Paper #0040
Bimanual MICS and initial sub 2 mm results with a small-incision acrylic IOL

Rosa Braga-Mele

Abstract:

Purpose: Recent trends in cataract surgical procedures are aimed at minimizing incision size, or microincisional surgery (MICS). This evaluation was conducted to demonstrate the performance of a set of new modular products, software and a new small-incision acrylic IOL that facilitate sub 2 mm MICS.

Methods: Bimanual phacoemulsification was conducted on 10 patients using 19- and 20-gauge irrigation and aspiration handpieces using tapered needles and larger hubs to maximize flow; micro-capsulorhexis forceps; disposable knives; and specialized MICS software - providing high-vacuum, low-flow presets for MICS. A pilot evaluation of a small-incision acrylic IOL (B&L Akreos MI-60) designed for MICS was conducted with initial data presented.

Results: The modular products and software designed to facilitate bi-manual MICS performed well. The reduced size of the handpieces and the tapered needle facilitated the use of micro-forceps and knives. Instruments were easy to maneuver in the eye. Updated phaco machine software for the Venturi module regulated flow and minimized air bubbles during procedures. At 1 day post-op, all corneas were clear. The results of the pilot study (10 patients) indicate that incision size after wound-assisted implantation using an injection system was 1.85mm. At 6 months post-op, lenses remain stable in the bag. Average uncorrected visual acuity was 20/30; best corrected VA was 20/20. There were no reports of PC fibrosis or Nd:YAG capsulotomy.

Conclusion: The results of these two evaluations indicate that bimanual MICS using a set of new modular products and software in conjunction with the results of the evaluation of the Akreos MI60 will facilitate sub 2 mm MICS in the clinical setting.

Paper #0041
Patient Selection Criteria for Multifocal Lens Technologies to Optimize Patient Satisfaction and Range of Vision

Rosa Braga-Mele

Abstract:

Purpose: To determine the optimal patient selection criteria for successful multifocal IOL implantation.

Methods: Pilot study involving 20 patients scheduled to undergo bilateral IOL implantation for the treatment of presbyopia. Patient selection criteria determined if patients were candidates for multifocal IOL's and quality of life criteria determined refractive or diffractive IOL in the first eye. Uncorrected visual acuity was measured for near, intermediate and distance at 1 week and 1 month postop. Patient response determined if the second eye received the same IOL, became slightly myopic or received diffractive lens.

Results: Patient criteria results and quality of life needs resulted in correct lens choice. At 1 week and 1 month postop, 100% said they were "happy" or "very happy" with the results. Only 5% still required spectacles for near vision, but that did not affect patient satisfaction. Further follow-up results will be presented.

Conclusion: Patient selection and expectation management are imperative in multifocal IOL implantations.

Paper #0057
Visual function and subjective outcomes with intermediate optimization of vision after bilateral implantation of the ReSTOR IOL: one-year results

Sandi Aitchison, John Blaylock, Cheryl Prescott, Zhaomin Si

Abstract:

Purpose: To evaluate binocular visual function, refraction and subjective outcomes of intermediate optimization of vision (IO) after simultaneous bilateral implantation of the Acrysof SA 60D3 ReSTOR multifocal intraocular lens (mIOL).

Methods: With simultaneous bilateral implantation of the ReSTOR mIOL, for patients who need good vision at intermediate range, we performed IO by overcorrection of 1.00 D to induce mild myopia in the nondominate eye. Sixty-four eyes of 32 patients with intended IO and 10 eyes of 5 patients with unintended IO were prospectively evaluated. Distance manifest refraction and visual acuity at a number of distances was determined; contrast sensitivity function (CSF), nearpoint stereoacuity and subjective outcomes were assessed at 2 weeks, 1, 3, 6 and 12 months after surgery. Data between 3 and 12 months were statistically analyzed.

Results: In 7 patients who finished all follow-ups, mean (± SD) manifest refraction spherical equivalent were stable from 2 weeks (-0.94 ± 0.22 D) to 12 months (-0.93 ± 0.23 D) in the IO eyes. Overall, postoperative mean binocular uncorrected near, intermediate and distance visual acuity were 20/23, 20/23 and 20/22, respectively. No significant differences were found between best distance-corrected and uncorrected stereoacuity; and between best distance-corrected and uncorrected binocular CSF at most conditions (P>0.05). On questioning, 97 % of patients had little or no difficulty seeing and were bothered only occasionally or never by the visual fluctuation between near and intermediate range.

Conclusion: Postoperative refraction and visual function were stable12 months after implantation of the ReSTOR IOL. IO with slight myopia in one eye after the bilateral implantation offered consistent good vision at all ranges, and is a safe and valuable option for patients who require good vision at intermediate range.

Paper #0060
Incidence of reoperations following elective cataract surgery

Malcolm Gooi, T. Lam Gooi

Abstract:

Purpose:To determine the incidence and types of reoperations.

Methods: All elective cataract operations done in 2005 at Misericordia Health Centre were reviewed to identify reoperations within 6 months of initial surgery.

Results: 61 cases out of 6,000 plus cataract operations.
20 cases for retained lens fragment
17 cases for retina/vitreous pathology
12 cases for intraocular lens problems
6 cases for wound leak
4 cases for descement membrane
detachment
1 case for endothelial vitreous
touch
1 case for endophthalmitis

Conclusion: Reoperation rate is ~1% , ~20% is related to copathology.

Paper #0072

The Effects of Hydrophobic Acrylic, Silicone and Polymethyl Methacrylate Intraocular Lenses to Posterior Capsule Opacification

Sitki Samet Ermis, Umit Inan, Faruk Ozturk

Abstract:

Purpose: To evaluate the effects of hydrophobic acrylic (Sensar AR40, AMO), silicone (PhacoFlex SI40NB, AMO) and polymethyl methacrylate (PMMA) (PS 52ANB, AMO) intraocular lenses (IOL) to posterior capsule opacification (PCO) during 5 years after phacoemulsification surgery.

Methods: In this clinical prospective study, 226 patients (226 eyes) completed the follow-up who were randomized to receive a hydrophilic acrylic (95 eyes), silicone (78 eyes) or PMMA (53 eyes) IOL. All eyes had standard, uneventful phacoemulsification cataract surgery and intracapsular IOL implantation. The PCO density was measured 1, 6 months, 1, 3 and 5 years postoperatively. Digital slitlamp retroillumination images were taken of each eye and a masked observer scored the images using a special technique by dividing the posterior capsule behind the optic into zones. The incidence of neodymium YAG laser capsulotomy was also examined.

Results: The ages of patients in groups were not statistically significantly different ($p>0.05$). The PCO values in PMMA group were statistically significantly greater than acrylic and silicone groups 1, 6 months, 1 and 3 years after surgery ($p<0.05$). There was no statistical difference between groups 5 years postoperatively ($p>0.05$). While neodymium YAG laser capsulotomy rate was statistically higher in PMMA group than silicone and acrylic groups ($p<0.05$), the difference between acrylic and silicone group was not statistically significant ($p>0.05$).

Conclusion: The PCO rate was comparable after the implantation of hydrophobic acrylic, silicone and PMMA IOL 5 years postoperatively. The impact of IOL biomaterial on PCO development may be less important than other factors. Duration of IOL in the eye plays an important role in the development of PCO.

Paper #0074
The Use of Foldable Scleral Fixated Intraocular Lens Technique in Absence of Adequate Capsular/Zonular Support.

René Dinh, Marie Eve Légaré

Abstract:

Purpose: To evaluate the safety and efficacy of foldable scleral fixated intraocular lens (SFIOL) technique using clear cornea small incision and ab interno prolene sutures.

Methods: Retrospective review of patients who underwent primary or secondary foldable SFIOL (Acrysof MA50BM) implantation for aphakia, ectopia lentis and following intraocular trauma in the Cornea Service of Laval University Hospital Center (CHUL) between April 2004 and October 2006.

Results: A total of 30 eyes were identified with a mean follow up of 8 months (2 to 26 months). Postoperatively, over 90% maintained or improve best-corrected visual acuity and all had a stable and well-positioned IOL. The rate and nature of postoperative complications is comparable to the different foldable and rigid SFIOL techniques described in the literature.

Conclusion: The foldable SFIOL technique described in this review was found effective and safe when compared to other foldable and rigid SFIOL techniques in the literature.
The foldable SFIOL approach is also less invasive and can be performed significantly faster than the rigid SFIOL technique.

Paper #0084
Cataract surgical wound strength in-vivo

Graham Barrett, Anthony Carlsson

Abstract:

Purpose: To compare the strength of different cataract surgical wounds in-vivo.

Methods: Prospective study of 32 patients who underwent cataract surgery, randomized to have either scleral tunnel, long clear-corneal tunnel, or short clear-corneal tunnel incision. At the end of each case, wound strength was measured intraoperatively by depressing the posterior lip using a sterile strain-guage until aqueous leakage was observed (gm of force needed to cause leakage).

Results: Average force required to cause leakage: Group A (scleral tunnel) = 47.3g; Group B (long corneal tunnel) = 11.9g; Group C (short corneal tunnel) = 3.7g. Differences between all groups were statistically significant ($p < 0.001$).

Conclusion: Large differences in wound strength exist for each type of wound construction. This may have implications in the rising rates of post-operative endophthalmitis.

Paper #0095
Multicentre Study of Bilateral ReZoom Multifocal IOL; Comparison of 6 week and 6 month Outcomes

Geroge Beiko

Abstract:

Purpose: To compare the visual outcomes at 6 weeks and 6 months post-op following bilateral implantation of ReZoom Multifocal IOLs.

Methods: 18 centres across Canada participated in this study. Patients presenting for bilateral cataract or refractive lensectomy surgery were enrolled. Pre-op and post-op questionnaires were used to access patient dependence on glasses for near, intermediate and distance vision, as well as the presence of dysphotopsias. Near, distance and intermediate vision, as well as refraction was measured. This report focuses on the results at 6 weeks and 6 months post-op.

Results: 161 patients were enrolled in the study; 106 completed the 6 week follow-up and 98 finished the 6 month follow-up. 94% and 91%, respectively, were spectacle independent at 6 weeks and 6 months. 91% and 97% respectively, achieved 20/30 or better uncorrected distance vision at 6 weeks and 6 months; 59% and 100% saw 20/30 or better at intermediate distance, uncorrected, respectively at 6 weeks and 6 months; and 79% and 84% saw 20/30 or better, uncorrected, for near, respectively at 6 weeks and 6 months. At 6 months, there was a significant increase in the number of patients seeing 20/20 or better at all distances. Dysphotopic symptoms were less post-op compared to pre-op, and decreased significantly at 6 month post-op.

Conclusion: This study found that patients continue to achieve improvement in visual function with time, following implantation of the ReZoom multifocal IOL.

Paper #0120

OZil Torsional phacoemulsification reduces surgical time for nucleus removal in moderate to severe cataracts

Darren Albert

Abstract:

Purpose: To compare surgical time for nucleus removal between OZil Torsional phacoemulsification and traditional linear phacoemulsification in patients with moderate to severe cataracts.

Methods: A prospective cohort study was conducted on 90 eyes of patients undergoing cataract surgery. Cataract grade was judged in advance using the LOCS III classification system. Only those patients with a nuclear opacity (NO) grade >4 were included. Surgery was performed by one surgeon using the same technique with a 0.9mm 300 Kelman ABS phaco needle with either 100% continuous linear torsional phaco or 100% traditional linear phaco using burst mode using the Alcon Infiniti phacoemulsification unit. All other machine parameters were kept constant. The time from insertion of the phaco needle into the eye until its removal was recorded with a stopwatch. Cortical removal was excluded from this time frame.

Results: Patient age (76 ± 6.5 years vs. 78.2 ± 5.7 years, p=0.23) and cataract grade (5 ± 0.6 vs. 4.7 ± 0.6, p=0.18) were similar in both groups. The nucleus removal time was significantly lower using OZil Torsional phacoemulsification (109 ± 33 seconds vs. 125 ± 31 seconds, p=0.018). This represents a 12.8% reduction in the time required to emulsify the nucleus – a critical stage during cataract surgery.

Conclusion: Cataract removal using OZil Torsional phacoemulsification reduces nucleus removal time when compared to traditional ultrasound. This increased efficiency is likely due to the reduced repulsion of nuclear fragments.

Paper #0126

Refractive stabilization following small incision clear corneal phacoemulsification with single piece acrylic intraocular lens implantation

Stan Chan, Natasha Radhika Dang

Abstract:

Purpose: Traditionally, six weeks has been accepted as the minimum post-operative recovery period required for refractive stabilization following cataract surgery. However, new evidence suggests that refractive stabilization can be achieved within two weeks with modern cataract extraction procedures and current generation intraocular lens (IOL) implantation. This study aims to determine the time course required for refractive stabilization following sutureless small incision clear corneal temporal phacoemulsficiation and Alcon SN60WF IOL – a single piece foldable acrylic lens – implantation in a clinically representative sample of cataract patients.

Methods: 106 eyes treated for cataract with sutureless small incision clear corneal phacoemulsification and Alcon SN60WF in-the-bag implantation were retrospectively reviewed. Post-operative refractions at two and six weeks were compared. Clinically significant change in refraction was defined as >+/-0.50D in spherical equivalent, sphere, cylinder, and/ or >+/-15º in axis.

Results: T-tests indicate that the only refractive parameter to change significantly post-operatively is cylinder; spherical equivalent, sphere, and axis did not change significantly. Analysis of individual parameters demonstrates that 76.0% of eyes are stable in spherical equivalent, 73.6% in sphere, 81.1% in cylinder, and 58.5% in axis. However, only 32.7% of eyes were stable in all of sphere, cylinder, and axis when comparing two and six post-operative refraction.

Conclusion: In contrast to some recent evidence suggesting that refraction is stable and that eye glasses may be prescribed as early as one to two weeks post-operatively following cataract surgery, our data would suggest that refraction is not stable at two weeks.

Paper #0127
Can preoperative wavefront aberrations of PCIOL's predict postoperative wavefront aberrations?

Jamie Bhamra, Rejean Munger, Dave Priest

Abstract:

Purpose: To determine if the spherical aberrations of 4 clinically accepted PCIOL's (3 lenses of each type) measured before implantation (in air) correlate with spherical aberrations of human eyes after lens implantation.

Methods: 22D intraocular lenses from 4 types (3 lenses of each type) of PCIOL were evaluated:
A: AMO Sensor AR40e (refractive index (RI) = 1.46, n = 10)
B: AMO CLRFLXB (RI = 1.46, n = 9)
C: ALCON Acrysof SA60AT (RI = 1.55, n = 33)
D: ALCON Acrysof SN60AT (RI = 1.55, n = 16)

Wavefront aberrations were measured on a Hartmann-Shack aberrometer and quantified with Zernike polynomials (5 mm pupil diameter). Spherical aberration (SA) was used as the primary outcome measure of the lens optical characteristics.

Postoperative SA of eyes from cataract patients implanted with each type of PCIOL with a mean of 22 D were compared (range 20D -24 D). Corneal SA, mean IOL power, mean refractive error and corrected pupil diameter to ensure comparable intraocular data were also obtained. Analysis of variance with a $p < 0.05$ and power of 0.80 was used to determine if the measured SA values were significant.

Results: In air: The mean SA of the 22D lenses were: A (0.40), B (0.64), C (0.69) and D (0.70). Pairwise analysis reveals differences ($P < 0.05$) between the mean SA's. Lens A was significantly different from B, C and D. Lens B was not different from C and D. Lens C and D were not different. Intraocular: The mean post-op ocular SA's were: A (0.14), B (0.13), C (0.19), and D (0.19). There were some significant differences ($P < 0.05$) between some of the mean ocular SA's. Lens A was different than C and D but not B. Lens B was different than C and D. No difference was seen between lens C and D.

In air PCIOL SA means revealed lens $A < B = C = D$ while ocular SA means yielded lens $A = B < C = D$

Conclusion: PCIOL's with less SA in air resulted in less positive ocular SA, but although the in lens SA for A and B, the ocular spherical aberration were not significantly different. PCIOL's with lower refractive indices produced less ocular SA. In our study, the preoperative SA (in air) alone was not enough information to predict postoperative ocular SA.

Paper #0139

Effect of Prophylactic NSAID Drops on Cystoid Macular Edema After Cataract Surgery Using Optical Coherence Tomography

David Almeida, Stephanie Baxter, Sherif El-Defrawy, Ken Eng, Hussein Hollands, Davin Johnson, Vlad Kratky, Sanjay Sharma, Donald Smallman, Martin ten Hove

Abstract:

Purpose: Evaluate the efficacy of prophylactic administration of the topical NSAID ketorolac tromethamine 0.5% on acute (within four weeks of surgery) cystoid macular edema (CME) in patients undergoing phacoemulsification cataract surgery.

Methods: Paired-comparison, open-label/non-masked, randomized clinical trial (n=106) assessing the effectiveness of ketorolac 0.5% in preventing macular edema as a surrogate of CME pathogenesis. An optical coherence tomography (OCT) protocol was utilized (total macular volume, TMV) that provide objective quantifications of macular swelling associated with cataract surgery.

Results: At one month, there was a statistically significant difference in TMV between control (0.4420 mm3) and ketorolac (0.2392 mm3) groups with the ketorolac-treated group having 45.8% less macular swelling ($p = 0.009$). Multiple linear regression with backward selection indicated a 44.3% and 46.1% reduction in macular swelling in the ketorolac-treated group at one week and one month, respectively.

Conclusion: Ketorolac tromethamine 0.5%, used prophylactically for two days before surgery and post-operatively for one month, is effective in decreasing macular edema associated with phacoemulsification cataract surgery.

Paper #0171

Contrast sensitivity and neuro adaptation after multifocal IOL implantation in cataract patients

Martin Boileau, Amal Hakim, Nadia Marie Quesnel

Abstract:

Purpose: To compare two groups of cataract patients implanted with a combination of Multifocal IOLs to a control group of patients implanted with monofocal IOLs and measure contrast sensitivity (CS) and neuroadaptation over time.

Method: Prospective, non-randomized study of 100 patients undergoing cataract surgery who were divided into 2 groups: Group 1 was implanted with the ReZoom Multifocal IOL bilaterally; group 2 was implanted with the ReZoom in one eye and the Tecnis Multifocal diffractive IOL in the contralateral eye. Patient selection within each group was based on patient's lifestyle and vision requirements. Patients filled out questionnaires and underwent individual interviews to ensure maximal outcomes and patient satisfaction. Patients with ocular pathologies, except cataract, and intraoperative complications were excluded. A matched-age group of Monofocal IOL patients served as a control group for comparing CS results.
All tests were done pre-op as well as 1 month and 3 months post-op. CS was measured with the standardized CST 1800 Digital CS tester. Neuroadaptation was determined through customized software that allowed patients to reproduce their own halo and glare conditions on computer-based night-time street scenes and ranked on a scale of 1 to 100. The scores allowed for objective measurement of increases/decreases of halo/glare over time.

Results: Patients in both multifocal groups had comparable contrast sensitivity to the monofocal control group at the 3rd month follow-up point. A statistically significant ($p<.05$) improvement in halos and glare conditions at the 3 month follow-up compared to the 1-month follow-up was also noted.

Conclusion: Customizing multifocal IOLs after careful and comprehensive patient selection results in 1) no reduction in contrast sensitivity when compared to monofocal IOLs, 2) demonstrated neuroadaptation over time, and 3) greater than 90% patient satisfaction.

Paper #0177
Comparison between Alcon Regular Sleeves (3.3mm incision) and Ultra Sleeves (2.2mm incision) in cataract surgery

Thaddeus Demong

Abstract:

Purpose:
This prospective study is designed to compare the metrics and surgical outcome when using the Alcon Infiniti Ultra Sleeves and Regular Sleeves in cataract surgery.

Methods:
100 patients (100 eyes) using an Akahoshi pre-chop technique followed by U/S. Half of the patients were done using the Regular Sleeves (3.2mm incision) and half were done with the Ultra Sleeves (2.2mm incision). The study focused on cataract grades 1 and 2 and up to grade 3. Ultrasound settings were adjusted accordingly depending on levels of cataract densities.

Results:
The Aspiration Time for the Regular Sleeves (3.65 min.), Ultra Sleeves (3.9 min.); Effective Phacoemulsification time (EPT) Regular Sleeves (1.5 seconds) and Ultra Sleeves (3.9seconds), and Peak Vacuum (Regular Sleeves 596.13 mmHg, Ultra Sleeves 444.7 mmHg) are comparable.
The average BSS consumed for the Regular Sleeves was (157gm) and for the Ultra Sleeves was (134 gm)
The percentage change of corneal thickness between Regular and Ultra (Regular Sleeves 8.75 % vs Ultra Sleeves 9.1%). This was not clinically significantly.
Percentage change in endothelial cell count after 6 weeks were (Regular Sleeves 6.2%) and (Ultra Sleeves 21.7%)
In the Regular Sleeves group 37.5% had mild epithelial edema while only (15%) of the Ultra Sleeves group had mild edema.
There was no ruptured posterior capsule, vitreous loss or hemorrhage in either group.

Conclusion:
The Alcon Ultra Sleeves used in 2.2 mm incision phacoemulsification cataract surgery is safe and compares favorably with the Regular Sleeves currently in general use. However
the Ultra Sleeves requires significantly less BSS and perhaps contributes to the significantly less edema and may be beneficial for endothelial survival when used in phacoemulsification and aspiration of cataracts grades 1 and 2 and up to 3.

Financial Disclosure
Dr Thaddeus Demong received funding from Alcon, Canada for this study.

Paper #0179
Toxic Anterior Segment Syndrome (TASS) outbreak: Investigation, management, and resolution

Simon Holland

Abstract:

Purpose: To investigate and control a TASS outbreak at a high-volume, multi-surgeon cataract surgery centre and monitor outcomes after resumption of surgery

Methods: Retrospective case control of TASS cases with prospective cohort study during a six month period. A multi-disciplinary hospital TASS task force was assembled and all aspects of the surgical process were reviewed. Criteria for re-opening the facility were established after multiple changes were made. Data evaluated included instrument processing, surgical techniques, sterile supplies, analysis of sterilizer, steam distillate, medications, and time and order of surgery.

Results: TASS was reported in 73 patients, with 5 occurring within the first week of re-opening and none later. No patient lost vision attributed to TASS by the 6 week follow-up. Regression analysis showed no significant association of potential causes nor changes (23) in standard operating procedures (SOP).

Conclusion: The TASS outbreak was successfully controlled after closing the facility, performing an intensive, prolonged investigation, and then introducing multiple changes to the surgical process with close surveillance. All cases had good final outcomes. No single factor was identified as causative, but extensive changes in the instrument cleaning protocols, sterilization SOP, and introduction of disposable cannulas may have been important factors.

Paper #0189
Comparison of Scleral-Sutured and Iris-Sutured Repositioning For Intraocular Lens Dislocation

Amir Abadir, Iqbal Ike K.Ahmed, Karyn Bourke, Alan Crandall, Baseer Khan, Rishi Kumar, Samuel Masket, Steven Vold

Abstract:

Purpose: To compare visual outcomes and complications after scleral-sutured or iris-sutured IOL repositioning for dislocated intraocular lens implants.

Methods: This study was a retrospective chart review of 89 patients who underwent either sclera-sutured (n = 41) or iris-sutured (n = 48) repositioning between 1999 and 2006. Data with respect to repositioning procedure, etiology of dislocation, IOL location, preoperative and postoperative visual acuity, and complications were obtained. Snellen visual acuities were converted to logMAR values for statistical analysis.

Results: Among the scleral-sutured group, the most common etiology of IOL dislocation was complication at original surgery (34.1%) followed by pseudoexfoliation syndrome (29.3 %), trauma (14.6%) and spontaneous dislocation (7.3%). The most common locations of dislocated IOLs in the scleral-sutured group were in-the-bag (57.5%), followed by ciliary sulcus (25.0%), bag-sulcus (10.0%) and vitreous (7.5%). The mean preoperative best corrected visual acuity (BCVA) of patients undergoing scleral-sutured repositioning was 20/180, which improved to 20/60 postoperatively (p = 0.0055). Among the iris-sutured group, the most common known etiology of IOL dislocation was pseudoexfoliation syndrome (20.8%), followed by trauma (12.5%), complication at original surgery (10.4%) and spontaneous dislocation (10.4%). The most common locations of dislocated IOLs in the iris-sutured group were in-the-bag (44.4%), followed by ciliary sulcus (33.3%), bag-sulcus (29.6%) and vitreous (11.1%). The mean preoperative BCVA of patients undergoing iris-sutured repositioning was 20/114, which improved to 20/65 postoperatively (p = 0.1011). There were no significant differences in either preoperative or postoperative BCVA between the two groups (p = 0.2335 and p = 0.6794, respectively). The risk of major complications was 12.2% for scleral-sutured patients and 14.6% for iris-sutured patients (p = 0.5637). There was one case of re-subluxation of the repositioned IOL in each group.

Conclusion: Scleral-fixated and iris-fixated suture repositioning techniques for dislocated intraocular lens implants provide similar visual outcomes and complication risks.

Paper #0190

Comparison of Outcomes Between IOL Exchange and IOL Suture Repositioning For Intraocular Lens Dislocation

Amir Abadir, Iqbal Ike K.Ahmed, Karyn Bourke, Alan Crandall, Rishi Kumar, Samuel Masket, Steven Vold

Abstract:

Purpose: To compare visual outcomes and complications after exchange or suture repositioning for dislocated intraocular lens implants.

Methods: This study was a retrospective chart review of 181 patients who underwent IOL exchange (n = 92) or IOL repositioning by suturing to the sclera or the iris (n = 89), between 1995 and 2006. Data with respect to surgical procedure, etiology of dislocation, IOL location, preoperative and postoperative visual acuity and complications were obtained. Snellen chart visual acuities were converted to logMAR values for statistical analysis.

Results: The mean preoperative best corrected visual acuity (BCVA) of patients undergoing IOL exchange was 20/250, which improved to 20/60 postoperatively ($p < 0.0001$). Posterior chamber IOLs accounted for 53.2% of secondary lens implants used in the exchange group. Anterior chamber IOLs accounted for 45.2% of secondary lens implants used in the exchange group. The mean preoperative BCVA of patients undergoing IOL repositioning was 20/140, which improved to 20/63 postoperatively ($p = 0.0014$). There was no statistically significant difference in postoperative BCVA between the IOL exchange and IOL repositioning groups ($p = 0.4915$). The risk of major complications in the exchange and repositioning groups was 18.5% and 13.5%, respectively ($p = 0.3531$). The most serious complications encountered in the exchange group were retinal detachment (5.4%), re-dislocation of IOL (4.3%), and cystoid macular edema (CME) (2.2%). The most serious complications encountered in the repositioning group were persistently elevated IOP (4.5%), vitreous hemorrhage (3.4%), re-dislocation of IOL (2.2%) and CME (2.2%).

Conclusion: IOL repositioning with suturing techniques or IOL explantation and exchange for intraocular lens dislocation both provide similar improvement in visual acuity. The complication profile varies somewhat between each technique.

Paper #0191
A New FIltered IOL - The Violet Shield IOL

David Chow

Abstract:

The Violet Shield IOL is a new filtered IOL that blocks the transmission of UV light completely through 400nm while minimizing the blocakge of blue light transmission compared to current options. This allows photoprotection without the risk of visual compromise in the form of altered color perception, reduced scotopic vision and interruption of circadian rhythms which has been reported with current filtered IOLs. The body of evidence suggesting that UV and Blue light exposure can induce phototoxicity and clinical AMD is mounting.

Paper #0192
New Technologies to Reduce Chatter in phacoemulsification

Bruno F. Fernandez

Abstract:

Purpose: Chatter may consume up to 75% of the energy input into dense cataract phacoemulsification. This study evaluates effectiveness of two new technologies that attempt to reduce chatter.

Methods: Two hypotheses of reducing chatter were developed: Continuously Variable Pulse (CVP), and Torsional Phaco. The Alcon Infiniti phaco machine was modified to test both of these modalities.

Results: Torsional Phaco was found to be most effective in softer lenses. CVP can be applied to both axial & torsional phaco, separately, or combined in an algorithm. When combined as CVP axial-torsional phaco the modalities were effective for even the most dense cataracts. Subsequent efforts continue to refine the parameters of the settings with automated algorithms.

Conclusion: CVP axial & torsional phaco represents a significant advance in phaco machine technology, permitting surgeons to tackle routine cataracts more easily and more dense cataracts with greater safety and facility. Intraoperative turbulence and phaco chatter can be significantly reduced. As a result, phaco use is simpler and more effective for the surgeon.

Paper #0193
Choosing the optimal intracameral antibiotic for bacterial prophylaxis in cataract surgery

Bruno F. Fernandez

Abstract:

Purpose: To achieve optimal antibacterial prophylaxis for cataract surgery patients.
Setting: York Finch Eye Associates & Humber River regional Hospital, Toronto, Canada.

Methods: Moxifloxacin and vancomycin were each used for intracameral prophylaxis for over 1,500 eyes. Subsequent to the release of the ESCRS endophthalmitis prophylaxis study, using cefuroxime, a literature review was done to examine and compare the potential advantages and disadvantages of other agents.

Results: No complications were observed from use of intracameral moxifloxacin or Lilly's vancomycin intracamerally. No cases of endophthalmitis were observed.

Conclusion: The ESCRS study on intracameral antibiotic prophylaxis in cataract surgery has shown this method to be effective in reducing endophthalmitis by 80%. A number of antibiotics have been tried for this purpose. Moxifloxacin appears optimal for intracameral use. The rational for its use, the reasons for its selection, comparison to other agents and the method of preparation and administration will be discussed.