively to 0.8 (± 0.2) at Month 12 ($p < 0.0001$) and 1.1 (± 0.5) medications at Month 18 ($p < 0.0001$). Simultaneous phacoemulsification did not alter outcomes. Xen appears to be effective in previous failed filtration surgery. Adverse events included: IOP spikes of ≥ 30 mmHg in 33 (12.7%) cases, secondary filtration surgery required in 24 (9.3%) cases; implant exposure in 6 (2.3%) cases; persistent hypotonous maculopathy in 5 (1.9%) cases; persistent choroidal effusions in 4 (1.5%) cases; a cyclodialysis cleft secondary to implant insertion in 1 (0.5%) case; and 1 (0.5%) case of endophthalmitis post implant bleb resuturing. 40.9% of cases required postoperative bleb needling or antimetabolite injection.

Conclusions: Xen reduces IOP and medications at 18 months. Adverse events are uncommon. Careful postoperative surveillance and low threshold for bleb management is needed, with similar intervention rates to trabeculectomy. Xen is safe and effective in mild to moderate glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P38

NEWFOUNDLAND AB INTERNO GEL STENT STUDY

Xavier Campos-Möller¹

¹Western Health Eye Care Center, Corner Brook - Canada

Purpose: To evaluate IOP lowering, medication reduction, visual acuity and complications of the Ab interno gelatin stent (XEN) in a Canadian population not previously studied.

Methods: Retrospective chart review of all XEN gel stent cases, alone or in combination with cataract extraction(CE) performed from November 2016 to February 2018 by a single surgeon in a tertiary care center in Corner Brook, Newfoundland and Labrador.

Results: 50 Eyes of 42 patients met inclusion criteria. Mean age 70 years (21-88), all Caucasian. Cataract extraction performed in combination in 42% of cases. 24% of eyes had previous glaucoma filtering surgery. There was a statistically significant reduction of Intraocular pressure (IOP) from 23.1 ± 6.51 to 12.4 ± 3.9 mmHg ($p = 0.0001$). Number of medications dropped significantly from 3.82 ± 0.94 to 1.10 ± 1.44 ($p = 0.0001$). Mean CDVA improved from logMAR 0.57 ± 0.76 to 0.40 ± 0.53 ($p = 0.0027$). One eye lost more than 2 lines of vision. Needling was required in 30% of eyes. Additional filtering surgery (tube shunt) was required in 13% of patients. Early Low postoperative IOP (< 5 mmHg) was encountered in 6% of eyes, all of which resolved. No eyes had clinical hypotony (defined as macular folds, choroidals or reduced VA).

Conclusion: There was a statistically significant reduction in IOP and medications and an improvement in CDVA. Complication rates were lower than other types of filtering surgery. The need for adjunctive needling procedures is somewhat common with the XEN gel stent.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P39

UNUSUAL HYPOTONY AFTER CYPASS MICROSTENT TREATED WITH DIODE LASER - A CASE REPORT

Emma Linton¹, Leon Au¹

¹Manchester Royal Eye Hospital, Manchester - United Kingdom

Purpose: Complications of minimally invasive glaucoma surgery (MIGS) are uncommon. This can pose management difficulties for clinicians due to lack of experience or guidelines. We describe a case of unusual clinical but not numerical hypotony post Cypass stent treated with cyclodiode laser.

Methods: Case report and imaging of a patient with clinical hypotony post routine non-traumatic Cypass insertion.

Results: A 42 year old phakic male with pigmentary glaucoma underwent standalone Cypass stent insertion in his left eye. Pre-stent IOP was 23-26 mmHg on 4 drops. Post-operatively IOP never fell below 10mmHg but there was a shallowing of anterior chamber, chorioretinal folds and a 3 dioptre myopic shift. Intracameral injection of viscoelastic only transiently increased pressure and the shallow anterior chamber persisted. AS-OCT demonstrated extensive 360 degrees supra-choroidal fluid but no additional cleft apart from the stent. Cyclodiode laser was performed to reduce flow; 3 shots of 1350 mw x 4000 ms were placed either side of the Cypass. Postoperatively IOP raised to 16 mmHg off drops, AC was deep and unaided visual acuity was 0.1 logMAR. OCT scan showed reduced choroidal folds. One IOP spike occurred post-diode but resolved with medical treatment.

Conclusion: Hypotony is a recognised complication of Cypass but signs may occur despite "normal" IOP due to increased uveal outflow. Focal cyclodiode is a potential non-invasive treatment to reduce stent outflow.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P40

EVALUATION OF SECOND-GENERATION TRABECULAR MICRO-BYPASS STENTS IN PATIENTS WITH GLAUCOMA: A CASE SERIES FROM THE UK

Miles Parnell¹, Paul Nderitu¹, Mohamed Abu-Bakra¹, Yih-Horng Tham¹, Sameer Trikha¹, Gerassimos Lascaratos¹, Avinash Kulkarni¹

¹Ophthalmology Department, King's College Hospital NHS Foundation Trust, London - United Kingdom

Purpose: To evaluate early efficacy and safety data of two second-generation trabecular micro-bypass stents (iStent inject®) in glaucoma patients.

Methods: Thirty-six eyes were implanted with iStent inject either combined with routine phacoemulsification in phakic eyes or as a standalone procedure in pseudophakic eyes. Data was collected on intraocular pressure (IOP), visual acuity (V/A) and number of glaucoma medications to three months with longer term follow up ongoing.

Results: 36 iStent inject were implanted (61.1% combined with phacoemulsification) with 29 followed up to 3 months postoperatively. Mean preoperative IOP was 22.0 mmHg (SD 5) on an average of 3 medications. There was an average IOP reduction of 6 mmHg (SD 6.4) at 3 months representing a 27% reduction which was statistically significant ($p < 0.001$). There was a reduction in hypotensive medications of 2.1 (SD 1.5) which was statistically significant ($p < 0.001$). Of note, 9 subjects on oral acetazolamide (Diamox) were taken off Diamox by 3 months. There were no intraoperative complications and no sight-threatening postoperative complications.

Conclusion: There was a significant reduction in IOP as well as medication use following implantation of iStent inject both as a standalone procedure and when combined with phacoemulsification with an excellent safety profile. Ongoing data collection will establish the added benefit of iStent inject over and above the effects of phacoemulsification.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P41

MATERIAL, DESIGN AND MECHANISM OF ACTION OF THE INNFOCUS MICROSHUNT® GLAUCOMA DRAINAGE SYSTEM (MICROSHUNT)

Leonard Pinchuk¹, Omar Sadruddin²

¹InnFocus, Inc., Miami - USA, ²Santen Inc., Emeryville - USA

Purpose: The MicroShunt is a minimally invasive glaucoma surgery drainage device. We present the unique material, design and mechanism of action of the MicroShunt.

Methods: The MicroShunt is made from a highly biocompatible, bioinert material called poly(styrene-block-isobutylene-block-styrene) (SIBS). SIBS is soft and flexible, which allows it to conform to the shape of the eye and the elasticity of the ocular tissue. Three major iterations of design were investigated before arriving at the current MicroShunt design.

Results: The MicroShunt is 8.5 mm long (internal lumen diameter 70 µm; outer diameter 350 µm). The lumen size prevents clogging, yet is sufficiently small to enable controlled flow of the aqueous humour and minimise hypotony. Leakage and device migration is prevented by a planar fixation member, which is located halfway down the tube. The MicroShunt is implanted ab externo, enabling precise control of placement and haemostasis without the need for a sophisticated microscope, gonioscope, suture tension control or suture lysis. Sub-Tenon's placement of the MicroShunt allows controlled aqueous humour outflow via a posterior diffuse bleb. The implantation procedure can be performed in combination with cataract surgery or as a standalone procedure.

Conclusion: The unique properties and minimally invasive nature of the MicroShunt may present an alternative to trabeculectomy. Clinical studies are currently ongoing.

Sponsored by InnFocus, a Santen company.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P42

A REAL WORLD 12 MONTH EXPERIENCE OF 6 EUROPEAN CENTRES WITH THE XEN45 GEL STENT

Antonio Maria Fea¹, Alain Bron², Mario Economou³, Gianluca Laffi⁴, Enrico Martini⁵, Francesco Oddone⁶

¹Dipartimento di Fisiopatologia Clinica, Torino - Italy, ²University Hospital, Dijon - France,

³Department of Clinical Neurosciences, Stockholm - Sweden, ⁴Studio Oculistico D'Azeglio, Bologna - Italy, ⁵Ospedale di Sassuolo, Sassuolo - Italy, ⁶Fondazione Bietti, Roma - Italy

Purpose: Several MIGS procedures have been presented during the last years. The XEN45 aims to decrease intraocular pressure shunting the aqueous humor from the anterior chamber to the subconjunctival space. The aim of the present paper is to present the real life results of the XEN45 in several glaucoma centres in Europe.

Methods: Prospective data were collected in 6 European Centres: Bologna, Dijon, Rome, Sassuolo, Stockholm, Torino. Data analysis included: age, ethnicity, previous surgery, previous laser trabecular surgery and previous medical therapy. The IOP and the numbers of medications were analysed at 1 day, 1 week, 1, 3, 6, 9 and 12 months post-op. The number of needling procedures and complications were collected.

Results: Out of a total of 285 eyes, 171 who had at least 9 month follow-up were included in the analysis. Of the available baseline data 47% of patients were female, 95% Caucasians, 58% phakic at the time of surgery, 6% had previous glaucoma surgery and 24% underwent previous trabecular laser surgery. The mean age at surgery was 70.5 ± 11.8 yrs. The mean MD was -10.77 ± -8.34 . Before surgery the mean IOP was 23.9 ± 7.6 and decreased at 12 months to 15.5 ± 3.9 mmHg. Before surgery the patients were on 3 ± 1.1 drugs and 25% were on systemic acetazolamide. At 12 months, the average number of drugs was 0.7 ± 1 and none of the patients was on systemic acetazolamide. Intra-operative complications mainly included bleeding. A serious post-operative complication (malignant glaucoma) occurred in one eye.

Conclusions: To our knowledge this is the largest "real world" data series on XEN45; it suggests that this device is effective in reducing the IOP and the number of drugs in glaucoma patients.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P43

I, 2, AND 3 YEAR RESULTS FOR STANDALONE MIGS SURGERY IN OPEN ANGLE GLAUCOMA WITH THE HYDRUS® MICROSTENT FROM THE GLOBAL SPECTRM REGISTRY

Antonio Fea¹, Carlo Lavia², Laura Dallorto², Teresa Rolle²

¹Dipartimento di Scienze Oftalmologiche, Torino - Italy, ²Dipartimento di Scienze Chirurgiche, Torino - Italy

Purpose: The SPECTRUM registry is an international, multicenter data set consisting of real world experience of the Hydrus Microstent (Ivantis, Irvine CA) in an all-comers clinical setting. This is a report of the 12, 24, and 36 month results for the cohort of eyes with open angle glaucoma with no prior filtration surgery treated with standalone Hydrus MIGS surgery from 2014-2017.

Setting: The SPECTRUM registry is being conducted in 51 clinics located in 17 countries in Europe, North America, South America, the Middle East, and Asia/Pacific Rim. Over 60 surgeons are participating in the registry.

Methods: Participating surgeons are required to enter data from their Hydrus cases into the data base through a secure web portal. Data includes baseline demographic and ocular status, IOP, medication count, visual field mean deviation, and history of prior glaucoma or ocular surgeries. A follow-up visit was conducted between 1 and 3 months and repeated annually. IOP, medication, and adverse event outcomes are collected. Eyes with open angle glaucoma (POAG, PXG, PDG) with no prior filtration surgery was extracted from the data base.

Results: 427 eyes met the search criteria. Mean age was 70.3 ± 12.1 years. Eyes were 90.3% POAG, 6.8% PXG, and 2.7% PDG; 9.0% were pseudophakic, 32.6% had prior SLT. Glaucoma severity ranged from mild to advanced (VF-MD -8.8 ± 7.9 dB). Baseline IOP and medication count were 20.2 ± 5.9 mmHg and 2.6 ± 1.2 . Follow-up was completed in 321 (77.8%), 173 (40.5%) and 70 (16.4%) of eyes at 12, 24 and 36 months. Follow-up IOP was 16.4 ± 4.9 , 15.8 ± 4.4 and 15.1 ± 3.8 mmHg at 12, 24 and 36 months ($p < 0.05$ at each time point) and medication count was 1.4 ± 1.4 , 1.6 ± 1.4 , and 1.4 ± 1.2 ($p < 0.05$ at each time point).

Conclusion: In a large scale online multicenter global registry, standalone MIGS with the Hydrus microstent significantly reduced IOP and medications through 36 months compared to preoperative levels.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P44

GATT: A VANCOUVER PERSPECTIVE

Louise Robinson¹, Steven Schendel¹

¹Department of Ophthalmology, UBC, Vancouver - Canada

Background: To report the safety and efficacy of performing a gonioscopy-assisted transluminal trabeculotomy ("GATT").

Design: A retrospective, observational, non comparative case series from one Glaucoma specialist in Vancouver.

Participants: Thirty nine eyes of thirty seven patients, who were referred for treatment of glaucoma and who underwent a GATT.

Methods: Patients were identified through a retrospective medical chart review of patients who underwent GATT procedures between 12 July 2017 and 4 May 2018.

Main Outcome Measures: Intra-ocular pressure, glaucoma medications, complications.

Results: 37 patients, age ranging between 18 to 89, underwent a GATT with at least three months follow up. 14 eyes had primary open angle glaucoma, 20 had secondary open angle glaucoma and five had ocular hypertension. The average pre-GATT intra-ocular pressure was 30. The post operative day one average intra-ocular pressure was 17.42 (40.71% decrease) and at one and six months respectively was 15.90 (45.89% decrease) and 15.81 (46.15% decrease). The average number of pre-GATT medications were 3.44 with twenty two patients also taking oral acetazolamide. The average number of medications on day one was 3.38, with twenty patients on oral acetazolamide. The number of medications at one month decreased to 3.26, with four patients still requiring oral acetazolamide and at three months was 3.36 with four patients still on oral acetazolamide. Only three patients required further surgical intervention to adequately control their intra-ocular pressure.

Conclusions: The preliminary review of the use of GATT, indicate that it as an effective angle surgical intervention for patients with moderate glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P45

IOP AFTER PHACO PLUS IN PHAKIC EYES AND STANDALONE ISTENT IN PSEUDOPHAKIC EYES-PRELIMINARY RESULTS

Madhu Nagar¹, Anindyt Nagar², Madalina Pavel³

¹Department of Ophthalmology Mid Yorkshire Hospitals, Wakefield - United Kingdom, ²Department of Ophthalmology, London - United Kingdom, ³Department of Ophthalmology, Wakefield - United Kingdom

Purpose: The primary aim is to determine the reduction of Intraocular pressure (IOP) in phakic eyes after combined phacoemulsification with Intraocular lens implantation and ab-interno, gonioscopically guided implantation of two iStent inject in patients with coexisting cataract and primary open angle glaucoma (POAG) uncontrolled on glaucoma drops. The other group is POAG patients with pseudophakia, uncontrolled on glaucoma drops who underwent iStent implantation.

Method: Group 1: Postoperative follow-ups at Day 1, Week 1 and months 1, 3, 6, 9 and 12. Acetazolamide discontinued on the day of surgery and the remaining ocular hypotensive medications were washed off at post operative visits depending on the IOP.

Results: Group 1, mean IOP reduction from baseline was 5.46 mmHg (23.27%) at Day 1, increasing to 27.37% at Month 1 and 27.62% at Month 3. The Standalone iStent group demonstrated mean IOP reduction of 6.22 mmHg from baseline (25.36%) at Day 1, 28.11% and 29.79% at Week 1 and Month 1 respectively. The number of ocular hypotensive medications was decreased in both groups (from 2.78 drops at baseline to 1.75 at Month 3 in Group 1 and from 2.62 drops at baseline to 1.75 drops at Month 3 in Group 2). Approximately 90% of the patients in both groups had an IOP less than 21 mmHg at Month 3.

Conclusions: IOP reduction was clinically and statistically significant and both groups registered a reduction in glaucoma drops.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P47

360° OPTICAL COHERENCE TOMOGRAPHY EVALUATION OF THE SUPRACHOROID SPACE AFTER SUPRACILIARY MICROSTENT IMPLANTATION

Alessandra De Gregorio¹, Margherita Montali¹, Aurora Bertoncello¹,
Giulia Stevan¹, Simonetta Morselli¹

¹Ophthalmic Unit, San Bassiano Hospital, Bassano del Grappa - Italy

Purpose: To analyze and follow over time the width of aqueous humor (AH) drainage in the supraciliary space with the anterior segment optical coherence tomography (AS-OCT) imaging after the Cypass micro-stent implantation.

Methods: We conducted a prospective case series study enrolling 10 patients with open angle glaucoma and uncontrolled intraocular pressure (IOP). Cypass micro-stent was implanted in the nasal quadrant, combined with cataract surgery, only 2 patients have had previous trabeculectomy. Postoperative IOP, adverse events and supraciliary outflow (Visante AS-OCT) were monitored for 6 months. Visante AS-OCT was focused on the postlimbal area of the 4 main quadrants.

Results: Mean age was 66.2 ± 9.87 years. The mean preoperative IOP was 19 ± 7.2 mmHg with a mean of 2.88 ± 1.05 hypotensive therapy classes. After 6 months the mean postoperative IOP was 11 ± 4 mmHg (42.1% mean IOP reduction of $p < 0.05$) with 73.3% reduction of hypotensive therapy. In 8 patients (80%), the OCT images showed a supraciliary circumferential accumulation of fluid that remained unchanged for 6 months. These circumferential clefts were absent in those patients who previously underwent trabeculectomy, which presented only a fluid accumulation surrounding the microstent.

Conclusions: This case series study showed a 360° circumferential AH drainage in the suprachoroid space after Cypass implantation that persists after 6 months.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P48

12-MONTH RESULTS OF A MULTICENTRE OPEN-LABEL STUDY OF THE INNFOCUS MICROSHUNT® GLAUCOMA DRAINAGE SYSTEM IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA (POAG)

Henny Beckers¹, Carroll Webers¹, Florent Aptel², Elisa Bluwol³, José Martínez-de-la-Casa⁴, Julián García-Feijóo⁴, Yves Lachkar³, Carmen Méndez-Hernández⁴, Isabelle Riss⁵, Tarek Shaarawy⁶

¹University Eye Clinic, Maastricht University Medical Center, Maastricht - Netherlands, ²CHU de Grenoble, Grenoble - France, ³Hôpital Paris Saint Joseph, Paris - France, ⁴Hospital Universitario Clínico San Carlos, Madrid - Spain, ⁵Pôle Ophthalmologique de la Clinique Mutualiste, Bordeaux - France, ⁶Hôpitaux Universitaires de Genève, Geneva - Switzerland

Purpose: The MicroShunt (8.5 mm-long, 70 µm lumen) is made from SIBS. This 12-month interim analysis of a prospective, 24-month study (NCT02177123), evaluated the efficacy/safety of the MicroShunt in POAG.

Methods: The MicroShunt was implanted ab externo (MMC: 0.2-0.4 mg/mL) in patients not controlled on maximum tolerated medical therapy (medicated IOP \geq 12 and \leq 33.5 mmHg). Outcomes were IOP, glaucoma medications/patient, adverse events (AEs) and surgical failures. Data collected on/after reoperation were excluded from analyses.

Results: Overall, 101 patients were implanted with the MicroShunt. Baseline mean \pm SD IOP and medications/patient were 21.5 \pm 4.2 mmHg and 2.1 \pm 1.3, respectively. At Month 12, IOP was 14.6 \pm 4.4 mmHg (33% median reduction from baseline; n = 78); 67% of patients were medication-free. Common procedure-/device-related AEs were increased IOP (21%), numerical hypotony (10%), and keratitis (8%). Site-reported bleb revisions (8%) at the slit lamp were performed by needling and/or 5-FU injection. There were no long-term sight-threatening AEs.

Conclusion: MicroShunt implantation was associated with favorable efficacy and safety outcomes. Sponsored by InnFocus, a Santen company.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P50

STANDALONE IMPLANTATION OF 1ST GENERATION TRABECULAR MICRO-BYPASS STENTS COMBINED WITH TOPICAL PROSTAGLANDIN IN OAG PATIENTS ON 2 MEDICATIONS: 5-YEAR OUTCOMES

Mohammed ElMallah¹

¹Ocala Eye, Ocala - USA

Purpose: This study aimed to assess safety and IOP effects following standalone implantation of two trabecular bypass stents (iStent®) combined with travoprost in OAG patients on 2 medications.

Methods: This prospective, single-arm study enrolled subjects with OAG on 2 preoperative medications. Preoperative mean medicated IOP was 18-30 mmHg and post-washout mean unmedicated IOP was 22-38 mmHg. Subjects were implanted with 2 iStent devices as a standalone procedure, and travoprost was started on postoperative day 1. Annual medication washouts were conducted to assess unmedicated IOP. Key assessments included IOP, medication usage, ocular health and adverse events.

Results: Thirty-seven of 39 subjects enrolled completed 5-year follow-up. Postoperative mean medicated IOP showed consistent reduction to ≤ 14.0 mmHg at all visits through M60, and was 12.4 mmHg at M60 compared to 22.4 mmHg preop. Postop mean unmedicated IOP was ≤ 17.7 mmHg at all visits, and was 16.6 mmHg at M60 compared to 25.3 mmHg preop. At M60, IOP ≤ 18 mmHg on travoprost was observed in 88% of subjects. All subjects underwent uncomplicated stent implantation as a sole procedure with no device-related AEs.

Conclusion: In this study, treatment with 2 iStent devices combined with topical travoprost can safely achieve sustained reduction of IOP to ≤ 14 mmHg and reduced medication burden through 5 years postoperative. This report builds upon previously published work demonstrating favorable outcomes with iStent implantation for the treatment of OAG.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P51

LONG-TERM FOLLOW UP OBSERVATIONAL STUDY OF REAL LIFE EXPERIENCE WITH TRABECULAR FIRST-GENERATION MICRO-BYPASS STENT IMPLANTATION (iStent®) IN PATIENTS WITH GLAUCOMA

Lyle Newball¹

¹Clinica Lynd Newball, San Andres - Colombia

Purpose: To assess the effect on decrease intraocular pressure and the reduction in the number of antiglaucomatous drugs required, in patients with glaucoma, who underwent trabecular micro-bypass stent implantation (iStent®), followed for 18 months.

Methods: Prospective follow-up at 18-month, to a cohort of patients with glaucoma, who underwent first-generation micro-bypass stent implantation, alone or combined with phacoemulsification.

Results: Of the 67 patients included, 41 completed the 18-month follow-up. The mean age was 67.3 years (± 7.4), 50.7% were female, 62.6% was afro-descendant and 55.2% had severe glaucoma. Four patients had previous glaucoma surgery. 62.2% of the cohort achieved a 25% or greater decrease in IOP. A statistically significant association was observed between the implant combined with phacoemulsification and a decrease in IOP of 25% or more ($p = 0.02$). The IOP decreased statistically significantly ($p < 0.001$), from an average of 20.03 mmHg (± 6.5) in Month 0, to an average of 14.0 mmHg (± 3.1) in Month 18. 87.9% of the eyes decreased the number of anti-glaucomatous drugs. The proportion of eyes that required an additional glaucoma procedure was 2%, 2%, 3%, 1.5% and 1.5% in the cuts at month 1, 3, 6, 12 and 18, respectively.

Conclusion: The trabecular first-generation micro-bypass stent implantation was able to decrease the IOP by 25% or more, and the number of anti-glaucomatous drugs, for at least 18 months of follow-up. The percentage of patients who required an additional glaucoma procedure or experienced adverse events during the follow-up was infrequent. This research demonstrates the utility of this surgery in patients with severe glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P52

XEN SURGERY, APPROACHES AND FINDINGS

Chengjie Zheng¹, Earl Randy Craven¹

¹Wilmer Eye Institute, Johns Hopkins University, Baltimore - USA

Purpose: To report three variations to Xen implant surgeries that have not been previously described.

Methods: A retrospective case series of three patients who underwent unique approaches to Xen surgery. In the first case, a patient with anterior segment dysgenesis and prior corneal transplant underwent ab-externo implantation of the Xen. In the second case, a Xen implant previously occluded by iris underwent flushing via a modified canalicular stent. In the third case, a patient with a retracted Xen implant underwent intraoperative repositioning after unsuccessful manipulation at the slit lamp, ultimately resulting in a double-lumen implant.

Results: Improvement in intraocular pressure control was achieved in all three patients after surgery, although long-term data is yet to be seen. All three cases involved manipulation of the conjunctiva; no wound leaks were seen. All three patients were found to have significant blebs postoperatively, and maintained stable vision.

Conclusion: Apart from needling procedures, alterations to Xen-related surgeries are not yet well-described. This case series sought to broaden the literature on unique modifications to the standard approach. First, we report the first implantation of a Xen gel stent ab-externo, and suggest that this implant may have a role even in complex anterior segments. Second, we present the first reported case of flushing of the stent, and highlight the need for managing occlusions of the lumen. Our last case emphasizes that the implant itself can be fragile, and describes a situation in which damage to a previously manipulated stent was salvaged to provide function and efficacy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P55

LONG-TERM OUTCOMES OF TREATMENT WITH SECOND-GENERATION TRABECULAR MICRO-BYPASS STENTS COMBINED WITH TOPICAL PROSTAGLANDIN IN EYES WITH OAG ON 2 PREOPERATIVE MEDICATIONS

André Mermoud¹

¹Glaucoma Research Centre - Montchoisi Clinic, Lausanne - Switzerland

Purpose: This prospective study aimed to evaluate treatment of OAG with two trabecular micro-bypass stents (iStent inject®) implanted as a standalone procedure combined with prostaglandin in subjects on 2 preoperative medications.

Methods: Preoperative IOPs were 18-30 mmHg (medicated) and 22-38 mmHg (following medication washout). Two iStent inject stents were implanted as a standalone procedure, and travoprost was started on postoperative Day 1. Assessments included IOP, medication burden, ocular health and complications/AEs. Annual medication washouts were performed.

Results: All 53 enrolled subjects completed follow-up out to 42 months. Mean medicated IOP at M42 is 12.4 mmHg compared to 19.7 preoperative on 2 meds (37% reduction) and 24.9 preoperative post-washout (50% reduction). At M36, 91% of eyes achieved IOP of ≤ 18 mmHg on travoprost and 88% achieved $\geq 20\%$ reduction in mean IOP on travoprost compared to preoperative mean IOP on 2 meds. All eyes underwent uncomplicated implantation of iStent inject. Best-corrected VA, C/D ratio, and VF mean deviation remained stable throughout the study.

Conclusion: This study demonstrates long-term safety and utility of iStent inject as a treatment for patients with OAG. In this cohort of eyes with OAG not controlled on 2 preoperative medications, treatment with iStent inject stents performed as a standalone procedure combined with postoperative travoprost resulted in safe and long-lasting clinically meaningful IOP and medication reduction through 42 months.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**NEW
TECHNOLOGY**



September 6-8 2018 | Montreal, Canada

ICGS 2018

P57

INTRA-OPERATIVE ASOCT: EFFECT OF PHACOEMULSIFICATION ALONE VS PHACO-ENDOCYCLOPLASTY ON ANGLE RECESS IN PLATEAU IRIS SYNDROME - A PRELIMINARY REPORT

Vani Puri¹, Vanita Pathak Ray²

¹Department of Ophthalmology, Goa - India, ²Centre for Sight, Hyderabad - India

Purpose: To document change in the anterior chamber angle (ACA) via intra-operative Anterior Segment OCT (ASOCT) post phaco as well as post phaco-endocycloplasty in Plateau Iris Syndrome (PIS).

Methods: Prospective, cross-sectional study. Consecutive patients with gonioscopy and Ultrasound Biomicroscopy (UBM) documented PIS, post laser peripheral iridotomy (LPI), and cataract undergoing Phaco-endocycloplasty (PE) via a superior incision, were recruited. Intra-operative ASOCT (Bioptigen Envisu) was mounted on the operating microscope and images were captured first following phaco and then after undergoing endocycloplasty for 210-270 degrees. Images were captured at 3, 6 and 9 o'clock hours and compared to 12 o'clock (control).

Results: 5 eyes of 5 patients with PIS post LPI were included. Average age of patients was 62 years. ACA was found to be 40.7 ± 1.0 , 40.2 ± 8.2 and 39.3 ± 11.1 degrees at 3, 6 and 9 o'clock respectively post phaco, all of which was statistically insignificant when compared to control image at 12 o'clock ($p = 0.38, 0.61$ and 0.87 respectively). The ACA increased by 24.1, 16.7 and 18.0 degrees post endocycloplasty at 3, 6 and 9 o'clock respectively, all statistically significant ($p = 0.012, 0.037$ and 0.021). Difference in ACA superiorly at 12 o'clock was 1.01 degree post phaco and after endocycloplasty ($p = 0.756$).

Conclusion: This is the first such study involving intra-operative ASOCT in PIS showing a widening of the anterior chamber angle post endocycloplasty, significantly more than after phaco alone.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P59

A STRUCTURAL AND FUNCTIONAL MACHINE LEARNING CLASSIFIER IMPROVES PREDICTION OF PATIENT-REPORTED DISABILITY IN GLAUCOMA

Susan Wakil¹, Alessandro A. Jammal¹, Nara G. Ogata¹, Felipe A. Medeiros¹

¹Department of Ophthalmology, Duke University, Durham - USA

Purpose: To develop a machine learning classifier combining structural and functional testing to improve prediction of patient-reported disability in glaucoma.

Methods: The study included 487 patients diagnosed with glaucoma. Patient-reported quality of life was assessed by the National Eye Institute Visual Function questionnaire (NEI-VFQ 25). Patients were classified as disabled versus non-disabled based on a latent class analysis of NEI VFQ-25 data. All patients also had testing with standard automated perimetry (SAP SITA 24-2) and spectral-domain optical coherence tomography (SDOCT) in both eyes. A Random Forest Classifier was trained to discriminate disabled versus non-disabled subjects based on SAP and SDOCT features. Classification performance was assessed by the area under the receiver operating characteristic (ROC) curve.

Results: 83 of the 487 (17%) patients were classified as disabled based on NEI VFQ-25 results. There was a significant difference in average binocular SAP MS between the two groups (27.3 ± 4.2 dB vs 29.3 ± 3.3 dB; $p < 0.001$). The area under the ROC curve on the independent test sample was 0.85 (95% CI: 0.81 - 0.90) for the Random Forest Classifier compared to 0.66 (95% CI: 0.60 - 0.73; $p < 0.001$) for SAP MS and 0.62 (95% CI: 0.54 - 0.69; $p < 0.001$) for global RNFL thickness.

Conclusion: A machine learning classifier using structural and functional information significantly improved prediction of patient-reported disability in glaucoma.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**NON-
PENETRATING
SURGERY**



September 6-8 2018 | Montreal, Canada

ICGS 2018

P62

THE PLACE OF SURGICAL TREATMENT IN PIGMENTARY GLAUCOMA

Hakim Boudedja¹, Meriem Dahmani¹, Mohamed Azzouni¹, Ilhem Aba Yahia¹, Malika Terahi¹

¹CHU Nafissa Hammoud , Algiers-DZA, Algiers - Algeria

Purpose: Pigmentary glaucoma (PG) is the most common cause of secondary glaucoma in young adults in the West where it affects 1 to 1.5% of cases of glaucoma. The aim of our study is to determine the clinical and therapeutic features of this clinical entity among the patients on our consultation.

Methods: This is a retrospective study of 25 eyes of 14 patients followed up for PG in the ophthalmology unit at the Nafissa Hammoud University Hospital, from June 2007 to October 2017.

Results: The average duration of the follow-up of our patients was about 41.6 ± 3 months. The average age of our patients was 44.3 ± 15 years with a peak between 41 and 50 years with a Sex ratio (W / M) of 0.14, 11 patients were Caucasian (78.5%) and all our patients had myopia (100%). PG was bilateral among 11 patients (78.5%) and 3 patients (21.4%) had a family history of glaucoma. Regarding the epidemiological aspect, all the data in our study are consistent with what is reported in the PG literature. Pigment dispersion syndrome was present in all the studied patients (100%) with: Pigment on the posterior area of the cornea in 25 eyes (100%), Krukenberg's spindle in 15 eyes (60%), Tyndall pigment in 4 eyes (16%), Iris atrophy range in 8 eyes (32%) and Pigment on the anterior area of the lens in 8 eyes (32%). Gonioscopy have found a pigmentation of the irido-corneal angle grade 4 (Scheie classification) present in 100% of cases. The average IOP under treatment at the time of diagnosis was 19.7 ± 12 mmHg with an average C / D ratio of 7.5 ± 3 . The average MD (mean defect) was 10.4 ± 9.4 and 40% of the eyes had $MD \geq 12$ (advanced / severe glaucoma), while the average pachymetry was 540 ± 24 μ m. The average number of antiglaucoma medications (MMAGs) used at the time of diagnosis was 3 ± 1 med / eye, prostaglandins was the most commonly used antiglaucoma drug in our series (100% of patients). As regards the therapeutic methods used in the care of the eyes, all the eyes has received medical treatment during their follow-up, 10 filtering surgery (6 deep sclerectomy and 4 trabeculectomy), 7 have been treated with a peripheral iridotomy and 2 SLT. The average number of antiglaucoma drug at the end of the study was 0.84 ± 1 drug / eye, a decrease of 72%. All these means allowed us to reduce the average IOP at the end of the study to 11.5 ± 3 mm Hg, a decrease of 41.8%. Glaucomatous damage of the optic disc and the visual field is not different from that seen in POAG. However, it differs in: its speed of evolution and its prognosis which is generally serious, since in our series, 48% of patients had a C / D = 1 and 40% a $MD \geq 12$ (advanced / serious glaucoma), this despite their young age (44.3 ± 15 years). The thin cornea, which is a risk factor for POAG, is not for the PG. The average central

9th International Congress on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

corneal pachymetry of our patients was $540 \pm 24.2 \mu\text{m}$ (normal). Filtration surgeries remain an effective remedy to overcome resistance to the flow of aqueous humor. This is confirmed by our results, since filtering surgery has been proposed (in situations of resistance to medical or laser treatment) in 10 eyes (40%). All eyes that have undergone surgery had a controlled IOP without antiglaucomatous treatment at the end of our study. It is necessary to consider this therapeutic alternative in order to prevent irreversible important deficits of the visual field.

Conclusions: Pigmentary Glaucoma is an open-angle secondary glaucoma. It follows a pigment dispersion syndrome and has particular clinical and evolutionary features. Its management depends on the stage and the evolution of the pathology. Hence, It explains the importance of following-up our patients in order to adapt case management on a case-by-case basis, depending on the clinical picture and the eventual progression of the case. It is one of the best indications of filtering surgery, with lasting effectiveness.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P63

GONIOSCOPY-ASSISTED TRANSLUMINAL TRABECULOTOMY SURGERY: PREOPERATIVE AND POSTOPERATIVE FACTORS AFFECTING SURGICAL OUTCOMES

Zeynep Aktas¹, Caglar Bektas¹, Ahmet Yücel Ucgul¹, Selin Sahin Karamert¹

¹Gazi University Medical Faculty, Dept. of Ophthalmology, Ankara - Turkey

Purpose: To investigate prognostic factors affecting the surgical success of gonioscopy-assisted transluminal trabeculotomy (GATT).

Methods: Fifty-three eyes of 53 open-angle glaucoma patients who underwent prolene-GATT with at least 6 months follow-up were retrospectively enrolled. The effect of patient demographics, preoperative intraocular pressure (IOP), mean deviation (MD), retinal nerve fiber layer thickness (RNFLT) on surgical success were analyzed.

Results: The average follow-up time is 13,7 months. The median cup / disk ratio was 0.8; mean MD was -18.48 dB and retinal RNFLT was 59.27 μ . The mean intraocular pressure (IOP) decreased from 25.6 \pm 6.2 mmHg to 14.6 \pm 3.5 mmHg. The mean number of anti-glaucomatous medication decreased from 3.2 \pm 0.78 to 1.2 \pm 1.3. When the target IOPs were set as 18 mmHg and 15 mmHg, the success rates were 81.1% and 60.4%, respectively. Macrohyphema (%9.4) was the only factor that seemed to decrease success rates. None of the other parameters significantly affected success rates of GATT.

Conclusion: GATT can also be successfully performed in advanced glaucoma cases. Postoperative macrohyphema might decrease surgical success rates. Stage of glaucoma does not seem to affect surgical success. Future prospective studies with higher number of patients are needed.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

OCULAR IMAGING



September 6-8 2018 | Montreal, Canada

ICGS 2018

P64

LOW IRIS AND ANTERIOR CHAMBER VOLUME ASSOCIATED WITH MORE ANTERIOR CHAMBER DEEPENING AFTER LASER PERIPHERAL IRIDOTOMY IN PRIMARY ANGLE CLOSURE SUSPECTS

Mohammad Pakravan¹, Hamed Esfandiari¹, Shahin Yazdani¹,
Nasim Amouhashemi¹, Khosro Jadidi¹, Pouya Torkian¹, Mehdi Yaseri¹

¹Labbafinejad Medical Center affiliated to Shahid Beheshti University, Tehran - Iran

Purpose: To evaluate the association between baseline ocular variables and the opening of the anterior chamber angle by laser peripheral iridotomy (LPI) in primary angle closure suspects (PACS) using a Fourier-domain swept-source anterior segment optical coherence tomography (FD-ASOCT).

Method: Sixty-six PACS eyes of 41 individuals were included in this prospective interventional case series. FD-ASOCT (Casia SS-1000 OCT; Tomey, Nagoya, Japan) was used to measure biometric baseline variables and at one month after the LPI. Paired t-test was used to compare the difference between pre-and post-LPI measurements. Multivariate regression analysis was used to test for an association between baseline iris thickness and volume, anterior chamber depth and volume, and lens vault with a widening of the angle after LPI.

Results: The mean age of participants was 58.6 ± 8.7 years, 682% of whom were female. The angle opening distance, recess area and trabecular iris surface area at 500 microns increased by 48 to 73% (all $p < 0.001$). Lens vault and iris volume did not change. A low anterior chamber volume and low iris volume were associated with angle greater deepening by LPI.

Conclusion: Eyes with a shallow anterior chamber and thinner irises are more likely to experience angle opening from a LPI.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P65

OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY (OCTA) IN GLAUCOMA

Jan Novak¹

¹Department of Ophthalmology, Hospital Pardubice, Pardubice - Czech Republic

Purpose: The measurement of optic nerve head (ONH) and peripapillary vessel density may be associated with diagnosis of glaucoma.

methods: AngioVue® imaging system was used to quantify vessel density (%) in the regions: the whole image, inside disc = ONH and peripapillary region. Repeatability, reproducibility and sensitivity of examination was tested in the groups of healthy volunteers (26 eyes) with retinal nerve fiber layer (RNFL, mm) = {mean ± SD, 116.2 ± 11.2, n = 26} and both normal perimetry (Zeiss) VFI(%) = 100 and best corrected visual acuity (BCVA) = 1.0. Our normal results were compared with values in the group of normotension glaucoma (22 eyes) with decrease of RNFL = {62.6 ± 10.2} and deep defect in perimetry (Zeiss) VFI(%) = {65 ± 11.2} but relative good BCVA = 0.5 – 1.0. Wilcoxon and Kruskal-Wallis tests were used.

Results: Repeatability in the group of normal eyes was confirmed for the whole image ($p = 0.797$), ONH ($p = 0.764$) and peripapillary region ($p = 0.404$), reproducibility ($p = 0.340, 0.660, 0.162$). Differences between healthy and glaucoma eyes were statistical significant ($p < 0.0005$) in the whole image {50.1 ± 1.8} to {34.4 ± 5.3} and peripapillary region {52.6 ± 2.2} to {32.8 ± 6.1} but not ($p = 0.931$) in ONH {52.3 ± 3.1} to {48.6 ± 15.1}.

Conclusion: OCTA AngioVue® is seen to be reproducible method for next glaucoma research. Peripapillary region appears to be the most sensitive for valuation of vessel density in glaucoma.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P66

DUAL SCHEIMPFLUG IMAGING AS A SCREENING METHOD FOR OCCLUDABLE ANGLES - A COMPARISON WITH GONIOSCOPY

Natalia Maes¹, Beatriz Gomes², Gustavo Rabelo, Rebeca Souza¹

¹Bonsucesso General Hospital, Rio de Janeiro - Brazil, ²Federal University of Rio de Janeiro, Rio de Janeiro - Brazil

Purpose: To evaluate the dual scheimpflug analyzer as a screening method for the detection of gonioscopically narrow anterior chamber angles.

Methods: In 40 eyes of 40 patients with different anterior chamber angle (ACA) range, the ACA, anterior chamber volume (ACV) and anterior chamber depth (ACD) were analyzed using the Galilei G6 system. Correspondence between these parameters and Shaffer's classification based on gonioscopy were studied. Receiving operator characteristic (ROC) curves and partition analysis were used to determine the efficacy of the Galilei system in screening for narrow angles. Agreement (kappa statistics), sensitivity, and specificity for each eye according to Galilei measures were also assessed.

Results: Shaffer's grade (from 0 to 4) were significantly associated with each of the measurements ($p < 0.001$). In screening eyes with narrow angles with the Galilei, the area under the ROC curve was largest (0.90) when ACD was used as the reference, and partition analysis demonstrated that those eyes were most adequately partitioned with an ACD of 2.86 mm with 100% sensitivity and 80% specificity.

Conclusions: The Galilei has potential to be a secure, repeatable and noncontact screening method for narrow angles.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P67

DOPPLER IMAGING OF INTERNAL CAROTID ARTERY IN ASYMMETRICAL PRIMARY OPEN ANGLE GLAUCOMA

Sonal Dangda¹, Usha Yadava¹, Mainak Bhattacharyya¹

¹Guru Nanak Eye Centre, New Delhi - India

Purpose: Assess significance of Doppler imaging of internal carotid artery (ICA) in asymmetrical primary open angle and normal tension glaucoma (POAG&NTG).

Method: Patients presenting with asymmetrical glaucomatous changes and open angles on gonioscopy were evaluated for ICA Doppler imaging. The Peak Systolic Velocity (PSV), End Diastolic Velocity (EDV), Mean Velocity (MV), Resistance Index (RI), Pulsatility Index (PI) were compared between the two eyes. ICA was evaluated for any luminal narrowing or plaque on affected side.

Results: 15 patients, 40-65 years, with 0.7-0.9 optic cupping and mean intraocular pressure (IOP) of 34.6 ± 12.8 mmHg in the worse eye were studied. Fellow eye showed 0.2-0.5 cupping and 23.71 ± 3.98 mmHg mean IOP. The mean PSV&EDV ipsilaterally at 56.87 ± 22.66 (16-106) cm/sec and 20.03 ± 9.82 (6-38) cm/sec were found lower ($p=0.84$, $p=0.39$) than 59.13 ± 20.85 (24-98) cm/sec and 22.8 ± 9.3 (10-35) cm/sec respectively contralaterally. The resistance to flow was noted higher ipsilaterally with mean RI being 0.64 ± 0.11 & 0.61 ± 0.05 ($p=0.43$) and mean PI 0.96 ± 0.24 & 0.89 ± 0.12 ($p=0.47$) respectively. Ipsilateral atherosclerotic plaques were evident in 3 subjects.

Conclusion: Although higher RI and PI on the affected side hint at subtle differences in blood flow patterns, these parameters were not found statistically significant. An increased resistance higher up in the vascular tree might need to be looked at and a larger sample needs to be considered.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

TRABECULECTOMY



September 6-8 2018 | Montreal, Canada

ICGS 2018

P68

SHORT-TERM RESULTS OF MINIMALLY INVASIVE TRABECULECTOMY USING ADJUNCTIVE TOPICAL BEVACIZUMAB: A RANDOMIZED CLINICAL TRIAL

Mohammad Arish¹, Omid Bagherzadeh², Seyyed Sajad Ahmadi²

¹Department of Ophthalmology,, Zahedan Medical Science, Zahedan-Alzahra Eye Hospital - Iran,

²Alzahra Eye Hospital, Zahedan Medical Science, Zahedan - Iran

Purpose: To evaluate the effect of minimally invasive trabeculectomy procedure with and without topical bevacizumab.

Methods: In this prospective, double-blind, randomized clinical trial, 30 patients with primary open-angle glaucoma divided in two groups. The first group (15 patients) was subjected as minimally invasive trabeculectomy without topical bevacizumab and the second group (15 patients) was objected as minimally invasive trabeculectomy with 1.25 mg of topical bevacizumab. Intra ocular pressure of both groups was measured before and after 6 months. Data had been collected and analyzed.

Results: Of the 30 patients in the study, 6 female (40%) and 9 male (60%) underwent minimally invasive trabeculectomy procedure (group1) and 7 female (46.7%) with 8 male (53.3%) underwent minimally invasive trabeculectomy with topical bevacizumab (group 2). The mean and standard deviation of age in group 1 and in group 2 were 52.4 ± 16.11 years and 51.80 ± 12.45 years respectively. The results of repeated ANOVA measurement showed statistical difference in the IOP ($p < 0.0001$). No statistical difference was shown in the baseline of IOP by Independent Samples Test between the two groups, while in second group (minimally invasive trabeculectomy with topical bevacizumab) had shown a significant reduction in I.O.P compared to the first group (minimally invasive trabeculectomy without bevacizumab) after 6 months.

Conclusions: Minimally invasive trabeculectomy procedure is an effective surgical method for reduction of IOP while a single dose of 1.25 mg of topical bevacizumab added, is more effective in reduction of IOP compared to the minimally invasive trabeculectomy alone.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P69

EFFECTS OF OVERHANGING BLEB AFTER TRABECULECTOMY ON OPTICAL CHARACTERISTICS

Yu Mizuno¹, Ryotaro Toda¹

¹Department of Ophthalmology and Visual Science, Hiroshima University, Hiroshima - Japan

Purpose: The purpose of this study is to examine the effects of overhanging bleb after trabeculectomy on corneal higher-order wavefront aberration and anterior segment optical coherence tomography images.

Methods: Sixty-three eyes from 50 patients with overhanging bleb after trabeculectomy with a limbal-based conjunctival flap and 23 eyes from 16 normal patients were included. Corneal higher-order aberration for a 4-mm pupil diameter and corneal astigmatism were measured using TOPCON KR-1W wavefront analyzer. Keratometric, posterior, and real astigmatism were measured using TOMEY CASIA 2. Student-t test and Wilcoxon rank sum test were used for statistical analyses.

Results: Corneal higher-order aberration was statistically significantly higher in the trabeculectomy group than in the normal group ($0.35 \pm 0.04 \mu\text{m}$ and $0.17 \pm 0.08 \mu\text{m}$, respectively; $p < 0.001$). Corneal astigmatism was also increased in the trabeculectomy group than in the normal group ($-2.17 \pm 0.28 \mu\text{m}$ and $-1.28 \pm 0.45 \mu\text{m}$, respectively; $p = 0.049$). Keratometric and posterior astigmatism were higher in the trabeculectomy group ($43.91 \pm 0.20 \text{ D}$ and $-6.18 \pm 0.03 \text{ D}$) than in the normal group ($43.06 \pm 0.35 \text{ D}$ and $-6.04 \pm 0.04 \text{ D}$, respectively; $p = 0.038$ and $p = 0.005$). Real astigmatism was not different between the two groups ($42.88 \pm 0.20 \text{ D}$ and $42.06 \pm 0.36 \text{ D}$, respectively; $p = 0.050$).

Conclusion: Overhanging bleb after trabeculectomy with a limbal-based conjunctival flap increases not only corneal astigmatism but also higher-order aberrations.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P71

NEW WAY OF SURGICAL TREATMENT OF GLAUCOMA

Olga Kiseleva¹, Alexander Bessmertny¹, Anastasia Zhuravleva¹,
Elena Suleiman¹, Ksenia Lugovkina¹

¹Department of Glaucoma, Moscow - Russia

Purpose: The purpose of this study to demonstrate the efficacy and safety of a new modification of trabeculectomy in primary open-angle glaucoma (POAG) treatment.

Methods: 30 patients (30 eyes) with advanced uncontrolled POAG were operated during. All patients had the maximum hypotensive therapy. The following technique of the operation was used. After limbus-based conjunctival dissection in superior part of a limbus prepared scleral thickness outer and deep flap. Performed of trabeculectomy and iridectomy. Further the edges deep scleral flap twisting outwards and stitched together, forming a "cushion". Thus, the sides of the cushion formed "grooves" in the deep layers of sclera which were established ways for aqueous humor outflow. Had covered the formed "cushion" with a superficial scleral flap and fixed it by seams. Reposition of conjunctival flap was performed in the usual way.

Results: Follow-up time was at least 12 months. Final postoperative IOP was less than 18 mmHg. All patients had unchanged visual acuity and visual field examination before and after the surgery. The quality of the operation in postoperative period was assessed by method of ultrasound biomicroscopy. The functionally active cavity without elements of scarring was determined in the surgery area in all periods after surgery.

Conclusions: Design of a new method allows preserve a sustained hypotensive effect in long-term period after surgery and can be used in glaucoma surgery.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P72

SHORT-TERM EFFICACY AND SAFETY OF AB INTERNO TRABECULECTOMY WITH KAHOOK DUAL BLADE IN JAPANESE GLAUCOMA PATIENTS

Takashi Fujishiro¹, Koichiro Sugimoto¹, Rei Sakata¹, Megumi Honjo¹, Makoto Aihara¹

¹Department of Ophthalmology, Graduate School of Medicine, The University of Tokyo, Tokyo - Japan

Purpose: To evaluate short-term surgical efficacy and safety of ab interno trabeculectomy with Kahook Dual Blade (KDB surgery) in Japanese glaucoma patients.

Methods: A retrospective chart review was performed on glaucoma patients who underwent standalone KDB surgery at University of Tokyo Hospital from September 2017 to January 2018, with 3 months follow-up. The demographics, preoperative and postoperative intraocular pressure (IOP), visual acuity (VA) and medication score, the extent of incision, and postoperative complications were analyzed.

Results: Twenty-two eyes of 22 patients with 8 POAG, 11 exfoliation glaucoma, 1 congenital glaucoma and 2 secondary glaucoma were included. The mean age was 70.2 ± 15.8 years old. KDB surgery was successfully completed and hyphema was observed in all eyes. The trabecular meshwork was incised in nasal 105 ± 15.4 degrees. The IOP and medication score significantly decreased from 27.9 ± 6.8 mmHg and 4.7 ± 1.8 at the baseline to 15.4 ± 6.0 mmHg and 1.9 ± 2.1 , 16.9 ± 6.1 mmHg and 2.1 ± 2.1 , and 15.5 ± 5.2 mmHg and 2.2 ± 2.1 at 1, 2, and 3 months, respectively ($p < 0.05$, paired t-test with Bonferroni correction). VA in all visits was not significantly different. Hyphema was seen in 3 eyes (13.6%) on the first postoperative day, but diminished within a week. Other complications were not occurred.

Conclusion: KDB surgery was safe and effective on IOP reduction and medication score reduction during 3 months. Further study is required to determine the long-term safety and efficacy.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P73

OUTCOMES OF TRABECULECTOMY WITH 5-FLUOROURACIL VERSUS OLOGEN IMPLANT IN PRIMARY OPEN-ANGLE GLAUCOMA

Wisam Shihadeh¹

¹Department of Ophthalmology, YU JUST - Jordan

Purpose: To compare the outcomes of trabeculectomy with 5-fluorouracil (5-FU) versus Ologen™ implant in patients with primary open-angle glaucoma.

Methods: A retrospective chart review was performed of patients with primary open-angle glaucoma who underwent trabeculectomy using either Ologen or 5-FU over 12 consecutive months. The patients had moderate-to-advanced primary open-angle glaucoma and uncontrolled intraocular pressure (IOP) on maximally tolerated medical treatment. Fornix-based trabeculectomy was performed on all patients by the same surgeon. The outcomes that were recorded and analyzed included the IOP level and number of glaucoma medications before and after surgery as well as the complications. All patients were followed for at least 3 months.

Results: A total of 58 eyes (of 47 patients) were included in this study. The eyes were divided into 2 groups: the 5-FU group (n = 30, 51.7%) and the Ologen group (n = 28, 48.3%). The demographics and preoperative clinical features were not significantly different between the 2 groups. Repeated-measures analysis showed a significant decrease in IOP after trabeculectomy in both groups, with a marked decrease at day 1 after surgery. The amount of relative change at postoperative day 1 was significantly higher in the Ologen group (62.1 vs. 45.2%; p = 0.025). After this, there were no significant changes over time in IOP measurements in either group. In all the eyes, there was a significant drop in the number of antiglaucoma medications used after the surgery (p < 0.005), i.e. from 4.0 to 1.4 and from 4.3 to 1.0 in the 5-FU and Ologen groups, respectively, with no significant differences between groups (p = 0.303). Complications were few and minor in both groups. Bleb revision was needed in 2 eyes in the 5-FU group and in 4 eyes in the Ologen group.

Conclusion: The efficacy and safety of trabeculectomy with 5-FU was similar to that with Ologen. Further studies with a larger number of patients and longer follow-up periods are needed.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P74

HIGH FREQUENCY DEEP SCLEROTOMY; EFFICACY AND SAFETY

Mokhtar Mohamed Ebraheem¹, Ayman El-Shiaty², Tarek El-Beltagi¹,
Shaymaa Hassan Salah²

¹Research Institute of Ophthalmology, ²Faculty of Medicine, Cairo University - Egypt

Purpose: To evaluate the efficacy and safety profile of High Frequency Deep Sclerotomy in lowering IOP in open angle glaucoma patients.

Method: 43 eyes of 43 patients with open angle glaucoma on maximum medical therapy with IOP above 20 mmHg. congenital, traumatic, neovascular and uveitic glaucoma were excluded. patients with previous glaucoma or retinal surgery were also excluded . all cases were operated by the same surgeon.

Results: The mean IOP changed across the study from 31.4 mmHg preoperatively to 19.06 mmHg after nine months.

Mean endothelial count changed from 2551.16 to 2320.

No cases of choroidal detachment, choroidal effusion, suprachoroidal hge, retinal detachment, pvd, macular oedema or macular HGE.

Only one case developed peripheral anterior synechia at the site of intervention and synechiolysis was done successfully 3 weeks later

Conclusions: HFDS is a safe and effective procedure for lowering IOP, especially for pseudophakic patients.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

TUBE SHUNTS



September 6-8 2018 | Montreal, Canada

ICGS 2018

P76

EFFICACY AND SAFETY OF EX-PRESS® GLAUCOMA FILTRATION DEVICE IN PATIENTS WITH NORMAL TENSION GLAUCOMA OVER 12 MONTH AFTER FILTRATION SURGERY

Makoto Aihara¹, Yasuaki Kuwayama¹, Kazunori Miyata², Shinichiro Otani³,
Ryuichi Ideta⁴, Yoshihiro Hashimoto⁵, Shiroaki Shirato⁶, Noriyuki Sasaki⁷

¹Fukushima Eye Clinic, Osaka - Japan, ²Miyata Eye Hospital, Miyazaki - Japan, ³Kagoshima Miyata Eye Hospital, Kagoshima - Japan, ⁴Idea Eye Hospital, Kumamoto - Japan, ⁵Shinseikai Toyama Hospital, Toyama - Japan, ⁶Shirato Eye Clinic, Tokyo - Japan, ⁷Alcon Japan Co.Ltd., Tokyo - Japan

Purpose: To assess the efficacy and safety of filtration surgery using the EX-PRESS glaucoma filtration device in patients with normal tension glaucoma (NTG).

Methods: This is a prospective, single-arm, multicenter interventional case series. Eyes with NTG underwent EX-PRESS implantation with or without cataract surgery. Efficacy and safety were assessed 1 day, 1 and 2 weeks, and 1, 3, 6 and 12 months postoperatively. Main outcome measure is reduction in intraocular pressure (IOP) from baseline at 3, 6 and 12 months after surgery. Safety assessments included adverse event incidence, postoperative inflammation, and corneal endothelial cell density.

Results: Thirty-two Japanese patients (37 eyes) with NTG were enrolled. Mean IOP decreased from 14.8 ± 2.3 mmHg at baseline to 10.0 ± 3.1 mmHg at 12 months after surgery (mean reduction 4.9 ± 4.2 mmHg [31.1%]; $p < 0.0001$). IOP-lowering medication use decreased from a mean of 3.3 medications per eye preoperatively to 0.1 medication per eye at 12 months. IOP reductions $>20\%$ were achieved by 61.5% of eyes at 12 months. Adverse events were typical for filtration procedures and none was deemed device-related. Postoperative inflammation was mild and self-limiting. Mean corneal endothelial cell density decreased by 3.3% at 12 months.

Conclusion: The EX-PRESS glaucoma filtration device is safe and effective for filtration surgery in patients with NTG, providing mean IOP reduction consistent with recommendations based on the Collaborative NTG Study.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P77

AHMED GLAUCOMA VALVE IMPLANTATION; GRAFT-FREE SHORT TUNNEL SMALL FLAP VERSUS SCLERAL PATCH GRAFT; A RANDOMIZED CLINICAL TRIAL

Mohammad Pakravan¹, Mohammadmehd Hatami¹, Hamed Esfandiari²,
Shahin Yazdani¹, Azade Doozande¹, Bahareh Kheiri¹

¹Shahid Beheshti University of Medical Sciences, Tehran - Iran, ²University of Pittsburgh, Pittsburgh, Pennsylvania, United States, Pennsylvania - USA

Purpose: To compare the efficacy and safety of graft-free short tunnel small flap (STSF) technique with that of scleral patch graft (SPG) in Ahmed glaucoma valve (AGV) implantation.

Design: Randomized clinical trial.

Participants: Eighty-eyes with medically uncontrolled glaucoma including 41 in STSF and 39 eyes in SPG.

Methods: Patients were enrolled and assigned randomly to STSF or SPG. Main Outcome Measures: Intraocular pressure (IOP), number of glaucoma medications, best corrected visual acuity (BCVA), Tube exposure, surgical complications, and success rate (defined as intraocular pressure (IOP) > 5 mmHg, ≤ 21 mmHg, and IOP reduction ≥ 20% from baseline, no reoperation for glaucoma).

Results: IOP decreased significantly from 29.59 ± 8.63 mmHg at baseline to 16.41 ± 3.59 mmHg at the final follow-up in STSF ($p = 0.001$). The corresponding numbers for SPG were 30.89 ± 11.18 and 15.84 ± 4.71 , respectively ($p = 0.001$). The final IOP was comparable between both groups ($p = 0.65$). Mean ± standard deviation of the number of glaucoma medications was 1.83 ± 0.92 in STSF and 1.63 ± 0.85 in SPG at final follow-up ($p = 0.32$). One case in STSF developed tube exposure at final follow-up. Postoperative complications developed in 8 patients (19.5%) in STSF and 9 patients (23%) in SPG ($p = 0.81$). The cumulative probability of success during the first year of follow-up was 70% in the STSF and 65% in SPG ($p = 0.36$).

Conclusions: STSF and SPG techniques were comparable in terms of success rate, postoperative IOP, and glaucoma medications. Both techniques had comparable complication rate at final follow-up.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P78

CLINICAL OUTCOMES OF ANTERIOR CHAMBER VERSUS CILIARY SULCUS PLACEMENT OF BAERVELDT GLAUCOMA IMPLANT

Marko Pastak¹, Aleks Kree¹

¹Eye Clinic of Tartu University Hospital, Tartu - Estonia

Purpose: To report outcomes of anterior chamber (AC) versus ciliary sulcus (CS) placement of Baerveldt-350 glaucoma drainage device.

Methods: In retrospective case-control study, 267 eyes that underwent Baerveldt-350 implant insertion between 2008 and 2017 were selected. The outcome included intraocular pressure (IOP), number of glaucoma medications, best-corrected visual acuity (BCVA), corneal endothelial cell density (ECD), complications, and success rate.

Results: One hundred fifteen eyes with tube insertion into AC (group A) and 152 eyes with insertion into CS (group B) were enrolled. There were no significant differences between groups for preoperative BCVA, IOP, number of glaucoma medications, and ECD. The postoperative follow-up time was 76.5 months in group A and 40.2 months in group B. The mean preoperative IOP was significantly reduced by surgery compared to follow-up IOP at different time points in both groups ($p < 0.03$). In comparison of AC versus CS insertion, the difference of postoperative IOP during the follow-up period was not significant. The success rate was 70% (group A) and 72% (group B) after three years follow-up. Postoperative ECD was significantly reduced at last visit only in group A ($p = 0.001$). The frequency of postoperative corneal decompensation was significantly higher in group A (7.0%) compared to group B (2.0%; $p = 0.04$).

Conclusion: Baerveldt-350 surgery is an effective IOP-lowering procedure and due to lower risk of endothelial cell loss, the CS placement is primarily recommended site of insertion.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

**WOUND
HEALING
MODULATION**



September 6-8 2018 | Montreal, Canada

ICGS 2018

P79

IMPLANTATION OF COLLAGEN MATRIX (OLOGEN®) VERSUS MITOMYCIN-C IN EX-PRESS DEVICE: A 3 YEARS RETROSPECTIVE REVIEW

Ines Hernanz¹, Carmen Rodriguez-Bermejo¹, Blanca Sandoval¹

¹Department of Ophthalmology, Fundación Jimenez Diaz Hospital, Madrid - Spain

Purpose: Collagen Matrix (Ologen®) is a matrix of cross-linked collagen that modulates tissue healing. We present our results comparing long term outcomes in Ex-Press® glaucoma device using mitomycin-C(MMC) or Ologen® implant.

Materials and Methods: All patients underwent a trabeculectomy using an Ex-Press shunt. A total of 43 eyes of 37 patients received Ologen®, whereas 50 eyes of 46 patients received MMC. Postoperative outcomes were reviewed over 3 years.

Results: Short-term complications (< 3 months postoperatively) were 30.2% with Ologen and 50% with MMC ($p < 0.05$). Long-term complications were 4.9% and 32.7% respectively ($p < 0.05$). Number of glaucoma medication needed postoperatively in the Ologen group was 2 (± 0.9) preoperatively, 0.1 (± 0.4) at 1 and 2 years, and 0.2 (± 0.6) at 3 years; respectively in the MMC group were 2.8 (± 0.8), 0.5 (± 1.2), 0.7 (± 1.2) and 0.6 (± 1.1) (all $p < 0.05$). Decrease of IOP in patients off medication was -5.5 (± 5.9) with Ologen and -9.9 (± 9.0) with MMC at 1 year ($p < 0.05$), -6.5 (± 6.4) and -10.8 (± 10.7) respectively at 2 years ($p = 0.06$), and -7.5 (± 6.6) and -11.5 (± 11.2) respectively at 3 years ($p = 0.1$).

Conclusions: Both anti-scarring adjuvants have shown similar rates of success over 3 years, although MMC group has imply more effective results in quantitative reduction of IOP. However, Ologen® group has suggested less need of antiglaucoma medication at 1, 2 and 3 years follow-up compared to MMC. A great reduction of short and long-term complications has been detected in the Ologen® group.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P81

TRIPLE MODULATION IN GLAUCOMA FILTRATION SURGERY: OUR EXPERIENCE

Lalit Tejwani¹, Reetika Sharma²

¹ASG Eye Hospitals, Jodhpur - India, ²ASG Eye Hospitals, Patna - India

Purpose: Failure of trabeculectomy due to excessive scarring at conjunctival and ab interno site is a common problem. Use of collagen matrix implant (olo) along with antimetabolites (MMC) in filtration surgery is an evolving practice. We studied the effect of anti-VEGF agent Bevacuzimab combined with implant and MMC in filtration surgery.

Methodology: Fornix based standard trabeculectomy was done in 62 eyes of advanced glaucoma cases. MMC was used in concentration of 0.04% for 3 minutes and OLO implant was placed in sub-scleral and sub-conjunctival area. In addition, we used Bevacuzimab 0.1 ml to soak the implant at both locations, which acted as a depot.

Results: Sixty two eyes were studied, of age range 12 yrs to 76 yrs. Most cases had follow up of over 12 months. AC reformation was needed in seven cases, two needed conjunctival resuturing and use of intra-cameral gas(SF6) was needed in two cases for persistant choroidals. Vision was restored in all cases post surgery, by 6 to 8 weeks and target IOP range was achieved in all with medications. Two cases had scleral melting with exposure, where in autoconj-grafting was done, and three cases needed needling at later period.

Conclusions: Anti-VEGF can be an useful adjuvant with implant and MMC for advanced galcuoma cases, and its presumed action on fibrosis, wound modulation by affecting angiogenesis and its synergistic action with OLO implant (collagen modulation), can help fight the twin dangers of fibrosis and excessive vasculariation.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P85

UTILITY OF COLLAGEN MATRIX IMPLANT AS ADJUVANT IN ADVANCED CASES OF JOAG – WOUND MODULATION

Reetika Sharma¹, Lalit Tejwani²

¹ASG Eye Hospitals, Patna - India, ²ASG Eye Hospitals, Jodhpur - India

Purpose: JOAG is a disease with major social and psychological impact on patient and family, and it usually affects the productive age group. Surgery remains the mainstay for such patients, with trabeculectomy with MMC still being the most common procedure performed. We studied the role of Collagen matrix implant (OLO) in such cases, with use of anti-VEGF Bevacuzimab as adjuvant in some cases.

Methodology: Twenty eyes of 15 patients of JOAG cases were studied, in whom trabeculectomy with MMC 0.04%(4 mins) was used along with ologen implant, placed in subscleral and subconjunctival space, soaked in bevacuzimab. Pre and post operative vision, IOP were noted, record of complications was made.

Results: Age range was 8 yrs to 48 yrs, collagen matrix implant was used in all cases, and in 8 cases anti-VEGF was used. AC reformation was needed in three cases, three cases developed cataract. Two cases needed needling, in three cases surgery failed, of which two lost to follow up and one case is awaiting resurgery. With learning curve, we used tighter suture with this higher concentration of MMC and application time, which lead to lesser complications in further cases.

Conclusion: Anti-VEGF and collagen matrix implant are useful adjuvant in trabeculectomy in JOAG cases, and success in such cases with maintained vision and IOP adds to productive life years and improves quality of life.

9th International Congress
on Glaucoma Surgery



September 6-8 2018 | Montreal, Canada

ICGS 2018

OTHER



September 6-8 2018 | Montreal, Canada

ICGS 2018

P84

NEOVASCULAR GLAUCOMA AND ANTI-VEGF : AN OVERVIEW AND META-ANALYSIS

Na Young Lee¹

¹Department of Ophthalmology, Incheon St. Mary's Hospital, College of Medicine, The Catholic University of Korea, Incheon - Korea

Purpose: To evaluate the effect of anti-vascular endothelial growth factor (VEGF) to the development and treatment of neovascular glaucoma (NVG).

Methods: The Medline database was used for the literature search in this review. We conducted meta-analyses of fixed effects models using comprehensive meta-analysis software to pool the results of the included studies.

Results: Meta-analysis showed adjuvant bevacizumab had beneficial outcomes of glaucoma surgery including both Ahmed glaucoma valve implantation and trabeculectomy in patients with NVG.

Conclusions: The role of anti-VEGF for the development of NVG is unclear; however, anti-VEGF has beneficial effect to the treatment outcomes of NVG.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P86

USE OF A NOVEL GAIT DEVICE TO DETERMINE GAIT AND POSTURAL STABILITY IN PATIENTS WITH ADVANCED GLAUCOMA

Clement Tan¹, Dawn Tan¹, Katherine Lun¹, Chin Sheng Teoh¹

¹Department of Ophthalmology, National University Hospital Singapore, Singapore - Singapore

Purpose: Our study aims to evaluate gait and postural stability in patients with advanced glaucoma using novel gait tracker; freeWalker. freeWalker consists of a smart insole with embedded sensors which measures pressure distribution, acceleration and motion sequences in a gait cycle.

Methods: This is a pilot study carried out at NUH, Singapore. Subjects between 40 - 70 years old were recruited. Subjects formed two groups: "glaucoma group" (advanced glaucomatous field defects) and "control group" (normal visual fields). Subjects with visual acuity worse than 6/12, has other confounding ocular pathology, or has poor functional status from underlying neurological or musculoskeletal disorders were excluded from study.

Results: A total of 10 controls and 11 glaucoma subjects were recruited. When examining the classification accuracy between 2 groups using single features derived from the freeWalker, more than 0.70 accuracy was seen when looking at M-A-V-D features (Magnitude-Acceleration-Velocity-Displacement) derived from the accelerometer and gyroscope as subjects (i) walked on flat path, (ii) stood on foam board with both eyes closed, and (iii) walked up stairs (with and without dual tasking). In addition, patients with glaucoma were found to have greater postural instability than controls. Larger study sample required to further determine gait patterns and differences between two groups.

Conclusions: We are the first study to evaluate gait and postural stability in patients with advanced glaucoma. Using the freeWalker, we could identify gait and postural stability differences between two groups.



September 6-8 2018 | Montreal, Canada

ICGS 2018

P87

44 ABIC PATIENTS: OUR EXPERIENCE WITH A MEAN OF 50 WEEKS FOLLOW UP

Sonia Kerkour¹, Amr Aref¹, Yousr Louati¹, Tarek Shaarawy²,
Jean-Marc Baumgartner³

¹ONO, Onex - Switzerland, ²MD, MSc, Privat Docent, University of Geneva, Head, Glaucoma Sector, Geneva - Switzerland, ³ONO, Versoix - Switzerland

Purpose: The study is designed to Determine efficacy, indications and complications of ABIC.

Methods: Prospective, non controlled, on going study of glaucoma patients experiencing secondary undesired effects of local treatment or MD was not stabilized despite adequate treatment.

Results: 44 patients were operated, 25 were phakic, of which 23 had combined surgery. 6 patients did not respond satisfactorily and were eventually submitted to deep sclerectomy. Of the 36 remaining patients in the study, mean Preop/Postop IOP, medications, MD loss/year were; 22/14 mmHg, 3/1 meds, -1.2 Db/y versus +1.7Db/y. Perop and postop minor complications were encountered such as hypheama, partial descemet detachment. One dislocated IOL in PEX, high day 1 IOP. The difference of preop postop IOP, medication, MD Loss Slope is significant ($p < 0.000$). Patients eventually operated by deep sclerectomy had mean IOP significantly higher (mean = 31 ± 7 mmhg) were all pseudophakic except for one.

Conclusion: ABIC is an highly effective and efficient surgical procedure for lowering IOP, medication and enhancing MD slope. It is hindered by cost and necessitates surgical skill. It is contraindicated in high preop fully medicated patients as well as in advanced glaucoma who may suffer from high post op day one Pressure. It's indications is intolerance to medication with or without MD decrease. It's place in the glaucoma armamentarium is between SLT and filtering procedures