Ranibizumab or Aflibercept for Diabetic Macular Edema Comparison of 1-Year Outcomes from the Fight Retinal Blindness! Registry.

Bhandari S, Nguyen V, Fraser-Bell S, Mehta H, Viola F, Baudin F et al
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ABSTRACT

PURPOSE:

Both ranibizumab and aflibercept improved vision and decreased macular thickness in eyes with diabetic macular edema (DME) in clinical trials. This study compared the 12-month treatment outcomes of each drug in routine clinical practice.

DESIGN:

Retrospective analysis of data from the prospectively designed observational Fight Retinal Blindness! registry.

PARTICIPANTS:

Treatment-naive eyes tracked in the registry that initiated treatment with either ranibizumab (0.5 mg) or aflibercept (2 mg) for DME from December 1, 2013, through June 1, 2018.

METHODS:

Visual acuity (VA) was analyzed at 12 months in all eyes (completers, noncompleters, and eyes that switched treatment).

MAIN OUTCOME MEASURES:

The primary outcome was the mean change in VA from baseline to 12 months.

RESULTS:

We identified 383 eyes (ranibizumab, n = 166 eyes; aflibercept, n = 217 eyes) of 291 patients. Eyes receiving aflibercept showed a lower mean VA (mean difference, –3.1 letters) and a thicker maculae (mean difference, +26 μm) at baseline than those receiving ranibizumab, which were not significantly different. Patients receiving ranibizumab were older (mean difference, +2.7 years). The adjusted mean difference in VA change and central subfield thickness (CST) reduction were, respectively, +1 letter (1.4 letters for aflibercept vs. 0.4 letter for ranibizumab; P = 0.4) and –30 μm (–85 vs. –55 μm; P < 0.01) in eyes with initial VA of 20/40 or better and +3 letters (10.6 vs. 7.6 letters; P < 0.01) and –46 μm (–148 vs. –102 μm;

P < 0.02) in those with VA of 20/50 or worse. Eyes in the aflibercept group received more median injections over 12 months than the ranibizumab group although this difference was not significant (8 vs. 6 injections; P = 0.13). Treatment switches, albeit low, were more frequent from ranibizumab to aflibercept than vice versa. Significantly more eyes in the aflibercept group were lost to follow-up within 12 months (21% vs. 9% ranibizumab; P < 0.01).

CONCLUSION:

Both drugs were beneficial for DME. Aflibercept-treated eyes, which had borderline worse vision and thicker maculae at baseline, showed larger CST reductions after 12 months of treatment. Larger VA gains were observed with aflibercept treatment when the initial VA was 20/50 or worse.

Structural OCT Signs Suggestive of Subclinical Nonexudative Macular Neovascularization in Eyes with Large Drusen

Narita C, Wu Z, Rosenfeld PJ, Yang J, Lyu C, Caruso E et al
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ABSTRACT

PURPOSE:

To further define the structural OCT features described as the "double-layer sign" suggestive of subclinical, nonexudative macular neovascularization (NE-MNV) in asymptomatic eyes with age-related macular degeneration (AMD).

DESIGN:

Cross-sectional observational study.

PARTICIPANTS:

Participants with large drusen (>125 μm) secondary to AMD in at least 1 eye.

METHODS:

Participants in a "discovery" cohort, with known NE-MNV identified on swept-source (SS) OCT angiography (OCTA) and the "double-layer sign" on structural spectral-domain OCT (SD-OCT) imaging, were used to identify characteristic features of this sign. These features were then assessed by masked grading in an "evaluation" cohort of AMD eyes with large drusen to determine the predictive values for NE-MNV.

MAIN OUTCOME MESURES:

Description of OCT features associated with an increased risk of NE-MNV and their diagnostic and predictive performance.

RESULTS:

The discovery cohort of 4 eyes revealed that in retinal pigment epithelium (RPE) elevations with a greatest transverse linear dimension of 1000 μm or more, an irregular RPE layer with a height of predominantly less than 100 μm, and a non-homogenous internal reflectivity as characteristic features of the double-layer sign when NE-MNV was present. We term these collective features as a shallow, irregular RPE elevation (SIRE). Features on OCT images from 233 eyes in the evaluation cohort that were associated significantly with NE-MNV

when the RPE elevation was more than 1000 μm in length were: height of the RPE elevation, overall flat or variable morphologic features, RPE layer irregularity, and nonhomogeneous reflectivity (all $P \geq 0.032$). Twenty-four eyes (10.3%) were identified with a SIRE. On SS-OCTA imaging, 6 of the 233 eyes were found to have definite NE-MNV, and all 6 graded positively for SIRE (sensitivity, 100%). The absence of SIRE was identified in 209 of 227 eyes without NE-MNV (specificity, 92.1%). The positive predictive value for SIRE was 25% and the negative predictive value was 100%.

CONCLUSION:

Eyes whose OCT images display a SIRE sign are at higher risk of having subclinical NE-MNV. SIRE can be used as a screening tool on routine structural OCT imaging. More frequent follow-up and diligent home monitoring is recommended for those with SIRE.

INTRAVITREAL DEXAMETHASONE IMPLANT MIGRATION INTO THE ANTERIOR CHAMBER A Multicenter Study From the Pan-American Collaborative Retina Study Group.

Gonçalves MB; Alves BQ, Moura R, Magalhães O Jr, Maia A, Belfort R Jr et al
Retina: May 2020 - Volume 40 - Issue 5 - p 825-832
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ABSTRACT

PURPOSE:

To establish the prevalence and risk factors for intravitreal dexamethasone implant migration into the anterior chamber in eyes with macular edema.

METHODS:

This was a multicenter, retrospective, observational chart review of data that included patients with macular edema who had been treated with at least one intravitreal dexamethasone injection. Patients with incomplete chart information during the follow-up period were excluded.

RESULTS:

The prevalence of implant migration in 468 patients, considering the number of injections, was 1.6%, with significant associations between implant migration and cataract surgery (P = 0.043) and intraocular lens status (P = 0.005) and a trend toward statistical significance (P = 0.057) with vitrectomy. A higher rate of implant migration into the anterior chamber was observed in vitrectomized eyes (4.8%) when compared with patients who did not undergo a vitrectomy (1.6%). The implants that migrated were removed with forceps with/without viscoelastic expression or with 20-gauge cannulas connected to the vitreous cutter machine.

CONCLUSION:

The risk of implant migration into the anterior chamber was 1.6%. Risk factors were a history of cataract surgery or vitrectomy and aphakia. When anterior migration occurs, rapid removal is advised, especially if corneal edema is present.

CORRELATION OF SUBRETINAL HYPERREFLECTIVE MATERIAL MORPHOLOGY AND VISUAL ACUITY IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION

Kumar JB, Stinnett S, Han JIL, Jaffe GJ
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ABSTRACT

PURPOSE:

To evaluate the association of subretinal hyperreflective material (SHRM) morphological features with visual acuity in eyes with neovascular age-related macular degeneration.

METHODS:

Retrospective analysis of treatment-naïve patients with neovascular age-related macular degeneration enrolled in randomized anti–vascular endothelial growth factor (VEGF) and anti–platelet-derived growth factor clinical trials. Standardized spectral domain optical coherence tomography images were graded at baseline, 12-week, and 24-week follow-up visits. Masked readers evaluated the morphology of SHRM (reflectivity, shape, anterior, and posterior boundaries) and measured SHRM height, width, and area at the fovea, within the center 1 mm2, and outside the center 1 mm2.

RESULTS:

Baseline SHRM characteristics that correlated with worse visual acuity at 12 and 24 weeks included layered appearance (P = 0.006, 0.001), hyperreflective spots in SHRM (P = 0.001, 0.011), and separation between SHRM and outer retina (P = 0.03, 0.019). The disappearance of SHRM correlated with better visual acuity at Weeks 12 and 24 (P < 0.001). Layered appearance of SHRM at baseline was significantly associated with increased reflectivity at Weeks 12 and 24 (P = 0.009, 0.003). Decreasing reflectivity of SHRM lesion at Weeks 12 and 24 correlated with better visual acuity (P < 0.01, 0.01). Increased width and area of baseline SHRM at the foveal center correlated with worse visual acuity at 12 (P < 0.001, <0.001) and 24 weeks (<0.001, <0.001).

CONCLUSION:

Several attributes of SHRM including, layered appearance, increased reflectivity, larger size, and hyperreflective spots correlated with worse visual acuity at 12- and 24-week follow-ups. Baseline SHRM characteristics can help practitioners predict visual and morphological prognosis and guide therapy.

DETECTION OF CLINICALLY UNSUSPECTED RETINAL NEOVASCULARIZATION WITH WIDE-FIELD OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY.

You QS, Guo Y, Wang J, Wei X, Camino A, Zang P et al
Retina: May 2020 - Volume 40 - Issue 5 - p 891-897
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ABSTRACT

PURPOSE:

To evaluate wide-field optical coherence tomography angiography (OCTA) for detection of clinically unsuspected neovascularization (NV) in diabetic retinopathy (DR).

METHODS:

This prospective observational single-center study included adult patients with a clinical diagnosis of nonproliferative DR. Participants underwent a clinical examination, standard 7-field color photography, and OCTA with commercial and prototype swept-source devices. The wide-field OCTA was achieved by montaging five 6 × 10-mm scans from a prototype device into a 25 × 10-mm image and three 6 × 6-mm scans from a commercial device into a 15 × 6-mm image. A masked grader determined the retinopathy severity from color photographs. Two trained readers examined conventional and wide-field OCTA images for the presence of NV.

RESULTS:

Of 27 participants, photographic grading found 13 mild, 7 moderate, and 7 severe nonproliferative DR. Conventional 6 × 6-mm OCTA detected NV in 2 eyes (7%) and none with 3 × 3-mm scans. Both prototype and commercial wide-field OCTA detected NV in two additional eyes. The mean area of NV was 0.38 mm2 (range 0.17–0.54 mm2). All eyes with OCTA-detected NV were photographically graded as severe nonproliferative DR.

CONCLUSIONS:

Wide-field OCTA can detect small NV not seen on clinical examination or color photographs and may improve the clinical evaluation of DR.

ENTEROCOCCUS ENDOPHTHALMITIS Clinical Settings, Antimicrobial Susceptibility, and Management Outcomes.

Dave VP, Pathengay A, Braimah IZ, Panchal B, Sharma S, Pappuru RR et al
Retina: May 2020 - Volume 40 - Issue 5 - p 898-902
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ABSTRACT

PURPOSE:

To report the clinical presentation and management outcome of patients with endophthalmitis caused by Enterococcus species and to report the susceptibility profile of the isolates.

METHODS:

Twenty-nine cases with culture-proven Enterococcus endophthalmitis from January 2005 to May 2018 underwent vitrectomy/vitreous biopsy, intravitreal antibiotic with or without additional procedures. The undiluted vitreous was subjected to microbiologic evaluation. A favorable anatomical outcome was defined as preservation of the globe, absence of hypotony, attached retina, and absence of active inflammation at the last visit. Favorable visual outcome was final visual acuity ≥20/400.

RESULTS:

There were 24 men (82.8%). Mean age at presentation was 32.89 ± 25.25 years (median 24 years). Inciting event was open globe injury in 18 (62%), endogenous in 5 (17.24%), postcataract surgery in 3 (10.34%), postscleral buckling in 2 (6.89%), and postkeratoplasty in 1 (3.44%). Enterococcus casseliflavus was the commonest species isolated (14/29, 48.27%) followed by E. faecalis (9/29, 31%). Susceptibility to vancomycin was seen in 27/29 isolates (93%). Visual acuity was ≤20/400 in all eyes at presentation and ≥20/400 in 10/29 cases (34.48%) at final visit. Anatomical success was seen in 18/29 eyes (62%). Corneal involvement was high at 24/29 eyes (82.75%)

CONCLUSION:

Enterococcus is not an uncommon organism in the setting of endophthalmitis after open globe injury. Resistance to vancomycin is rare. Multidrug resistance pattern is restricted to E. faecalis. Visual outcome is poor despite early and appropriate therapy due to inherent organism virulence.

OPTICAL COHERENCE TOMOGRAPHY LEAKAGE IN NEOVASCULAR AGE-RELATED MACULAR DEGENERATION Identification of Choroidal Neovascularization Activity by Location and Quantification of Abnormal Fluid Under Anti–Vascular Endothelial Growth Factor Therapy

Farinha C, Santos T, Santos AR, Lopes M, Alves D, Silva R et al
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PMID: 30689620

ABSTRACT

PURPOSE:

To test optical coherence tomography leakage in the identification and quantification of choroidal neovascularization–related fluid, its change after anti–vascular endothelial growth factor therapy in neovascular age-related macular degeneration eyes and its relation to functional outcome.

METHODS:

Prospective analysis of a cohort of neovascular age-related macular degeneration cases treated with 2.0-mg intravitreal aflibercept. Eyes included were analyzed before, 1-week, and 1-month after one injection. Best-corrected visual acuity was assessed using Early Treatment Diabetic Retinopathy Study method. Optical coherence tomography leakage maps depicting low optical reflectivity (LOR) sites were acquired with OCT Cirrus AngioPlex (Zeiss, Dublin, CA). The LOR area ratio was correlated to retinal thickness and best-corrected visual acuity. Optical coherence tomography angiography was simultaneously performed.

RESULTS:

Twenty-two eyes of 18 patients with neovascular age-related macular degeneration were included. The LOR ratio of the full retina scan and retinal pigment epithelium–Bruch layer decreased from baseline to Month 1 ($P < 0.05$). Changes in retinal thickness and LOR ratio were positively correlated ($P < 0.05$). Best-corrected visual acuity change correlated with the outer segment layer LOR change (rho = −0.53, $P = 0.014$), and LOR was inferior in better responders ($P = 0.021$). Optical coherence tomography leakage identified eyes with recurrent fluid in the external layers.

CONCLUSION:

Optical coherence tomography leakage identified and quantified the fluid related to choroidal neovascularization activity. Low optical reflectivity change in the outer segment layer correlates with functional outcome and increasing LOR in the external layers may be a marker of early recurrence. Combining optical coherence tomography angiography and

optical coherence tomography leakage allows both for choroidal neovascularization morphology and activity analysis.

April Segment Compiled by: Dr. Mudit Tyagi, Dr NK Sahoo , LVPEI. Hyderabad