Retina Roundup
March 2019

Outcomes of Eyes Lost to Follow-up with Proliferative Diabetic Retinopathy That ReceivedPanretinal Photocoagulation versus Intravitreal Anti-Vascular Endothelial Growth Factor.

Obeid A, Su D, Patel SN, Uhr JH, Borkar D, Gao X, Fineman MS, Regillo CD, Maguire JI, Garg SJ, Hsu J.
Ophthalmology. 2019 Mar;126(3):407-413. doi: 10.1016/j.ophtha.2018.07.027. Epub 2018 Aug 2.

ABSTRACT

PURPOSE:

To compare anatomic and functional outcomes in eyes with proliferative diabetic retinopathy (PDR) that were lost to follow-up(LTFU) for more than 6 months after treatment with either intravitreal injection (IVI) of anti-vascular endothelial growth factor (VEGF) agents or panretinal photocoagulation (PRP).

DESIGN:

Retrospective cohort study.

PARTICIPANTS:

Fifty-nine patients who were LTFU immediately after treatment for more than 6 months between September 2013 and September 2016.

METHODS:

Patients with eyes receiving either intravitreal anti-VEGF treatment or PRP with the next follow-up visit occurring more than 6 months after treatment were identified. Visual acuity (VA) and anatomic outcomes at the visit before being LTFU, the return visit, the 6-month visit after return, the 12-month visit after return, and the final visit were gathered and compared between the 2 treatment groups.

MAIN OUTCOMES MEASURES:

Visual acuity and anatomic outcomes.

RESULTS:

Seventy-six eyes of 59 patients were included in the study, of which 30 received IVI with anti-VEGF and 46 received PRP. In the anti-VEGF group, mean VA worsened significantly when comparing the visit before being LTFU (0.43±0.38 logarithm of the minimum angle of resolution [logMAR]) with the return visit (0.97±0.80 logMAR; P = 0.001) as well as with the final visit (0.92±0.94 logMAR; P = 0.01). In the PRP group, mean VA worsened significantly when comparing the visit before being LTFU (0.42±0.34 logMAR) with the return visit (0.62±0.64 logMAR; P = 0.03). However, no significant difference was observed at the final visit (0.46±0.47 logMAR; P = 0.38). There was a significantly greater number of eyes with tractional retinal detachment in the IVI group compared with the PRP group at the final visit (10 vs. 1, respectively; P =

0.005). There was a significantly greater incidence of neovascularization of the iris in the IVI arm compared with the PRP arm at the final visit (4 vs. 0, respectively; P = 0.02).

CONCLUSIONS:

Eyes with PDR that received only intravitreal anti-VEGF demonstrated worse anatomic and functional outcomes after being LTFU compared with eyes that received PRP. Given the potential sequelae of being LTFU, the choice of treatment for PDR must be considered carefully.

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Pachydrusen in Indian population: A hospital-based study.

Singh SR, Oli A, Mohan S, Goud A, Rasheed MA, Vupparaboina KK, Chhablani JK.

Indian J Ophthalmol. 2019 Mar;67(3):371-375. doi: 10.4103/ijo.IJO_1173_18.

ABSTRACT

PURPOSE:

To report the prevalence of pachydrusen in Indian population and their characteristics in relation to subfoveal choroidal thickness (SFCT), choroidal vascularity index (CVI) in comparison to eyes with soft drusen and subretinal drusenoid deposits (SDD) in age-related macular degeneration (AMD).

METHODS:

The study was a retrospective, cross-sectional study involving patients with a diagnosis of dry AMD in at least one eye. The diagnosis of soft drusen, SDD, and pachydrusen was made on the basis of color fundus photograph and optical coherence tomography (OCT). SFCT and CVI was calculated and compared among the different subtypes of drusen.

RESULTS:

A total of 169 eyes (143 dry and 26 wet AMD) of 85 patients with a mean age of 67.67 ± 9.57 years were included. In eyes with dry AMD, pachydrusen were seen in 12 eyes (8.4%) with a mean (±SD) SFCT of 289.66 ± 91.01 µ. The difference in SFCT was statistically significant (P = 0.001) using analysis of variance (ANOVA) test. The eyes with pachydrusen had significantly thickened choroid compared to the eyes with SDD (30 eyes; 21.0%) or combination of soft drusen and SDD (29 eyes; 20.3%) but not soft drusen (72 eyes; 50.3%). The difference of CVI in different subgroups was significant (P = 0.03). One eye in wet AMD group had concurrent pachydrusen. Comparison of SFCT and CVI in wet AMD and fellow dry AMD eyes were not significant.

CONCLUSION:

In Indian eyes with dry AMD, prevalence of pachydrusen (8.4%) is slightly lower compared to western literature (11.7%) and is associated with thicker choroid and higher CVI.

KEYWORDS:

Age-related macular degeneration; fluorescein angiography; optical coherence tomography; pachydrusen; soft drusen; subretinal drusenoid deposits

PMID: 30777955

DOI: 10.4103/ijo.IJO_1173_18

Swept source optical coherence tomography angiography in patients treated with hydroxychloroquine: correlation with morphological and functional tests.

Forte R, Haulani H, Dyrda A, Jürgens I

Br J Ophthalmol. 2019 Mar 6. pii: bjophthalmol-2018-313679. doi: 10.1136/bjophthalmol-2018-313679. [Epub ahead of print]

ABSTRACT

PURPOSE:

To evaluate swept source optical coherence tomography angiography (SS-OCTA) in patients treated with hydroxychloroquine(HCQ) for more than 5 years and to compare results with the tests currently recommended for screening of HCQ retinopathy.

METHODS:

In this controlled pilot study, consecutive patients treated with HCQ for more than 5 years underwent SS-OCTA, SS-OCT B-scan and en-face C-scan, fundus autofluorescence (FAF), 10-2 automated visual field (AVF) testing and multifocal electroretinography (mfERG). On SS-OCTA, evaluation of the retinal superficial capillary plexus, middle capillary plexus, and deep capillary plexus (DCP) and the choriocapillaris (CC) was obtained.

RESULTS:

We included 10 patients under HCQ treatment (20 eyes, mean age 38.91±11.73 years) and 18 healthy control patients (36 eyes, mean age 38.87±8.6 years). Mean duration of HCQ treatment was 10.0±3.25 (5-15) years and HCQ cumulative dose/body weight was 15.86±5.56 g/kg. The HCQ group showed a reduction of the vessel density in the 1 mm central, in the nasal and temporal subfields of DCP and in the 1 mm central subfield of CC, an increased foveal avascular zone in the three capillary plexuses, a greater frequency of CC flow voids and a reduced foveal choroidal thickness ($p<0.05$). Best-corrected visual acuity (BCVA), mfERG, SS-OCT B-scan and C-scan, AVF and FAF were normal in 20/20 eyes (100%).

CONCLUSIONS:

In patients treated with HCQ for more than 5 years, choroidal thinning and flow abnormalities at SS-OCTA in the retinal capillary plexuses and CC may be observed even if BCVA, FAF, mfERG, AVF and SS-OCT are normal.

KEYWORDS:

SLE; capillary plexus; choriocapillaris; hydroxychloroquine; multifocal electroretinography; optical coherence tomography angiography; rheumatology; systemic lupus erythematosus; visual field

PMID: 30842084

DOI: 10.1136/bjophthalmol-2018-313679

The Impact of Prefilled Syringes on Endophthalmitis Following Intravitreal Injection of Ranibizumab.

Storey PP, Tauqeer Z, Yonekawa Y, Todorich B, Wolfe JD, Shah SP, Shah AR, Koto T, Abbey AM, Morizane Y, Sharma P, Wood EH, Morizane-Hosokawa M, Pendri P, Pancholy M, Harkey S, Jeng-Miller KW, Obeid A, Borkar DS, Chen E, Williams P, Okada AA, Inoue M, Shiraga F, Hirakata A, Shah CP, Prenner J, Garg S; Post-Injection Endophthalmitis (PIE) Study Group.

Am J Ophthalmol. 2019 Mar;199:200-208. doi: 10.1016/j.ajo.2018.11.023. Epub 2018 Dec 13.

ABSTRACT

PURPOSE:

To compare the rates of infectious endophthalmitis following intravitreal injection of ranibizumab using prefilled syringes vs conventional preparation.

DESIGN:

Multicenter retrospective cohort study.

METHODS:

All eyes receiving intravitreal injection of 0.5 mg ranibizumab for retinal vascular diseases at 10 retina practices across the United States (2016 to 2017) and Japan (2009 to 2017) were included. The total numbers of eyes and injections were determined from billing codes. Endophthalmitis cases were determined from billing records and evaluated with chart review. Primary outcome was the rate of postinjection acute endophthalmitis. Secondary outcomes were visual acuity and microbial spectrum.

RESULTS:

A total of 243 754 intravitreal 0.5 mg ranibizumab injections (165 347 conventional and 78 407 prefilled) were administered to 43 132 unique patients during the study period. In the conventional ranibizumab group, a total of 43 cases of suspected endophthalmitis occurred (0.026%; 1 in 3845 injections) and 22 cases of culture-positive endophthalmitis occurred (0.013%; 1 in 7516 injections). In the prefilled ranibizumab group, 12 cases of suspected endophthalmitis occurred (0.015%; 1 in 6534 injections) and 2 cases of culture-positive endophthalmitis occurred (0.0026%; 1 in 39 204 injections). Prefilled syringes were associated with a trend toward decreased risk of suspected endophthalmitis (odds ratio 0.59; 95% confidence interval 0.31-1.12; P = .10) and a statistically significant decreased risk of culture-positive endophthalmitis (odds ratio 0.19; 95% confidence interval 0.045-0.82; P = .025). Average logMAR vision loss at final follow-up was significantly worse for eyes that developed endophthalmitis from the conventional ranibizumab preparation compared to the prefilledsyringe group (4.45 lines lost from baseline acuity vs 0.38 lines lost; P = .0062). Oral-associated flora was found in 27.3% (6/22) of conventional ranibizumab culture-positive endophthalmitis cases (3 cases of Streptococcus viridans, 3 cases of Enterococcus faecalis) compared to 0 cases in the prefilled ranibizumab group.

CONCLUSION:

In a large, multicenter, retrospective study the use of prefilled syringes during intravitreal injection of ranibizumab was associated with a reduced rate of culture-positive endophthalmitis, including from oral flora, as well as with improved visual acuity outcomes.

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DOI: 10.1016/j.ajo.2018.11.023

Near-Infrared Autofluorescence in Choroideremia: Anatomic and Functional Correlations.

Birtel J, Salvetti AP, Jolly JK, Xue K, Gliem M, Müller PL, Holz FG, MacLaren RE, Charbel Issa P.

Am J Ophthalmol. 2019 Mar;199:19-27. doi: 10.1016/j.ajo.2018.10.021. Epub 2018 Oct 26.

ABSTRACT

PURPOSE:

To investigate near-infrared fundus autofluorescence (NIR-AF) characteristics in patients with choroideremia and to correlate these with anatomic and functional parameters.

DESIGN:

Retrospective, observational case series.

METHODS:

In this multicenter study, 43 consecutive choroideremia patients (79 eyes) underwent multimodal retinal imaging, including near-infrared fundus autofluorescence (NIR-AF), blue autofluorescence (B-AF), optical coherence tomography (OCT), fundus photography, and functional testing including fundus-controlled microperimetry.

RESULTS:

All eyes could be categorized into 3 groups based on patterns of NIR-AF over the island of surviving retinal pigment epithelium: Group 1 (preserved NIR-AF centrally), Group 2 (only disrupted NIR-AF), or Group 3 (absence of NIR-AF). Group 1 eyes showed areas of NIR-AF that matched the areas of B-AF islands (R2 = 0.94, slope 0.84 ± 0.04) while Group 2 eyes showed significantly smaller areas of NIR-AF compared with B-AF (R2 = 0.08; slope 0.02 ± 0.01). The 3 groups differed significantly in terms of residual B-AF island size ($P < .0001$), length of foveal ellipsoid zone ($P = .03$), foveal thickness ($P = .04$), and foveal sensitivity ($P = .01$). Visual acuity ($P = .07$) and central retinal thickness ($P = .06$) did not differ statistically. The length of the ellipsoid zone line was similar to the horizontal diameter of NIR-AF in Group 1 (R2 = 0.97, slope 0.96 ± 0.04), while Group 2 eyes showed broader ellipsoid zone than NIR-AF (R2 = 0.60, slope 0.19 ± 0.03).

CONCLUSIONS:

Choroideremia patients can be stratified into 3 groups based on NIR-AF imaging, which showed morphologic and functional changes correlating with different stages of retinal pigment epithelium degeneration. NIR-AF could be a marker for disease staging in choroideremia, and could be used for patient selection or as an outcome parameter in interventional trials.

PMID: 30713139

DOI: 10.1016/j.ajo.2018.10.021

Clinical and Biological Factors Associated With Recurrences of Severe Toxoplasmic Retinochoroiditis Confirmed by Aqueous Humor Analysis.

Matet A, Paris L, Fardeau C, Terrada C, Champion E, Fekkar A, Cassoux N, Touitou V, LeHoang P, Bodaghi B.

Am J Ophthalmol. 2019 Mar;199:82-93. doi: 10.1016/j.ajo.2018.11.013. Epub 2018 Nov 28.

ABSTRACT

PURPOSE:

To investigate clinical and biological factors influencing recurrences of severe toxoplasmic retinochoroiditis (TRC) confirmed by aqueous humor analysis.

DESIGN:

Retrospective case series.

METHODS:

Retrospective analysis of 87 subjects with severe TRC, proven by positive Goldmann-Witmer coefficient (GWC), Toxoplasmagondii (T. gondii) immunoblot, or T. gondii-specific polymerase chain reaction (PCR) in aqueous humor. Cases with immunosuppression or retinal scars without previous recorded episode were excluded. Time-dependent, clinical, treatment-related, and biological factors were explored by univariate and multivariate shared frailty survival analyses.

RESULTS:

Among 44 included subjects (age, 40.4 ± 17.6 years; follow-up, 8.3 ± 2.7 years), 22 presented recurrences. There was 0.11 recurrence/patient/year and mean disease-free interval was 5.0 ± 2.9 years. The risk of recurrence was higher immediately after an episode ($P < .0001$). Among recurrent cases, the risk of multiple recurrences was higher when the first recurrence occurred after longer disease-free intervals ($P = .046$). In univariate analysis, the recurrence risk declined with higher number of intense bands on aqueous T. gondii immunoblot ($P = .006$), and increased when venous vasculitis was present initially ($P = .019$). Multivariate analysis confirmed that eyes with more intense bands on immunoblot had fewer recurrences ($P = .041$). There was a near-significant risk elevation after pyrimethamine/azithromycin treatment ($P = .078$ and $P = .054$, univariate and multivariate). Intravenous corticosteroid administration, oral corticosteroid administration, aqueous GWC, and T. gondii PCR did not influence recurrences ($P = .12$, $P = .10$, $P = .39$, and $P = .96$, respectively).

CONCLUSIONS:

Recurrences of severe TRC are not random and may be influenced by clinical and biological factors possibly related to blood-retinal barrier alterations. These results may contribute to identifying biomarkers for TRC reactivation.

PMID: 30502335

DOI: 10.1016/j.ajo.2018.11.013

EFFICACY AND SAFETY OF INTRAVITREAL AFLIBERCEPT AND RANIBIZUMAB IN ASIAN PATIENTS WITH NEOVASCULAR AGE-RELATED MACULAR DEGENERATION: Subgroup Analyses From the VIEW Trials.

Wong TY, Cheung CMG, Lai TYY, Chen SJ, Lee WK, Yoon YH, Iida T, Tueckmantel C, Sowade O, Ogura Y. Retina. 2019 Mar;39(3):537-547. doi: 10.1097/IAE.0000000000001986.

ABSTRACT

PURPOSE:

To assess the treatment effect of intravitreal aflibercept and ranibizumab in Asian patients with neovascular age-related macular degeneration.

METHODS:

We evaluated data from VIEW 1 and VIEW 2, comparing functional and morphologic outcomes at Week 96 between intravitrealaflibercept 2 mg monthly (2q4) or 2 mg bimonthly after 3 initial monthly doses (2q8) versus ranibizumab 0.5 mg monthly among Asian patients (n = 269) and between Asian and white patients (n = 2044).

RESULTS:

In Asian patients, there were no significant differences between intravitreal aflibercept 2q4 and 2q8 compared with ranibizumab in mean gain in best-corrected visual acuity (10.23 and 8.35 vs. 8.51 letters). Reduction in central retinal thickness was greater for intravitrealaflibercept 2q4 (150.43 µm, P = 0.0075) and 2q8 (148.15 µm, P = 0.0126) than ranibizumab (119.46 µm). The proportion of dry retinas was greater for intravitreal aflibercept 2q4 (65.7%, P < 0.01) than ranibizumab (41.7%). There were no differences in outcomes between Asian and white patients. Serious treatment-emergent ocular adverse events occurred in <8% of treated eyes, evenly distributed across subgroups.

CONCLUSION:

In Asian patients with neovascular age-related macular degeneration, functional and morphologic outcomes were largely similar between intravitreal aflibercept and ranibizumab groups, and to results seen in white patients.

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March Segment compiled by : Dr.Jayant Kumar, AEH Madurai