Welcome to this edition of *Ophthalmology Update*. The aims of this publication are:

- To bring together a range of recently-published research reports, articles and electronic resources to help all the members of the Ophthalmology Team to keep up-to-date with research and practice.

- To remind readers of the services available from the Library Service – we can supply you with 1:1 or small group training in literature searching skills; obtain full-text articles for you; or provide you with evidence searching services, to help you with professional development, research, service delivery and development.

- To respond to your information needs – if you have any suggestions on the type of information sources you would find helpful in future editions of the update, then please let us know- contact details below.

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Articles

The following abstracts are taken from a selection of recently published papers (May 2015 – April 2016)

1. **Title:** Personalized Medicine: Cell and Gene Therapy Based on Patient-Specific iPSC-Derived Retinal Pigment Epithelium Cells.

**Citation:** Advances in experimental medicine and biology, Jan 2016, vol. 854, p. 549-555, 0065-2598 (2016)

**Author(s):** Li, Yao, Chan, Lawrence, Nguyen, Huy V, Tsang, Stephen H

**Abstract:** Interest in generating human induced pluripotent stem (iPS) cells for stem cell modeling of diseases has overtaken that of patient-specific human embryonic stem cells due to the ethical, technical, and political concerns associated with the latter. In ophthalmology, researchers are currently using iPS cells to explore various applications, including: (1) modeling of retinal diseases using patient-specific iPS cells; (2) autologous transplantation of differentiated retinal cells that undergo gene correction at the iPS cell stage via gene editing tools (e.g., CRISPR/Cas9, TALENs and ZFNs); and (3) autologous transplantation of patient-specific iPS-derived retinal cells treated with gene therapy. In this review, we will discuss the uses of patient-specific iPS cells for differentiating into retinal pigment epithelium (RPE) cells, uncovering disease pathophysiology, and developing new treatments such as gene therapy and cell replacement therapy via autologous transplantation.

**Source:** Medline

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2. **Title:** Retinal Detachment and Symptomatic Hypercalcemia in a Patient with Sarcoidosis: Unusual Presentation of a Granulomatous Disease.

**Citation:** Connecticut medicine, Jan 2016, vol. 80, no. 1, p. 11-14, 0010-6178 (January 2016)

**Author(s):** Khurana, Arushi, Cherian, Saira, Majumder, Shounak, Nakrani, Radhika, Kowlgi, Gurukripa N, Dasanu, Constantin A

**Abstract:** Sarcoidosis is a multisystemic granulomatous disease, potentially affecting any organ system of the body. Calcium metabolism disturbances occur in up to 20% of patients, of which hypercalciuria and asymptomatic hypercalcemia are most common. Ocular sarcoid typically presents with anterior chamber manifestations such as uveitis, iritis, and iridocyclitis, but can involve posterior chamber as well. We describe herein a unique presentation of sarcoidosis with retinal detachment and symptomatic hypercalcemia as its first manifestation. Prompt therapy with steroids is indicated in these cases, and an immediate ophthalmology referral cannot be overemphasized.

**Source:** Medline
3. **Title:** Combined use of Doppler OCT and en face OCT functions for discrimination of an aneurysm in the lamina cribrosa from a disc hemorrhage.

**Citation:** European journal of ophthalmology, Jan 2016, vol. 26, no. 1, p. e8, 1724-6016 (2016 Jan-Feb)

**Author(s):** Holló, Gábor

**Abstract:** In addition to retinal nerve fiber layer thickness measurements, the recently introduced AngioVue optical coherence tomography (OCT) offers corresponding layer-by-layer Doppler OCT and en face OCT functions, for simultaneous evaluation of perfusion and structure of the optic nerve head. We investigated the clinical usefulness of combined use of Doppler and en face Fourier-domain OCT functions of the AngioVue Fourier-domain OCT for discrimination of a disc hemorrhage and a disc hemorrhage-like atypical vessel structure located deep in the lamina cribrosa. We present our findings with AngioVue OCT on a disc hemorrhage and a spatially related retinal nerve fiber layer bundle defect in a glaucomatous eye (case 1). Both alterations were detected on en face OCT images without any Doppler OCT signal. We also report on an aneurysm suggestive for a disc hemorrhage on clinical examination and disc photography in a treated ocular hypertensive eye (case 2). The aneurysm was within the lamina cribrosa tissue at the border of the cup and the neuroretinal rim. This vascular structure produced strong Doppler signals but no structurally detectable signs on the en face OCT images. Combined evaluation of corresponding Doppler OCT and en face OCT images enables ophthalmologists to easily separate true disc hemorrhages from disc hemorrhage-like deep vascular structures. This is of clinical significance in preventing unnecessary intensification of pressure-lowering treatment in glaucoma.

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4. **Title:** Drusen Volume and Retinal Pigment Epithelium Abnormal Thinning Volume Predict 2-Year Progression of Age-Related Macular Degeneration.

**Citation:** Ophthalmology, Jan 2016, vol. 123, no. 1, p. 39, 1549-4713 (January 2016)

**Author(s):** Folgar, Francisco A, Yuan, Eric L, Sevilla, Monica B, Chiu, Stephanie J, Farsiu, Sina, Chew, Emily Y, Toth, Cynthia A, Age Related Eye Disease Study 2 Ancillary Spectral-Domain Optical Coherence Tomography Study Group
Abstract: To analyze the value of novel measures of retinal pigment epithelium-drusen complex (RPEDC) volume to predict 2-year disease progression of intermediate age-related macular degeneration (AMD). Prospective, observational study. Three hundred forty-five AMD and 122 non-AMD participants enrolled in the Age Related Eye Disease Study 2 Ancillary Spectral-Domain (SD) Optical Coherence Tomography (OCT) study. High-density SD OCT macular volumes were obtained at yearly study visits. The RPEDC abnormal thickening (henceforth, OCT drusen) and RPEDC abnormal thinning (RAT) volumes were generated by semiautomated segmentation of total RPEDC within a 5-mm-diameter macular field. Volume change and odds ratio (OR) with 95% confidence intervals (CI) for progression to advanced AMD with choroidal neovascularization (CNV) or central geographic atrophy (GA). Complete volumes were obtained in 265 and 266 AMD eyes and in 115 and 97 control eyes at baseline and at year 2, respectively. In AMD eyes, mean (standard deviation) OCT drusen volume increased from 0.08 mm$^3$ (0.16 mm$^3$) to 0.10 mm$^3$ (0.23 mm$^3$; $P < 0.001$), and RAT volume increased from $8.3 \times 10^{-4}$ mm$^3$ ($20.8 \times 10^{-4}$ mm$^3$) to $18.4 \times 10^{-4}$ mm$^3$ ($46.6 \times 10^{-4}$ mm$^3$; $P < 0.001$). Greater baseline OCT drusen volume was associated with 2-year progression to CNV ($P = 0.002$). Odds of developing CNV increased by 31% for every 0.1-mm$^3$ increase in baseline OCT drusen volume (OR, 1.31; 95% CI, 1.06-1.63; $P = 0.013$). Greater baseline RAT volume was associated with significant 2-year increase in RAT volume ($P < 0.001$), noncentral GA ($P < 0.001$), and progression to central GA ($P < 0.001$). Odds of developing central GA increased by 32% for every 0.001-mm$^3$ increase in baseline RAT volume (OR, 1.32; 95% CI, 1.14-1.53; $P < 0.001$). In non-AMD eyes, all volumes were significantly lower than AMD eyes and showed no significant 2-year change. Macular OCT drusen and RAT volumes increased significantly in AMD eyes over 2 years. These quantitative SD OCT biomarkers predict 2-year AMD progression and may serve as useful biomarkers for future clinical trials. Copyright © 2016 American Academy of Ophthalmology. All rights reserved.

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5. Title: Predictive Value of Retinal Morphology for Visual Acuity Outcomes of Different Ranibizumab Treatment Regimens for Neovascular AMD.

Citation: Ophthalmology, Jan 2016, vol. 123, no. 1, p. 60-69, 1549-4713 (January 2016)

Author(s): Waldstein, Sebastian M, Wright, Jonathan, Warburton, James, Margaron, Philippe, Simader, Christian, Schmidt-Erfurth, Ursula

Abstract: To establish the predictive value of defined retinal morphologic parameters on visual outcomes and re-treatment needs in patients with neovascular age-related macular degeneration (nAMD) receiving ranibizumab treatment. Post hoc analysis of a prospective, 12-month, multicenter, phase IIIb trial. Three hundred fifty-three treatment-naïve patients with nAMD. Available data from 319 treatment-naïve patients receiving ranibizumab 0.3 mg monthly (frequent regimen; n = 102) or ranibizumab 0.3 or 0.5 mg quarterly (pooled 0.3/0.5 mg = infrequent regimen; n = 217) were analyzed to assess the correlations between baseline retinal morphologic parameters and best-corrected visual acuity (BCVA) change (structure-function correlations). The BCVA was measured at
monthly visits. Optical coherence tomography scans were acquired monthly for quantitative measures of the central retinal thickness and qualitative assessment of retinal morphologic features. Assessed morphologic parameters included intraretinal cystoid fluid (IRC), subretinal fluid (SRF), pigment epithelial detachment, and vitreomacular interface configuration classification comprising vitreomacular adhesion and posterior vitreous detachment (PVD). An analysis of covariance was conducted to evaluate the impact of retinal morphologic features on BCVA change at month 12. Change in BCVA from baseline to month 12 compared between frequent and infrequent treatment arms. Relevant predictive factors for BCVA change at month 12 were baseline SRF (P = 0.05), PVD (P = 0.03), IRC (P = 0.05), treatment frequency (P < 0.01), and BCVA (P < 0.01). The presence of both SRF and PVD at baseline was associated with similar BCVA gains regardless of treatment frequency (mean difference in BCVA gains at month 12 of +2.6 letters in favor of infrequent treatment).

Subretinal fluid was present in 71% of patients, and PVD was present in 64% of patients. In patients with both SRF and PVD at baseline, similar BCVA outcomes were observed regardless of treatment frequency. These patients may require less frequent treatments compared with patients without SRF, without PVD, or without either who may require more frequent injections for maintenance of vision. This finding may have implications in clinical practice by helping to tailor an individualized re-treatment interval in nAMD patients. Copyright © 2016 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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6. Title: Comparative Effectiveness of First-Line Medications for Primary Open-Angle Glaucoma: A Systematic Review and Network Meta-analysis.

Citation: Ophthalmology, Jan 2016, vol. 123, no. 1, p. 129-140, 1549-4713 (January 2016)

Author(s): Li, Tianjing, Lindsley, Kristina, Rouse, Benjamin, Hong, Hwanhee, Shi, Qiyuan, Friedman, David S, Wormald, Richard, Dickersin, Kay

Abstract: Primary open-angle glaucoma (POAG) is a highly prevalent condition worldwide and the most common cause of irreversible sight loss. The objective is to assess the comparative effectiveness of first-line medical treatments in patients with POAG or ocular hypertension through a systematic review and network meta-analysis, and to provide relative rankings of these treatments. Treatment for POAG currently relies completely on lowering the intraocular pressure (IOP). Although topical drops, lasers, and surgeries can be considered in the initial treatment of glaucoma, most patients elect to start treatment with eye drops. We included randomized controlled trials (RCTs) that compared a single active topical medication with no treatment/placebo or another single topical medication. We searched CENTRAL, MEDLINE, EMBASE, and the Food and Drug Administration's website. Two individuals independently assessed trial eligibility, abstracted data, and assessed the risk of bias. We performed Bayesian network meta-analyses. We included 114 RCTs with data from 20,275 participants. The overall risk of bias of the included trials is mixed. The mean reductions (95% credible intervals) in IOP in millimeters of mercury at 3 months ordered
from the most to least effective drugs were as follows: bimatoprost 5.61 (4.94; 6.29), latanoprost 4.85 (4.24; 5.46), travoprost 4.83 (4.12; 5.54), levobunolol 4.51 (3.85; 5.24), tafluprost 4.37 (2.94; 5.83), timolol 3.70 (3.16; 4.24), brimonidine 3.59 (2.89; 4.29), carteolol 3.44 (2.42; 4.46), levobetaxolol 2.56 (1.52; 3.62), apraclonidine 2.52 (0.94; 4.11), dorzolamide 2.49 (1.85; 3.13), brinzolamide 2.42 (1.62; 3.23), betaxolol 2.24 (1.59; 2.88), and unoprostone 1.91 (1.15; 2.67). All active first-line drugs are effective compared with placebo in reducing IOP at 3 months. Bimatoprost, latanoprost, and travoprost are among the most efficacious drugs, although the within-class differences were small and may not be clinically meaningful. All factors, including adverse effects, patient preferences, and cost, should be considered in selecting a drug for a given patient. Copyright © 2016 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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7. Title: Topical Fluorometholone Protects the Ocular Surface of Dry Eye Patients from Desiccating Stress: A Randomized Controlled Clinical Trial.

Citation: Ophthalmology, Jan 2016, vol. 123, no. 1, p. 141-153, 1549-4713 (January 2016)

Author(s): Pinto-Fraga, José, López-Miguel, Alberto, González-García, María J, Fernández, Itziar, López-de-la-Rosa, Alberto, Enríquez-de-Salamanca, Amalia, Stern, Michael E, Calonge, Margarita

Abstract: To assess the efficacy of topical 0.1% fluorometholone in dry eye disease (DED) patients for ameliorating the worsening of the ocular surface when exposed to adverse environments. Single-center, double-masked, randomized, vehicle-controlled clinical trial. Forty-one patients showing moderate to severe DED. Patients randomly received 1 drop 4 times daily of either topical 0.1% fluorometholone (FML group) or topical polyvinyl alcohol (PA group) for 22 days. Corneal and conjunctival staining, conjunctival hyperemia, tear film breakup time (TBUT), tear osmolarity, and the Symptom Assessment in Dry Eye (SANDE) questionnaire scores were determined at baseline. Variables were reassessed on day 21 before and after undergoing a 2-hour controlled adverse environment exposure and again on day 22. Percentage of patients showing an increase 1 point or more in corneal staining and a reduction of 2 points or more (0-10 scale) in SANDE score, after the controlled adverse environment exposure and 24 hours later. After 21 days of treatment, the FML group showed greater improvements in corneal and conjunctival staining, hyperemia, and TBUT than the PA group (P≤0.03). After the adverse exposure, the percentage of patients having a 1-grade or more increase in corneal staining was significantly (P = 0.03) higher in the PA group (63.1% vs. 23.8%, respectively). Additionally, the FML group showed no significant changes in corneal staining (mean, 0.86; 95% confidence interval [CI], 0.47-1.25; vs. mean, 1.05; 95% CI, 0.59-1.51, for visit 2 and 3, respectively), conjunctival staining (mean, 0.95; 95% CI, 0.54-1.37 vs. mean, 1.19; 95% CI, 0.75-1.63), and hyperemia (mean, 0.71; 95% CI, 0.41-1.02 vs. 1.14; 95% CI, 0.71-1.58) after the exposure, whereas for the PA group, there was significant worsening (P≤0.009) in these variables (corneal staining: mean, 1.95; 95% CI, 1.57-2.33 vs. mean, 2.58; 95% CI, 2.17-2.98; conjunctival staining: mean, 1.68; 95% CI, 1.29-2.08 vs. mean, 2.47; 95% CI, 2.07-2.88; hyperemia: mean, 1.95; 95% CI,
1.63-2.26 vs. mean, 2.84; 95% CI, 2.62-3.07). Three-week topical 0.1% fluorometholone therapy is effective not only in reducing ocular surface signs in DED patients, but also especially in preventing exacerbation caused by exposure to a desiccating stress. Copyright © 2016 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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8. **Title:** Diagnostic Accuracy of Technologies for Glaucoma Case-Finding in a Community Setting.

**Citation:** Ophthalmology, Dec 2015, vol. 122, no. 12, p. 2407-2415, 1549-4713 (December 2015)

**Author(s):** Dabasia, Priya L, Fidalgo, Bruno R, Edgar, David F, Garway-Heath, David F, Lawrenson, John G

**Abstract:** To assess case-finding performance of the Frequency Doubling Technology Perimeter (FDT) (Carl Zeiss Meditec, Inc., Dublin, CA), Moorfields Motion Displacement Test (MMDT) (Moorfields Eye Hospital, London, UK), iVue optical coherence tomography (OCT) (Optovue Inc., Fremont, CA), and ocular response analyzer (ORA) (Reichert Ophthalmic Instruments, Depew, NY), alone or combined, for primary open-angle glaucoma (POAG). Cross-sectional, observational, community-based study. A total of 505 subjects aged ≥60 years recruited from a community setting using no predefined exclusion criteria. Subjects underwent 4 index tests conducted by a technician unaware of subjects’ ocular status. FDT and MMDT were used in suprathreshold mode. iVue OCT measured ganglion cell complex and retinal nerve fiber layer (RNFL) thickness. Reference standard was full ophthalmic examination by an experienced clinician who was masked to index test results. Subjects were classified as POAG (open drainage angle, glaucomatous optic neuropathy, and glaucomatous field defect), glaucoma suspect, ocular hypertension, or non-POAG/nonocular hypertension. Test performance evaluated the individual as the unit of analysis. Diagnostic accuracy was assessed using predefined cutoffs for abnormality, generating sensitivity, specificity, and likelihood ratios. Continuous data were used to derive estimates of sensitivity at 90% specificity and partial area under the receiver operating characteristic curve (AUROC) plots from 90% to 100% specificity. From the reference standard examination, 26 subjects (5.1%) had POAG and 32 subjects (6.4%) were glaucoma suspects. Sensitivity (95% confidence interval) at 90% specificity for detection of glaucoma suspect/POAG combined was 41% (28-55) for FDT, 35% (21-48) for MMDT, and 57% (44-70) for best-performing OCT parameter (inferior quadrant RNFL thickness); for POAG, sensitivity was 62% (39-84) for FDT, 58% (37-78) for MMDT, and 83% (68-98) for inferior quadrant RNFL thickness. Partial AUROC was significantly greater for inferior RNFL thickness than visual-function tests (P < 0.001). Post-test probability of glaucoma suspect/POAG combined and definite POAG increased substantially when best-performing criteria were combined for FDT or MMDT, iVue OCT, and ORA. Diagnostic performance of individual tests gave acceptable accuracy for POAG detection. Low specificity of visual-function tests precludes their use in isolation, but case detection improves by combining RNFL thickness analysis with visual function tests. Copyright © 2015 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.
Lifitegrast Ophthalmic Solution 5.0% versus Placebo for Treatment of Dry Eye Disease: Results of the Randomized Phase III OPUS-2 Study.

Citation: Ophthalmology, Dec 2015, vol. 122, no. 12, p. 2423-2431, 1549-4713 (December 2015)

Author(s): Tauber, Joseph, Karpecki, Paul, Latkany, Robert, Luchs, Jodi, Martel, Joseph, Sall, Kenneth, Raychaudhuri, Aparna, Smith, Valerie, Semba, Charles P, OPUS-2 Investigators

Abstract: Lifitegrast is an integrin antagonist that decreases T-cell-mediated inflammation associated with dry eye disease (DED). We report the results of OPUS-2, a phase III study evaluating the efficacy and safety of lifitegrast compared with placebo for the treatment of DED. A 12-week, multicenter, randomized, prospective, double-masked, placebo-controlled clinical trial. Adults aged ≥18 years with use of artificial tears within 30 days, inferior corneal staining score ≥0.5 (0-4 scale), Schirmer tear test (without anesthesia) ≥1 and ≤10 mm, and eye dryness score ≥40 (0-100 visual analogue scale [VAS]). Subjects were randomized 1:1 after 14-day placebo run-in to lifitegrast ophthalmic solution 5.0% or placebo twice daily for 84 days. Co-primary efficacy end points were change, from baseline to day 84, in eye dryness score (VAS, both eyes) and inferior corneal fluorescein staining score in the designated study eye. Secondary end points were change, from baseline to day 84, in ocular discomfort score (0-4 scale) in study eye, eye discomfort score (VAS), total corneal staining score in the study eye, and nasal conjunctival lissamine green staining score (0-4 scale) in the study eye. Treatment-emergent adverse events (TEAEs) were recorded. A total of 718 subjects were randomized: placebo, n = 360; lifitegrast, n = 358 (intent-to-treat population). Lifitegrast-treated subjects experienced greater improvement in eye dryness than placebo-treated subjects (treatment effect, 12.61; 95% confidence interval [CI], 8.51-16.70; P < 0.0001). There was no between-group difference in inferior corneal staining (treatment effect, 0.03; 95% CI, -0.10 to 0.17; P = 0.6186). There was nominally significant improvement of secondary symptom end points among lifitegrast-treated subjects: ocular discomfort (nominal P = 0.0005) and eye discomfort (nominal, P < 0.0001). There were no between-group differences on secondary signs: total corneal staining and nasal lissamine staining. More lifitegrast-treated subjects (33.7%) than placebo-treated subjects (16.4%) experienced ocular TEAEs; no ocular TEAEs were serious. Lifitegrast met the co-primary symptom end point (eye dryness) but not the co-primary sign end point (inferior corneal staining). Secondary end point findings were consistent with this pattern. Most ocular TEAEs were mild to moderate; there were no unexpected TEAEs. Lifitegrast warrants further consideration as a treatment for DED.

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10. **Title:** Ultrahigh-Speed, Swept-Source Optical Coherence Tomography Angiography in Nonexudative Age-Related Macular Degeneration with Geographic Atrophy.

**Citation:** Ophthalmology, Dec 2015, vol. 122, no. 12, p. 2532-2544, 1549-4713 (December 2015)

**Author(s):** Choi, WooJhon, Moult, Eric M, Waheed, Nadia K, Adhi, Mehreen, Lee, ByungKun, Lu, Chen D, de Carlo, Talisa E, Jayaraman, Vijaysekhar, Rosenfeld, Philip J, Duker, Jay S, Fujimoto, James G

**Abstract:** To investigate ultrahigh-speed, swept-source optical coherence tomography (SSOCT) angiography for visualizing vascular changes in eyes with nonexudative age-related macular degeneration (AMD) with geographic atrophy (GA). Observational, prospective, cross-sectional study. A total of 63 eyes from 32 normal subjects and 12 eyes from 7 patients with nonexudative AMD with GA. A 1050-nm, 400-kHz A-scan rate SSOCT system was used to perform volumetric optical coherence tomography angiography (OCTA) of the retinal and choriocapillaris (CC) vasculatures in normal subjects and patients with nonexudative AMD with GA. Optical coherence tomography angiography using variable interscan time analysis (VISTA) was performed to assess CC alteration and differentiate varying degrees of CC flow impairment. Qualitative comparison of retinal and CC vasculatures in normal subjects versus those in patients with a clinical diagnosis of nonexudative AMD with GA. In all 12 eyes with GA, OCTA showed pronounced CC flow impairment within the region of GA. In 10 of the 12 eyes with GA, OCTA with VISTA showed milder CC flow impairment extending beyond the margin of GA. Of the 5 eyes exhibiting foveal-sparing GA, OCTA showed CC flow within the region of foveal sparing in 4 of the eyes. The ability of ultrahigh-speed, swept-source OCTA to noninvasively visualize alterations in the retinal and CC vasculatures makes it a promising tool for assessing nonexudative AMD with GA. Optical coherence tomography angiography using VISTA can distinguish varying degrees of CC alteration and flow impairment and may be useful for elucidating disease pathogenesis, progression, and response to therapy. Copyright © 2015 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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11. **Title:** Proposal of success criteria for strabismus surgery in patients with Graves' orbitopathy based on a systematic literature review.

**Citation:** Acta ophthalmologica, Nov 2015, vol. 93, no. 7, p. 601-609, 1755-3768 (November 2015)

**Author(s):** Jellema, Hinke Marijke, Braaksma-Besselink, Yvette, Limpens, Jacqueline, von Arx, Georg, Wiersinga, Wilmar M, Mourits, Maarten P

**Abstract:** Proposal of success criteria for strabismus surgery for patients with Graves' orbitopathy (GO) based on a systematic review of the literature. We performed a systematic search of OVID MEDLINE, OVID Embase, the Cochrane Central Register of Controlled Trials (CENTRAL) and the publisher subset of PubMed, to identify studies reporting on success criteria of strabismus surgery in...
GO. In addition, we handsearched several orthoptic journals and proceedings of strabismological congresses. Of the 789 articles retrieved, 42 articles described success criteria for strabismus surgery in GO. Most studies defined success in terms of a subjective diplopia-free field in primary and down gaze. Almost half of the studies used a graded scale (excellent, good, acceptable and failure) to describe the outcome of surgery. Three of the eligible studies described a tool to quantify the field of single vision in detail. Quality of life was not reported as an outcome measure in any of the published studies. In conclusion, success criteria for strabismus surgery in patients with GO are poorly defined and no consensus is available. The lack of standardization hampers comparative studies and thus the search for the best surgical treatment for diplopia in patients with GO. Therefore, we propose strict success criteria including a tool for quantification of remaining diplopia plus a disease-specific quality of life questionnaire (the GO-QoL). © 2015 Acta Ophthalmologica Scandinavica Foundation. Published by John Wiley & Sons Ltd.

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12. **Title:** Improvement in Vision Parameters for Participants Treated With Alternative Therapies in a 3-day Program.

**Citation:** Alternative therapies in health and medicine, Nov 2015, vol. 21, no. 6, p. 22-35, 1078-6791 (2015 Nov-Dec)

**Author(s):** Kondrot, Edward C

**Abstract:** Eye conditions that are considered progressive and degenerative and for which the causation is generally poorly understood or not understood within conventional medicine can respond to natural therapeutic interventions that result in arrest and/or improvement of morbidity, with enhanced functional results. Because many of the treated conditions are age related, a delay of disease progression for 5 or even 10 y can mean an additional decade of independence for seniors. The 11 included ocular conditions are ordinarily considered incurable by any method except surgery and, even with surgery, the outcomes can be variable and/or transient. The research intended to demonstrate the effectiveness of alternative modalities—intravenous (IV) nutrition, oxidative therapy, microcurrent stimulation, and syntonic light therapy—in improving vision in chronic eye conditions, even when administered for a short period. The study was a retrospective, open-label, single-group design. All participants in the 3-d conference during the period covered were selected. The setting was ophthalmologist Edward Kondrot’s Healing the Eye and Wellness Center near Tampa, FL, USA. The participants in this study were all patients attending 1 of 11 CAM treatment events at the author’s center within 2 y. Each session lasted 3 d and the number of participants in each session ranged from 5-15 (mean = 13). The cohort numbered 152 patients who were diagnosed with ≥1 of 11 types of eye disease. Seventy-eight percent of the patients had either age-related macular degeneration (ARMD) or glaucoma, which, taken together, are the leading cause of blindness in persons >65 y. Each of 4 alternative modalities was provided at least once to each participant: (1) IV nutrition, (2) oxidative therapy, (3) microcurrent stimulation, and (4) syntonic light therapy. On the
first day, a detailed treatment plan for each participant was developed. Each day consisted of 2 therapeutic eye programs, a stress reduction program, and a detoxification program. Also included were daily lectures and instructions on the methods and use of the equipment. To measure outcomes, changes from baseline were documented through comparison with postprogram results. Pre- and postprogram testing included the following measures: (1) Early Treatment Diabetic Retinopathy Study (ETDRS) eye chart; (2) Lighthouse Letter Contrast Sensitivity test; (3) campimetry; (4) pursuits, saccade, and fixation tests; (5) pupillary examination; (6) external examination; (7) examination of the anterior segment; (8) intraocular-pressure test; and (9) dilated examination. Additional tests, if necessary, included (1) ocular coherence tomography, (2) infrared thermography, (3) 6-hour urine collection for heavy-metal toxicity, and (4) nocturnal oximetry. All participants remained in the study for the duration of the program. Following the administration of the protocol, significant improvement in acuity, contrast, and visual field resulted in the majority of participants. None of the interventions was toxic or painful, and all likely contributed to an improved, overall health status for participants. These treatment protocols should be considered part of a treatment program for all ocular disease processes. Eye health needs to be repositioned within an assessment of general health with the understanding that, with the exception of congenital disorders or accidents, vision decline represents a general diminishment in overall health and results directly from toxicity from both external sources such as air and water, and the internal accumulation of toxic metals; poor nutrition; and other life exposures and habits. Long-term follow-up studies are now in process.

Source: Medline

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Citation: Clinical & experimental ophthalmology, Nov 2015, vol. 43, no. 8, p. 749-764, 1442-9071 (November 2015)

Author(s): Sherwin, Justin C, Kokavec, Jan, Thornton, Simon N

Abstract: Variation in systemic hydration status, namely chronic systemic hypohydration or dehydration, can influence the development of several chronic non-ophthalmic diseases. Owing to the eye's high water content and unique system of fluid regulation, we hypothesized that hydration status may affect the eye in health and disease states. Therefore, we performed a systematic review of the current evidence implicating changes in hydration and their association with ocular physiology and morphological characteristics. We also reviewed relevant clinical correlations of changes in hydration and major common eye diseases. Our findings suggest that systemic hydration status broadly affects a variety of ocular pathophysiologic processes and disease states. For example, dehydration may be associated with development of dry eye syndrome, cataract, refractive changes and retinal vascular disease. On the other hand, excessive hydration is associated with some ocular diseases. Tear fluid osmolarity may be an effective marker of systemic hydration status. Recent
studies implicate chronic renin-angiotensin-aldosterone system activation in the pathogenesis of diabetic retinopathy and glaucoma but also suggest its antagonism may be a useful therapeutic target. Our findings indicate that assessment of hydration status may be an important consideration in the management of patients with chronic eye diseases and undergoing eye surgery. Further research investigating the role of acute and chronic changes in hydration in individuals with and without ocular disease is warranted. © 2015 Royal Australian and New Zealand College of Ophthalmologists.

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14. Title: Ocular involvement in systemic lupus erythematosus.

Citation: Current opinion in ophthalmology, Nov 2015, vol. 26, no. 6, p. 540-545, 1531-7021 (November 2015)

Author(s): Preble, Janine M, Silpa-archa, Sukhum, Foster, C Stephen

Abstract: Many patients suffer from the ocular manifestations associated with systemic lupus erythematosus (SLE). Retinal vasculitis and optic neuritis are two of the most vision-threatening complications that can be associated with the disease. Ocular manifestations are often associated with wide-spread systemic inflammation which can be fatal. Thus, immediate recognition and treatment is vital for a positive outcome. There is an array of medications available to ophthalmologists for treating the ocular manifestations of SLE. Treating the underlying systemic disease is crucial, as well as treating the active ocular complications. Recently, more attention has been placed on evaluating biologic agents' efficacy in treating the systemic condition. New therapies continue to emerge that have the potential to provide benefit to patients suffering from SLE. SLE is a serious systemic condition that may first present with ocular manifestations. Thus, it is crucial for ophthalmologists to be equipped with the knowledge to detect and adequately treat the disorder to avoid vision/life-threatening complications. More research is needed to determine which therapy provides the best outcome for patients with limited side-effects.

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15. Title: Association Between Statin Use and Open-angle Glaucoma in Hyperlipidemia Patients: A Taiwanese Population-based Case-control Study.

Citation: Medicine, Nov 2015, vol. 94, no. 45, p. e2018., 1536-5964 (November 2015)
**Author(s):** Chen, Hsin-Yi, Hsu, Sheng-Yao, Chang, Yue-Cune, Lin, Che-Chen, Sung, Fung-Chang, Chen, Wen-Chi, Kao, Chia-Huang

**Abstract:** The aim of the study was to investigate the association between statin use and open-angle glaucoma (OAG) risk in hyperlipidemia patients. We used the research database of the Taiwan National Health Insurance program to conduct a population-based case-control study. A total of 1276 patients with newly diagnosed OAG were identified from 2004 to 2011. Controls comprised of 12,760 patients without glaucoma and were frequency-matched for age, sex, history of diabetes mellitus, and year of hyperlipidemia diagnosis at a 1:10 ratio. Accumulated defined daily doses (DDDs) of statins prescribed during follow-up were calculated. Average statin use was calculated as the sum of DDDs divided by the duration from the initial statin prescription date to the index date (per year), and was subdivided into 3 levels: <30, 30 to 119, and ≥120 DDDs. Comorbidity, including hypertension, depression, and the Charlson comorbidity index, the frequency of eye care visits, and the use of nonstatin cholesterol-lowering drugs, were all considered as confounding factors. For the group with statin use, the adjusted odds ratio of OAG was 1.02 (95% confidence interval 0.90-1.15) when compared with the group without statin use. Subanalysis showed that a high dosage of statin use (≥120 DDD/y) resulted in a 1.24-fold increased risk of OAG (odds ratio 1.24, 95% confidence interval 1.03-1.49). The incidence of OAG was increased with the increase of the dosage of statin use (P for trend = 0.0458). Clinicians should be cautious of hyperlipidemia patients with a high dosage of statin use because it might be associated with an increased risk of OAG. Ophthalmologist consultation is necessary for this high-risk group.

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16. **Title:** Rates of Retinal Nerve Fiber Layer Loss in Contralateral Eyes of Glaucoma Patients with Unilateral Progression by Conventional Methods.

**Citation:** Ophthalmology, Nov 2015, vol. 122, no. 11, p. 2243-2251, 1549-4713 (November 2015)

**Author(s):** Liu, Ting, Tatham, Andrew J, Gracitelli, Carolina P B, Zangwill, Linda M, Weinreb, Robert N, Medeiros, Felipe A

**Abstract:** To determine whether progressive retinal nerve fiber layer (RNFL) loss occurs in the contralateral eye of patients with glaucoma showing unilateral progression according to conventional diagnostic methods. Prospective, longitudinal, observational cohort study. Three hundred forty-six eyes of 173 patients (118 eyes with glaucoma and 228 eyes with suspect glaucoma at baseline) followed up for an average of 3.5±0.7 years. All subjects underwent standard automated perimetry (SAP; Humphrey Field Analyzer; Carl Zeiss Meditec, Dublin, CA) and spectral-domain (SD) optical coherence tomography (OCT; Spectralis; Heidelberg Engineering, Inc., Carlsbad, CA) in both eyes at 6-month intervals. Eyes were determined as progressing by conventional methods if there was progression on masked grading of optic disc stereophotographs or SAP Guided Progression Analysis (GPA; Carl Zeiss Meditec; “likely progression”). Rates of change in SD OCT average RNFL thickness were obtained using a linear mixed effects model. Rate of global loss was calculated using
a random coefficient model and compared for nonprogressing patients, progressing eyes, and fellow eyes of unilateral progressing patients. Rate of change in global RNFL thickness. Thirty-nine subjects showed evidence of unilateral progression by GPA, disc photographs, or both during follow-up. Mean ± standard error rate of RNFL loss in eyes progressing by conventional methods was -0.89±0.22 μm/year (P<0.001). The contralateral eyes of these subjects also showed significant loss of RNFL over time (-1.00±0.20 μm/year; P<0.001). One hundred thirty-four subjects did not show progression by conventional methods in either eye. These eyes also showed a significant decline over time in average RNFL thickness (-0.71±0.09 μm/year; P<0.001); however, the rate of change in these eyes was slower than that of the contralateral eye of patients showing unilateral progression (P<0.001). Loss of RNFL thickness was seen in a substantial number of contralateral eyes of glaucoma patients showing unilateral progression by conventional methods. These findings indicate that assessment of RNFL thickness by SD OCT may show progressive glaucomatous damage that is not detected by visual fields or optic disc stereophotography. Copyright © 2015 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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17. Title: Comparison of visual field progression between temporally tilted disc and nontilted disc, in patients with normal tension glaucoma.


Author(s): Choy, Y J, Kwun, Y, Han, J C, Kee, C

Abstract: To investigate the long-term visual field (VF) progression of temporally tilted disc and nontilted disc in normal tension glaucoma (NTG). Retrospective, observational case series. Forty-seven patients with temporally tilted disc (47 eyes), 44 patients with nontilted disc in NTG (44 eyes) patients, who were examined by at least 5 VF tests, and were followed-up over a 5-year period, at the Department of Ophthalmology of the Samsung Medical Center, from May 1998 to 2013. VF progression was defined by modified Anderson-Hodapp criteria, and Glaucoma Progression Analysis (GPA). Multivariate analysis was used to identify the risk factors for VF progression in the temporally tilted disc. According to the Anderson-Hodapp criteria, progression rates of the temporally tilted disc and nontilted disc at 60 months were 19% and 72%, respectively (P<0.0001). According to GPA, they were 25% and 53%, respectively (P<0.0001). Twenty of 47 patients in the temporally tilted disc did not show progression. Among them, the more tilted disc showed the more VF defects. The hazard ratio of retinal nerve fiber layer (RNFL) defect type was 3.08 (95% CI, 1.17-8.14; P=0.02). The simultaneous superior and inferior RNFL defect type was the most common in progressors in the temporally tilted disc (P=0.04). Through long-term follow-up, the cumulative survival rate of temporally tilted disc was higher than that of nontilted disc. Caution is required in the treatment of the temporally tilted disc. New treatment policy for the temporally tilted disc may follow.
18. **Title:** Applying the resources and supports in self-management framework to examine ophthalmologist-patient communication and glaucoma medication adherence.

**Citation:** Health education research, Oct 2015, vol. 30, no. 5, p. 693-705, 1465-3648 (October 2015)

**Author(s):** Sleath, B, Carpenter, D M, Blalock, S J, Sayner, R, Muir, K W, Slota, C, Giangiacomo, A L, Hartnett, M E, Tudor, G, Robin, A L

**Abstract:** Little is known about how ophthalmologist-patient communication over time is associated with glaucoma patient long-term adherence. The purpose of our study was to examine the association between provider use of components of the resources and supports in self-management model when communicating with patients and adherence to glaucoma medications measured electronically over an 8-month period. In this longitudinal prospective cohort study, the main variables studied were ophthalmologist communication-individualized assessment, collaborative goal setting and skills enhancement. Patients with glaucoma who were newly prescribed or on glaucoma medications were recruited from six ophthalmology clinics. Patients' baseline and next follow-up visits were videotape-recorded. Patients were interviewed after their visits. Patients used medication event monitoring systems (MEMS) for 8 months after enrollment into the study, and adherence was measured electronically using MEMS for 240 days after their visits. Two hundred and seventy-nine patients participated. Patient race and regimen complexity were negatively associated with glaucoma medication adherence over an 8-month period. Provider communication behaviors, including providing education and positive reinforcement, can improve patient adherence to glaucoma medications over an 8-month period. © The Author 2015. Published by Oxford University Press. All rights reserved. For permissions, please email: journals.permissions@oup.com.

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19. **Title:** Quality of Life and Risks Associated with Systemic Anti-inflammatory Therapy versus Fluocinolone Acetonide Intraocular Implant for Intermediate Uveitis, Posterior Uveitis, or Panuveitis: Fifty-four-Month Results of the Multicenter Uveitis Steroid Treatment Trial and Follow-up Study.

**Citation:** Ophthalmology, Oct 2015, vol. 122, no. 10, p. 1976-1986, 1549-4713 (October 2015)

**Author(s):** Multicenter Uveitis Steroid Treatment (MUST) Trial Follow-up Study Research Group
Abstract: To evaluate the risks and quality-of-life (QoL) outcomes of fluocinolone acetonide implant versus systemic therapy with corticosteroid and immunosuppression when indicated for intermediate uveitis, posterior uveitis, and panuveitis. Additional follow-up of a randomized trial cohort. Two hundred fifty-five patients with intermediate uveitis, posterior uveitis, or panuveitis, randomized to implant or systemic therapy. Randomized subjects with intermediate uveitis, posterior uveitis, or panuveitis (479 eyes) were followed up over 54 months, with 79.2% completing the 54-month visit. Local and systemic potential complications of the therapies and self-reported health utility and vision-related and generic health-related QoL were studied prospectively. Among initially phakic eyes, cataract and cataract surgery occurred significantly more often in the implant group (hazard ratio [HR], 3.0; P = 0.0001; and HR, 3.8; P < 0.0001, respectively). In the implant group, most cataract surgery occurred within the first 2 years. Intraocular pressure elevation measures occurred more frequently in the implant group (HR range, 3.7-5.6; all P < 0.0001), and glaucoma (assessed annually) also occurred more frequently (26.3% vs. 10.2% by 48 months; HR, 3.0; P = 0.0002). In contrast, potential complications of systemic therapy, including measures of hypertension, hyperlipidemia, diabetes, bone disease, and hematologic and serum chemistry indicators of immunosuppression toxicity, did not differ between groups through 54 months. Indices of QoL initially favored implant therapy by a modest margin. However, all summary measures of health utility and vision-related or generic health-related QoL were minimally and nonsignificantly different by 54 months, with the exception of the 36-item Short-Form Health Survey physical component summary score, which favored implant by a small margin at 54 months (3.17 on a scale of 100; P = 0.01, not adjusted for multiple comparisons). Mean QoL results were favorable in both groups. These results suggest that fluocinolone acetonide implant therapy is associated with a clinically important increased risk of glaucoma and cataract with respect to systemic therapy, suggesting that careful monitoring and early intervention to prevent glaucoma is warranted with implant therapy. Systemic therapy subjects avoided a significant excess of toxicities of systemic corticosteroid and immunosuppressive therapies in the trial. Self-reported QoL measures initially favored implant therapy, but over time the measures converged, with generally favorable QoL in both groups. Copyright © 2015 American Academy of Ophthalmology. All rights reserved.

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20. Title: Long-term, therapy-related visual outcome of 49 cases with retinal arterial macroaneurysm: a case series and literature review.

Citation: The British journal of ophthalmology, Oct 2015, vol. 99, no. 10, p. 1345-1353, 1468-2079 (October 2015)

Author(s): Koinzer, Stefan, Heckmann, Jan, Tode, Jan, Roider, Johann

Abstract: Retinal arterial macroaneurysms (RAMAs) are acquired dilations of branches of the central retinal artery. Treatment depends on vision-limiting complications. We compare the long-term visual acuity (VA) in three groups according to treatment. 49 charts of patients with RAMA were reviewed.
16 remained untreated, 15 received photocoagulation and 18 vitrectomy. Patients underwent full ophthalmological examinations and up-to-date imaging. We evaluated chosen therapy, complications and final VA at the last visit. 65% of the cohort was female, aged 75±11 years (mean±SD). Follow-up was 34±23 months. These parameters did not differ significantly between the three groups. In the observed group, initial VA was 0.48 (mean log MAR) vs 0.35 at the final visit, in the photocoagulation group 0.55 vs 0.59, and in the vitrectomy group 1.8 vs 0.77. VA was significantly worse at enrolment in the vitrectomy group, while all other VA differences were not significant. The overall visual prognosis of RAMA was good, even after macular complications. VA remained unchanged in the observed and the laser groups and was comparable in all groups after 3 years. Based on an individual treatment decision, all therapies were effective and efficient. If subfoveal haemorrhage caused a macular hole, the VA outcome was limited. Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to http://group.bmj.com/group/rights-licensing/permissions.

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21. Title: Accuracy of Patient-reported Adherence to Glaucoma Medications on a Visual Analog Scale Compared With Electronic Monitors.

Citation: Clinical therapeutics, Sep 2015, vol. 37, no. 9, p. 1975-1985, 1879-114X (September 1, 2015)

Author[s]: Sayner, Robyn, Carpenter, Delesha M, Blalock, Susan J, Robin, Alan L, Muir, Kelly W, Hartnett, Mary Elizabeth, Giangiacomo, Annette L, Tudor, Gail, Sleath, Betsy

Abstract: Glaucoma medications can improve clinical outcomes when patients adhere to their medication regimen. Providers often ask patients with glaucoma to self-report their adherence, but the accuracy of self-reporting has received little scientific attention. The purpose of this article was to compare a self-reported medication adherence measure with adherence data collected from Medication Event Monitoring Systems (MEMS) electronic monitors. An additional goal was to identify which patient characteristics were associated with overreporting adherence on the self-reported measure. English-speaking adult patients with glaucoma were recruited from 6 ophthalmology practices for this observational cohort study. Patients were interviewed after their initial visit and were given MEMS contains, which recorded adherence over a 60-day period. MEMS percent adherence measured the percentage of the prescribed number of doses taken. MEMS-measured timing adherence assessed the percent doses taken on time. Patients self-reported adherence to their glaucoma medications on a visual analog scale (VAS) ~60 days after the baseline visit. Bivariate analyses and logistic regressions were used to analyze the data. Self-reported medication adherence on the VAS was plotted against MEMS adherence to illustrate the discrepancy between self-reported and electronically monitored adherence. The analyses included 240 patients who returned their MEMS containers and self-reported medication adherence at the 60-day follow-up visit. Compared with MEMS-measured percent adherence, 31% of patients (n = 75)
overestimated their adherence on the VAS. Compared with MEMS-measured timing adherence, 74% (n = 177) of patients overestimated their adherence. For the MEMS-measured percent adherence, logistic regression revealed that patients who were newly prescribed glaucoma medications were significantly more likely to overreport adherence on the VAS (odds ratio, 3.07 [95% CI, 1.22-7.75]). For the MEMS-measured timing adherence, being male (χ(2) test, 6.78; P = 0.009) and being prescribed glaucoma medications dosed multiple times daily (χ(2) test, 4.02; P = 0.045) were significantly associated with patients overreporting adherence. However, only male sex remained a significant predictor of overreporting adherence in the logistic regression (odds ratio, 4.05 [95% CI, 1.73-9.47]). Many patients with glaucoma, especially those newly diagnosed, overestimated their medication adherence. Because patients were likely to overreport the percent doses taken and timing adherence, providers may want to ask patients additional questions about when they take their glaucoma medications to potentially detect issues with taking these medications on time.

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22. Title: A study of whether automated Diabetic Retinopathy Image Assessment could replace manual grading steps in the English National Screening Programme.

Citation: Journal of medical screening, Sep 2015, vol. 22, no. 3, p. 112-118, 1475-5793 (September 2015)


Abstract: Diabetic retinopathy screening in England involves labour intensive manual grading of digital retinal images. We present the plan for an observational retrospective study of whether automated systems could replace one or more steps of human grading. Patients aged 12 or older who attended the Diabetes Eye Screening programme, Homerton University Hospital (London) between 1 June 2012 and 4 November 2013 had macular and disc-centred retinal images taken. All screening episodes were manually graded and will additionally be graded by three automated systems. Each system will process all screening episodes, and screening performance (sensitivity, false positive rate, likelihood ratios) and diagnostic accuracy (95% confidence intervals of screening performance measures) will be quantified. A sub-set of gradings will be validated by an approved Reading Centre. Additional analyses will explore the effect of altering thresholds for disease detection within each automated system on screening performance. 2,782/20,258 diabetes patients were referred to ophthalmologists for further examination. Prevalence of maculopathy (M1), preproliferative retinopathy (R2), and proliferative retinopathy (R3) were 7.9%, 3.1% and 1.2%, respectively; 4749 (23%) patients were diagnosed with background retinopathy (R1); 1.5% were considered ungradable by human graders. Retinopathy prevalence was similar to other English diabetic screening programmes, so findings should be generalizable. The study population size will
allow the detection of differences in screening performance between the human and automated grading systems as small as 2%. The project will compare performance and economic costs of manual versus automated systems. © The Author(s) 2015.

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23. Title: The Impact of Bariatric Surgery on Diabetic Retinopathy: A Systematic Review and Meta-Analysis.

Citation: Obesity surgery, Sep 2015, vol. 25, no. 9, p. 1604-1609, 1708-0428 (September 2015)

Author(s): Cheung, Douglas, Switzer, Noah J, Ehmann, David, Rudnisky, Christopher, Shi, Xinzhe, Karmali, Shahzeer

Abstract: Significant reductions in glucose control immediately post bariatric surgery in patients with longstanding poor glycemic control can lead to the paradoxical progression of diabetic retinopathy (DR) in susceptible individuals. Bariatric surgery results in dramatic and immediate diabetic control postoperatively. We aimed to systematically review the literature to assess the effect of bariatric surgery on DR. A comprehensive search of electronic databases (e.g., MEDLINE, EMBASE, SCOPUS, Web of Science, and the Cochrane Library) was completed. All randomized controlled trials, non-randomized comparison study, and case series were included. Inclusion criteria included English-speaking studies, enrolling ≥ 5 patients, and contained ophthalmological data on outcome of DR pre- and post bariatric surgery. Two independently reviewers screened abstracts, reviewed full text versions of all studies classified, and extracted data. All comparison studies included in the meta-analysis were assessed independently by two reviewers for methodological quality using the Cochrane Risk of Bias (RoB) tools. Disagreements were resolved by re-extraction, or third-party adjudication. Where possible and appropriate, a meta-analysis was conducted. A total of 277 studies were identified using our search criteria for screening. Four primary studies (n = 148 patients) met our inclusion criteria and were included in the systematic review. These included no randomized controlled trials and four non-randomized case series. Patients with no preoperative DR (n = 80), following bariatric surgery, an average of 92.5 ± 7.4 % remained disease free, while 7.5 ± 7.4 % of patients progressed to DR. Patients with diabetic retinopathy preoperatively (n = 68), following bariatric surgery, an average of 57.4 ± 18.5 % of patients had no change, 23.5 ± 18.7 % of patients had progression, and 19.2 ± 2.9 % of patients had improvement in their disease. Progression of diabetic retinopathy is a significant issue postoperatively following bariatric surgery. Patients with a diagnosis of DR prior to surgery are at increased risk of further progression in their disease and should receive adequate counseling and evaluation prior to undergoing a surgical procedure. However, the few primary studies in this systematic review limit any conclusion. Further studies are needed to further evaluate these results.

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24. **Title:** Toxic optic neuropathies: an updated review.

**Citation:** Acta ophthalmologica, Aug 2015, vol. 93, no. 5, p. 402-410, 1755-3768 (August 2015)

**Author(s):** Grzybowski, Andrzej, Zülsdorff, Magdalena, Wilhelm, Helmut, Tonagel, Felix

**Abstract:** Toxic optic neuropathy (TON) is caused by the damage to the optic nerve through different toxins, including drugs, metals, organic solvents, methanol and carbon dioxide. A similar clinical picture may also be caused by nutritional deficits, including B vitamins, folic acid and proteins with sulphur-containing amino acids. This review summarizes the present knowledge on disease-causing factors, clinical presentation, diagnostics and treatment in TON. It discusses in detail known and hypothesized relations between drugs, including tuberculostatic drugs, antimicrobial agents, antiepileptic drugs, antiarrhythmic drugs, disulfiram, halogenated hydroquinolones, antimetabolites, tamoxifen and phosphodiesterase type 5 inhibitors and optic neuropathy. © 2014 Acta Ophthalmologica Scandinavica Foundation. Published by John Wiley & Sons Ltd.

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25. **Title:** Assessing the Effect of Personalized Diabetes Risk Assessments During Ophthalmologic Visits on Glycemic Control: A Randomized Clinical Trial.

**Citation:** JAMA ophthalmology, Aug 2015, vol. 133, no. 8, p. 888-896, 2168-6173 (August 2015)


**Abstract:** Optimization of glycemic control is critical to reduce the number of diabetes mellitus-related complications, but long-term success is challenging. Although vision loss is among the greatest fears of individuals with diabetes, comprehensive personalized diabetes education and risk assessments are not consistently used in ophthalmologic settings. To determine whether the point-of-care measurement of hemoglobin A(1c) (HbA(1c)) and personalized diabetes risk assessments performed during retinal ophthalmologic visits improve glycemic control as assessed by HbA(1c) level. Ophthalmologist office-based randomized, multicenter clinical trial in which investigators from 42 sites were randomly assigned to provide either a study-prescribed augmented diabetes assessment and education or the usual care. Adults with type 1 or 2 diabetes enrolled into 2 cohorts: those with a more-frequent-than-annual follow-up (502 control participants and 488 intervention participants) and those with an annual follow-up (368 control participants and 388 intervention participants). Enrollment was from April 2011 through January 2013. Point-of-care measurements of HbA1c, blood pressure, and retinopathy severity; an individualized estimate of the risk of
retinopathy progression derived from the findings from ophthalmologic visits; structured comparison and review of past and current clinical findings; and structured education with immediate assessment and feedback regarding participant’s understanding. These interventions were performed at enrollment and at routine ophthalmic follow-up visits scheduled at least 12 weeks apart. Mean change in HbA1c level from baseline to 1-year follow-up. Secondary outcomes included body mass index, blood pressure, and responses to diabetes self-management practices and attitudes surveys. In the cohort with more-frequent-than-annual follow-ups, the mean (SD) change in HbA1c level at 1 year was -0.1% (1.5%) in the control group and -0.3% (1.4%) in the intervention group (adjusted mean difference, -0.09% [95% CI, -0.29% to 0.12%]; P = .35). In the cohort with annual follow-ups, the mean (SD) change in HbA1c level was 0.0% (1.1%) in the control group and -0.1% (1.6%) in the intervention group (mean difference, -0.05% [95% CI, -0.27% to 0.18%]; P = .63). Results were similar for all secondary outcomes. Long-term optimization of glycemic control is not achieved by a majority of individuals with diabetes. The addition of personalized education and risk assessment during retinal ophthalmologic visits did not result in a reduction in HbA1c level compared with usual care over 1 year. These data suggest that optimizing glycemic control remains a substantive challenge requiring interventional paradigms other than those examined in our study. clinicaltrials.gov Identifier:NCT01323348.

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Citation: Ophthalmology, Aug 2015, vol. 122, no. 8, p. 1681-1687, 1549-4713 (August 2015)


Abstract: To review the published literature assessing the efficacy and safety of lacrimal drainage system plug insertion for dry eye in adults. Literature searches of the PubMed and Cochrane Library databases were last conducted on March 9, 2015, without date restrictions and were limited to English language abstracts. The searches retrieved 309 unique citations. The primary authors reviewed the titles and abstracts. Inclusion criteria specified reports that provided original data on plugs for the treatment of dry eyes in at least 25 patients. Fifty-three studies of potential relevance were assigned to full-text review. The 27 studies that met the inclusion criteria underwent data abstraction by the panels. Abstracted data included study characteristics, patient characteristics, plug type, insertion technique, treatment response, and safety information. All studies were observational and rated by a methodologist as level II or III evidence. The plugs included punctal, intracanalicular, and dissolving types. Fifteen studies reported metrics of improvement in dry eye symptoms, ocular-surface status, artificial tear use, contact lens comfort, and tear break-up time. Twenty-five studies included safety data. Plug placement resulted in ≥50% improvement of symptoms, improvement in ocular-surface health, reduction in artificial tear use, and improved
contact lens comfort in patients with dry eye. Serious complications from plugs were infrequent. Plug loss was the most commonly reported problem with punctal plugs, occurring on average in 40% of patients. Overall, among all plug types, approximately 9% of patients experienced epiphora and 10% required removal because of irritation from the plugs. Canaliculitis was the most commonly reported problem for intracanalicular plugs and occurred in approximately 8% of patients. Other complications were reported in less than 4% of patients on average and included tearing, discomfort, pyogenic granuloma, and dacryocystitis. On the basis of level II and III evidence in these studies, plugs improve the signs and symptoms of moderate dry eye that are not improved with topical lubrication, and they are well tolerated. There are no level I studies that describe the efficacy or safety of lacrimal drainage system plugs. Copyright © 2015 American Academy of Ophthalmology. Published by Elsevier Inc. All rights reserved.

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27. Title: One Year of Glaucoma Research in Review-2013 to 2014.


Author(s): Van Tassel, Sarah H, Radcliffe, Nathan M, Demetriades, Anna M

Abstract: The purpose of this study was to provide the practicing clinical ophthalmologist with an update on relevant glaucoma literature published from 2013 to 2014. This study is a literature review. The authors conducted a 1-year (October 1, 2013, to September 30, 2014) English-language glaucoma literature search on PubMed of articles containing "glaucoma" or "glaucomatous" with title/abstract as a filter. Medical subject headings filtered searching was not performed because of the newness of the reviewed material. Literature search yielded 2314 articles, after which we excluded reviews and letters to the editor. We highlighted articles featuring new or updated approaches to the pathophysiology, diagnosis, or treatment of glaucoma and gave preference to human research. This review features literature that is of interest to ophthalmologists in practice and also highlights studies that may provide insight on future developments applicable to clinical ophthalmology.

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28. Title: Recent advances clarifying the etiologies of strabismus.


Author(s): Peragallo, Jason H, Pineles, Stacy L, Demer, Joseph L

Abstract: Strabismus is commonly encountered in neuro-ophthalmology practice. Adult patients may present with symptoms including disabling diplopia and decreased quality of life. Although presentation to the neuro-ophthalmologist often prompts a thorough workup for a neurologic basis of ocular misalignment, advances in orbital imaging and understanding of orbital mechanics have revealed novel mechanical causes. A goal of this review is to clarify mechanical mechanisms of strabismus that were formerly assumed to be neurologic in origin. The authors combine their own research and clinical experience with a literature review using PubMed. Aberrant paths of the extraocular muscles can lead to strabismus. The extraocular muscles have connective tissue pulleys that control muscle paths and are, in turn, influenced by the extraocular muscle orbital layers. Orbital connective tissues, including the pulleys, constrain extraocular muscle paths. Abnormalities of these tissues may lead to strabismus that is not due to neurologic pathology. Some extraocular muscles are divided into independent neuromuscular compartments, so that partial motor nerve lesions may manifest as selective denervation of only 1 compartment, complicating the presentation of neuropathic strabismus. Strabismus in adults due to nonneurologic causes can result from recently described abnormalities of the orbital connective tissue pulley system. Advances in understanding of compartmental extraocular muscle anatomy and innervation can explain cyclovertical strabismus in partial nerve palsies. Recognition of the underlying pathogenesis of the strabismus can lead to improved treatments.

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29. Title: Headaches attributed to visual disturbances.


Author(s): Marzoli, S Bianchi, Criscuoli, A

Abstract: Ocular pain due to ophthalmological diseases is most commonly associated with redness and inflammation of the ocular surface and surrounding tissues. Pain in a quiet eye can be referred as headache and can be the first sign of a number of ocular or orbital conditions. Painful symptoms may be considered non-specific if signs of targeted diseases are not identified. Collection of appropriate history of pain around the eye and associated symptoms or signs should be considered to recognize when ophthalmological examination is needed. Some painful diseases such as
intermittent angle closure glaucoma, uveitis or optic neuritis, can lead to severe and permanent visual loss and require a prompt diagnosis and treatment.

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30. **Title:** Methodology and reporting of diagnostic accuracy studies of automated perimetry in glaucoma: evaluation using a standardised approach.

**Citation:** Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists), May 2015, vol. 35, no. 3, p. 315-323, 1475-1313 (May 2015)

**Author(s):** Fidalgo, Bruno M R, Crabb, David P, Lawrenson, John G

**Abstract:** To evaluate methodological and reporting quality of diagnostic accuracy studies of perimetry in glaucoma and to determine whether there had been any improvement since the publication of the Standards for Reporting of Diagnostic Accuracy (STARD) guidelines. A systematic review of English language articles published between 1993 and 2013 reporting the diagnostic accuracy of perimetry in glaucoma. Articles were appraised for methodological quality using the 14-item Quality assessment tool for diagnostic accuracy studies (QUADAS) and evaluated for quality of reporting by applying the STARD checklist. Fifty-eight articles were appraised. Overall methodological quality of these studies was moderate with a median number of QUADAS items rated as ‘yes’ equal to nine (out of a maximum of 14) (IQR 7-10). The studies were often poorly reported; median score of STARD items fully reported was 11 out of 25 (IQR 10-14). A comparison of the studies published in 10-year periods before and after the publication of the STARD checklist in 2003 found quality of reporting had not substantially improved. Methodological and reporting quality of diagnostic accuracy studies of perimetry is sub-optimal and appears not to have improved substantially following the development of the STARD reporting guidance. This observation is consistent with previous studies in ophthalmology and in other medical specialities. © 2015 The Authors Ophthalmic & Physiological Optics © 2015 The College of Optometrists.

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