pg. 501-503
DOI: 10.1097/IJG.0b013e3181ca7732
Ahmed, Iqbal Ike K. MD *,+; Hasanee, Khalid MD ++; Belovay, Graham W. MD *,++

AB Diamond blades have been used extensively in cataract surgery but their routine use in glaucoma surgery has been limited owing to the lack of controlled sharpness. The SuperCrescent knife is an ultrathin (100 \( \mu \text{m} \)) diamond blade that is an innovative modification of conventional blade design. Its pentium faceted trapezoidal design along with the square front surface area affords better control during dissection and has been used with success in both traditional trabeculectomies and nonpenetrating glaucoma procedures. (C) 2010 Lippincott Williams & Wilkins, Inc.

What Is New After 40 Years of Glaucoma Implants.
pg. 504-508
DOI: 10.1097/IJG.0b013e3181ca7850
Freedman, Jeffrey Mb.Bch, PhD

AB Forty years ago, Molteno introduced the prototype of the present day long tube implant. Since then, modifications in size and shape and introduction of valve system have taken place. Aqueous has been shown to contain proinflammatory substances that have been shown to influence the thickness of the bleb wall, and the hypertensive phase has been seen with the implants. The effect of the aqueous may be modified by the use of systemic antiinflammatory medication or by surgical modification, namely supra-Tenon insertion of the implant. Recent studies have shown that tube implantation is as efficacious as trabeculectomy in patients who were either pseudophakic or earlier had failed filters. Newer nontube implants, such as the Express shunt, have been introduced along with others, such as the gold micro shunt implant and the iStent, presently in clinical trials. (C) 2010 Lippincott Williams & Wilkins, Inc.

Axial Length Does Not Correlate With Degree of Visual Field Loss in Myopic Chinese Individuals With Glaucomatous Appearing Optic Nerves.
pg. 509-513
DOI: 10.1097/IJG.0b013e3181d12dae
Chao, Daniel Lee PhD *; Shrivastava, Anurag MD *,+; Kim, Donna H. MD *; Lin, Hugh MD *; Singh, Kuldev MD, MPH *
AB Purpose: We previously described a group of patients of Chinese ancestry who presented with optic nerve appearance and visual field loss suggestive of glaucoma but did not show progression characteristic of this disease for up to 7 years. The purpose of this study was to assess whether axial length is a risk factor for visual field loss in patients presenting with this cluster of findings. Patients and Methods: Twenty patients of Chinese ancestry with characteristics of this previously described condition including myopia, tilted discs, and glaucomatous visual field abnormalities who also had asymmetric visual field loss were enrolled in this study. Patients underwent axial length measurement of both eyes and a fellow eye analysis was performed to determine the relationship between axial length and visual field loss. Results: Tilted discs were found in 30 out of 40 eyes, with cup/disc ratios ranging from 0.5 to 0.9. Myopia >6.00 diopters was also found in 30 out of 40 eyes. In these subjects with disease that was discordant between the 2 eyes, longer axial length was not found to be associated with greater visual field loss (P>0.99, Freeman-Halton extension of the Fisher exact test). No correlation was found between axial length and mean deviation on visual field testing (r=-0.06). Conclusions: We did not find axial length to be a risk factor for visual field loss in eyes with asymmetric disease in this patient population. These findings suggest that factors other than progressive lengthening of the eye play an important role in the etiology of glaucomatous appearing optic nerve damage and visual field loss in this specific subset of patients. (C) 2010 Lippincott Williams & Wilkins, Inc.

The Influence of Central Corneal Thickness on Intraocular Pressure Measured by Goldmann Applanation Tonometry Among Selected Ethiopian Communities.

AB Background: Estimates of intraocular pressure (IOP) are influenced directly by the central corneal thickness (CCT). We assume and apply a single value for CCT (520 [μm]) in applanation tonometry estimates, although there is compelling evidence that CCT varies between individuals. Objective: To determine the influence of CCT and other factors on IOP among Ethiopians. Methods: A cross sectional study was conducted among 300 sampled individuals from June to July 2006. The CCT was measured using OcuScan(R) RxP Ophthalmic Ultrasound and readings of IOP were made with Goldmann applanation tonometer. The data was analyzed using SPSS version 12 and S-Plus 2000 of statistical packages. Results: Out of 300 individuals, 184 (61.3%) were males. The mean age was 42.57 years (SD+/-16.71), mean IOP 13.39 mm Hg (SD+/-2.81), and mean CCT 518.68 [μm] (SD+/-32.92). There was statistically significant relationship between CCT and IOP (r=0.199, P<0.001) and a borderline statistically significant detectable change of CCT with age (r=-0.012, P=0.057) with a downward trend of at least 0.001 mm decrease in CCT/decade starting from age 30 years but with pronounced change from 50 years onward. For every 30 [μm] difference in CCT from the mean in either way, there was an approximately 1.1 mm Hg difference in the estimated IOP from the mean IOP (13.40 mm Hg). No significant relationship was found between IOP and age, sex or ethnicity (P>0.05). Conclusion: The CCT of Ethiopians is thin and hence can result in underestimation of IOP measured by GAT. (C) 2010 Lippincott Williams & Wilkins, Inc.

Meta-analysis of Viscocanalostomy Versus Trabeculectomy in Uncontrolled Glaucoma.

AB Purpose: Compare the efficacy and safety profile of viscocanalostomy versus trabeculectomy in uncontrolled glaucoma. Patients and Methods: We looked through various search engines for randomized controlled trials directly comparing viscosocanalostomy with trabeculectomy. Outcome measurements we examined were mean intraocular pressure difference at 6 months, 12 months, and 24 months, mean difference in postoperative number of antiglaucomatous medications and relative risk of adverse events. Subgroup analysis looked at studies that included 1 eye per patient, studies that included only white
patients, studies with only primary open angle glaucoma, studies that did not allow the use of intraoperative mitomycin C in trabeculectomy treatment, studies that did not allow any postoperative use of antimetabolites, and studies with and without the use of postviscocanalostomy Nd:YAG goniopuncture. Results: Ten randomized controlled trials were selected and included in the meta-analysis with a total of 458 eyes of 397 patients with medically uncontrolled glaucoma. At 6 months, mean intraocular pressure difference was 2.25 mm Hg (95% confidence interval 1.38-3.12), at 12 months it was 3.64 mm Hg (2.74, 4.54), whereas at 24 months it was 3.42 mm Hg (1.80, 5.03). Trabeculectomy was found to have a significantly better pressure-lowering outcome (P<0.0001). Relative risk of adverse events such as perforation of Descemet membrane, hypotony, hyphema, shallow anterior chamber, and cataract formation, were found to be 7.72 (2.37, 25.12), 0.29 (0.15, 0.58), 0.50 (0.30, 0.84), 0.19 (0.08, 0.45), and 0.31 (0.15, 0.64), respectively. Viscocanalostomy had a significantly higher relative risk of intraoperative perforation of Descemet membrane, whereas trabeculectomy had significantly more postoperative adverse events (P<=0.008). Conclusions: Trabeculectomy was found to have a greater pressure-lowering effect compared with viscocanalostomy. However, viscocanalostomy had a significantly better risk profile. (C) 2010 Lippincott Williams & Wilkins, Inc.

Spectral-domain Optical Coherence Tomography Measurement of Macular Volume for Diagnosing Glaucoma.
pg. 528-534
DOI: 10.1097/IJG.0b013e3181ca7acf
Mori, Satoshi MD; Hangai, Masanori MD; Sakamoto, Atsushi MD; Yoshimura, Nagahisa MD

Article

AB Purpose: To determine the glaucoma diagnostic power of measuring the volume of the ganglion cell complex (GCC; 3 innermost retinal layers) using spectral-domain optical coherence tomography (SD-OCT). Patients and Methods: Fifty eyes with open-angle glaucoma and 35 normal partipants were included for this study. SD-OCT (RTVue-100), and time-domain (TD)-OCT were used to measure total retinal, GCC (SD-OCT only), and circumpapillary retinal nerve fiber layer (cpRNFL) thicknesses in 50 eyes with open-angle glaucoma and in 35 without glaucoma. Results: Total retinal and GCC volumes in a macular area correlated with visual field mean deviation (GCC: r=0.580, P<0.001; total: r=0.458, P<0.001). The area under the receiver operating characteristic curve (AROC) was greater for macular GCC volume (0.922) than for macular total retinal volume, as measured by SD-OCT (0.857; P=0.020) or TD-OCT (0.841; P=0.025). GCC AROCs were smaller than cpRNFL AROCs determined using SD-OCT (0.971; P=0.110) or TD-OCT (0.970; P=0.122), but not in a statistically significant manner. AROC for the GCC was greatest in the inferior macula. Interclass correlation coefficient values were comparable for GCC and total retinal volumes. Conclusion: Selective measurement of the GCC layer by SD-OCT improves diagnostic performance of the macular structural analysis for glaucoma diagnosis. (C) 2010 Lippincott Williams & Wilkins, Inc.

Elevated Serum Immunoglobulin G Titers Against Chlamydia pneumoniae in Primary Open-Angle Glaucoma Patients Without Systemic Disease.
p. 535-539
DOI: 10.1097/IJG.0b013e3181ca7868
Yuki, Kenya MD *; Kimura, Itaru MD *,+;++; Shiba, Daisuke MD *; Imamura, Yutaka MD *; Tsubota, Kazuo MD *

Article

AB Purpose: To determine if Chlamydia pneumoniae infection is associated with primary open-angle glaucoma (POAG). Patients and Methods: Consecutive patients with newly diagnosed primary POAG attending the Glaucoma clinic of Keio University Hospital between June 2007 and January 2008 were considered for inclusion in this prospective case-control study. Forty consecutive POAG patients and 41 normal healthy individuals as a control population met the inclusion criteria. The exclusion criteria for both groups were; taking steroids or immunosuppressive agents, smoking, and history of any acute or
chronic systemic disease including stroke, heart attack, diabetes mellitus, hypertension, asthma, and autoimmune diseases. The serum was analyzed for C. pneumoniae and C. trachomatis immunoglobulin G antibody titers by enzyme-linked immunosorbent assay. Seroactivity to each antigen between case and control groups was evaluated by Mann-Whitney U test. Results: The age, male/female ratio, and intraocular pressure of the cases and control groups were not significantly different. Immunoglobulin G titers for C. pneumoniae was significantly higher in patients with POAG than in controls (P=0.009). The titers to C. trachomatis were not significantly different between the 2 groups (P=0.99). Conclusion: The results suggest that higher C. pneumoniae titers are associated with POAG. If confirmed, this may indicate either a common factor that causes susceptibilities to both glaucoma and C. pneumoniae infection or that C. pneumoniae may be a causal factor for developing POAG. (C) 2010 Lippincott Williams & Wilkins, Inc.

Intraocular Pressure Values Obtained by Ocular Response Analyzer, Dynamic Contour Tonometry, and Goldmann Tonometry in Keratokonic Corneas.

pg. 540-545
DOI: 10.1097/IJG.0b013e3181ca7aeb
Bayer, Atilla MD; Sahin, Afsun MD; Hurmeric, Volkan MD; Ozge, Gokhan MD

Article

AB Purpose: To determine the agreement between dynamic contour tonometer (DCT), Goldmann applanation tonometer (GAT), and Ocular Response Analyzer (ORA) in keratoconic corneas and to find out the effect of corneal biomechanics on intraocular pressure (IOP) measurements obtained by these devices. Subjects and Methods: IOP was measured with the ORA, DCT, and GAT in random order in 120 eyes of 61 keratoconus patients. Central corneal thickness (CCT) and keratometry were measured after all IOP determinations had been made. The mean IOP measurement by the ORA and DCT was compared with the measurement by the GAT, using Student t test. Bland-Altman analysis was performed to assess the clinical agreement between these methods. The effect of corneal hysteresis (CH), corneal resistance factor (CRF), and CCT on measured IOP was explored by multiple backward stepwise linear regression analysis. Results: The mean+/−SD patient age was 30.6+/−11.2 years. The mean+/−SD IOP measurement obtained with GAT, ORA Goldmann-correlated IOP (IOPg), ORA corneal-compensated IOP (IOPcc), and DCT was 10.96+/−2.8, 10.23+/−3.5, 14.65+/−2.8, and 15.42+/−2.7 mm Hg, respectively. The mean+/−SD CCT was 464.08+/−58.4 microns. The mean difference between IOPcc and GAT (P<0.0001), IOPcc and DCT (P<0.001), GAT and DCT (P<0.0001), IOPg and GAT (P<0.002), and IOPg and DCT (P<0.0001) was highly statistically significant. In multivariable regression analysis, DCT IOP and GAT IOP measurements were significantly associated with CH and CRF (P<0.0001 for both). Conclusions: DCT seemed to be affected by CH and CRF, and the IOP values tended to be higher when compared with GAT. ORA-measured IOPcc was found to be independent of CCT and suitable in comparison to the DCT in keratoconic eyes. (C) 2010 Lippincott Williams & Wilkins, Inc.

Relief of Periorbital Pain After Acute Angle Closure Glaucoma Attack by Botulinum Toxin Type A.

pg. 546-550
DOI: 10.1097/IJG.0b013e3181ca76a9
Chien, Ke-Hung MD; Lu, Da-Wen MD, PhD; Chen, Yi-Hao MD; Cheng, Jen-Hao MD; Chen, Jiann-Torng MD, PhD

Article

AB Purpose: To assess the efficacy and safety of botulinum toxin type A (BoNT-A) injection in patients suffering from intractable periorbital pain after acute angle closure glaucoma (AACG). Patients and Methods: In this prospective randomized intervention study, 19 patients suffering from periorbital pain after an AACG attack were injected with BoNT-A or placebo for pain relief. Patients were assessed on days 1, 2, 7, 14, 30, 60, and 90. The main outcomes were mean change of visual analog rating scale (VARS) and index scores measured through a quality-of-life questionnaire (EQ-5D), and changes in the visual analog scale (VAS), all of which were assessed at each visit. A secondary outcome was the frequency and nature of adverse events and the number of patients who withdrew from the study as a result. Results: In the treatment group (n=10), the mean index score of EQ-5D and VAS changed
significantly from the placebo group (by 0.299 and 2.61, respectively) from day 2 (P<0.01). The VARS of EQ-5D also disclosed significant changes from day 2 (17, P<0.01). In addition, efficacy was maintained mainly between days 2 and 60 but declined slightly by day 90. The most frequently reported treatment-related adverse events in the treatment and placebo groups were local tenderness (21%), subcutaneous hemorrhage (10.5%), and conjunctivitis (10.5%). No severe adverse events were reported during the study or follow-up period. Conclusions: BoNT-A is effective and well tolerated for the treatment of periorbital pain after an AACG attack. Its effects may be maintained for 3 months. (C) 2010 Lippincott Williams & Wilkins, Inc.


pg. 556-560
DOI: 10.1097/IJG.0b013e3181ca76d9
Ates, Halil MD; Palamar, Melis MD; Yagci, Ayse MD; Egrilmez, Sait MD

Article

AB Purpose: To evaluate the intraocular pressure (IOP) control and graft survival after Ex-PRESS mini glaucoma shunt implantation in refractory postpenetrating keratoplasty glaucoma. Methods: The study included postpenetrating keratoplasty glaucoma cases unresponsive to medical antiglaucomatous therapy in whom 15 Ex-PRESS mini glaucoma shunt implantation was carried out. All glaucoma shunt implantations were performed in a separate session after penetrating keratoplasty. Nine operations were performed under general anesthesia and 6 were performed under local anesthesia. Topical antibiotic therapy and topical corticosteroids were used during the postoperative first month. Results: Mean age of the study population was 37.4 years (range: 10 to 80 y). IOP decreased from 41.46 mm Hg (range: 26 to 80 mm Hg) to 12.06 mm Hg (range: 8 to 25 mm Hg) over a mean follow-up of 12.2 months (range: 8 to 19 mo) (P<0.001; Wilcoxon signed rank test). IOP was below 21 mm Hg in 14 of 15 eyes (93.3%) with or without antiglaucomatous drugs. Complete success (IOP<21 mm Hg without medication) rate was 86.6%. Average number of antiglaucomatous drug usage decreased from 3.20 (range: 2 to 4) preoperatively to 0.26 postoperatively (range: 0 to 3) (P<0.001; Wilcoxon signed rank test). In 93.3% of the cases, the decrease in IOP was 30% or above postoperatively. After Ex-PRESS implantation, clear grafts remained clear while edematous grafts became clearer due to IOP decrease. Neither biomicroscopy nor pachymetry showed worsening of preoperatively opaque grafts. Conclusion: Ex-PRESS mini glaucoma shunt implantation may be an effective procedure for refractory postpenetrating keratoplasty glaucoma with acceptable graft failure rates in short term. (C) 2010 Lippincott Williams & Wilkins, Inc.

Apolipoprotein E Genotypes in Pseudoexfoliation Syndrome and Pseudoexfoliation Glaucoma.

pg. 561-565
DOI: 10.1097/IJG.0b013e3181ca76c4
Krumbiegel, Mandy MSc *; Pasutto, Francesca PhD *; Mardin, Christian Y. MD +; Weisschuh, Nicole PhD ++; Paoli, Daniela MD [S]; Gramer, Eugen MD [H]; Weber, Bernhard H.F. MD [P]; Kruse, Friedrich E. MD +; Schlotzer-Schrehardt, Ursula MD +; Reis, Andre MD *

Article

AB Purpose: Pseudoexfoliation (PEX) syndrome, an age-related, systemic, elastic microfibrillopathy, is characterized by fibrillar-granular deposits in the anterior segment of the eye. Although not representing a true amyloidosis, PEX syndrome shares some features with amyloid disorders, such as Alzheimer disease. It has been shown that amyloid-associated proteins also occur in association with PEX fibrils. Apolipoprotein E (Apo-E) is directly involved in these amyloid deposition and fibrils formation. The [epsilon]4 allele of APOE gene was shown to be associated both with an increased risk for coronary heart disease and late-onset Alzheimer disease. In this study, we therefore investigated whether APOE alleles are associated with PEX syndrome and/or PEX glaucoma (PEXG) in 2 large cohorts of German and
Italian origin. Methods: The 3 common APOE alleles [epsilon]2, [epsilon]3, and [epsilon]4 were genotyped in 661 unrelated patients (459 PEXG and 202 PEX patients) and 342 healthy individuals of German origin and furthermore in 209 unrelated patients (133 PEXG and 76 PEX patients) and 190 healthy individuals of Italian origin using TaqMan assays for allelic discrimination. A genetic association study was then performed. Results: The [epsilon]3 allele was found to be the most common in both populations (80% to 83%), whereas the [epsilon]2 allele was the rarest (6% to 9%). No significant differences in allele and genotype frequencies between both groups were observed in either population. Conclusion: Our data show that APOE genotypes are not associated with PEX and PEXG in either Germans or Italians. (C) 2010 Lippincott Williams & Wilkins, Inc.

Cost-effective Tattooing: The Use of Sterile Ink for Corneal Tattooing After Complicated Peripheral Iridotomies: An Alternative to Expensive Salts.

Gupta, Deepak MRCOphth; Broadway, David MD, FR COphth

AB Corneal staining (tattooing) has been advocated in the management of patients with corneal leucomata, iris malformations or following iridotomies. Functional visual benefits can result from the reduction of aberrant light directed through iris defects that may cause glare and light scatter, in addition to cosmetic improvements for those with opacification. Inks, classified as stationery or cosmetic products, offer an economic alternative to currently available classical corneal staining agents (metallic salts). Furthermore, they may be used to good clinical effect with an intrastromal lamellar pocket technique. (C) 2010 Lippincott Williams & Wilkins, Inc.