Retina Roundup
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The predictive value of ectopic inner retinal layer staging scheme for idiopathic epiretinal membrane: surgical results at 12 months

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Abstract

Background/objectives:

To assess the effect of ectopic inner foveal layers (EIFL) based staging scheme, foveal avascular zone (FAZ) alterations and other microstructural optical coherence tomography (OCT) findings on visual function for patients undergoing idiopathic epiretinal membrane (iERM) surgery.

Subjects/methods:

In this retrospective study, patients who underwent 27 G pars plana vitrectomy (PPV) for idiopathic ERM with a minimum follow-up of 12 months were included. Preoperative and postoperative OCT scans, FAZ area measurements on en face OCT angiography images and mean retinal sensitivity (MRS) using microperimetry were recorded in all cases. The correlation of FAZ area, EIFL and other OCT parameters with preoperative and postoperative best-corrected visual acuity (BCVA) was analysed.

Results:

In all, 112 eyes of 112 patients were included. Visual acuity improvement was statistically significant in all four stages; however, differences between Stages 2, 3 and 4 ERMs remained significant ($p < 0.05$).

The presence and thickness of the EIFL was associated with worse baseline ($p = 0.013$; $p = 0.005$, respectively) and final ($p < 0.001$ for both) BCVA. The presence of cystoid macular oedema was associated with worse BCVA at baseline ($p = 0.027$) and postoperative month-6 ($p = 0.04$). The mean FAZ area was significantly reduced in all stages of ERM compared with the fellow eyes ($p < 0.05$ for all). Postoperative retinal sensitivity improvement was statistically significant in Stage 1 and Stage 2.

Conclusion:

The presence of EIFL is an independent predictor of worse postoperative BCVA. Accordingly, despite significant BCVA improvements in all stages of ERM, visual acuity gain remains limited in eyes with Stage 3 and Stage 4 ERM.

Efficacy and Safety of Intravitreal Aflibercept Treat-and-Extend for Macular Edema in Central Retinal Vein Occlusion: The CENTERA Study

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Am J Ophthalmol . 2021 Feb. PMID: 33556381. DOI: 10.1016/j.ajo.2021.01.027

Abstract

Purpose:

To evaluate the efficacy and safety of intravitreal aflibercept (IVT-AFL) treat-and-extend (T&E) dosing in patients with macular edema secondary to central retinal vein occlusion (CRVO).

Design:

CENTERA was an open-label, Phase 4 clinical study.

Methods:

Patients received 2mg IVT-AFL at baseline and every 4 weeks (wks) until disease stability criteria were met (or until Wk20), at which point treatment intervals were adjusted in 2-wk increments based on functional and anatomic outcomes.

Results:

From baseline to Wk76, 65.6% (n=105; P<0.0001 [test against threshold of 40%]) of patients gained ≥15 letters; and, during the T&E phase, 45.0% (n=72; P=0.8822 [test against threshold of 50%]) of patients achieved a mean treatment interval ≥8 wks. A last and next planned treatment interval of ≥8 wks was achieved by 63.1% (n=101) and 67.5% (n=108) of patients, respectively. Mean (standard deviation) best-corrected visual acuity increased from 51.9 (16.8) letters at

baseline to 72.3 (18.5) letters at Wk76 (mean change: +20.3 [19.5] letters), and central retinal thickness decreased from 759.9 (246.0) µm at baseline to 265.4 (57.9) µm at Wk76 (mean change: -496.1 [252.4] µm). The safety profile of IVT-AFL was consistent with previous studies.

Conclusions: Clinically meaningful improvements in functional and anatomic outcomes were achieved with IVT-AFL T&E dosing. Most patients achieved a last actual and last intended treatment interval of ≥8 wks, therefore treatment intervals may have been extended even further with a longer study duration.

THE INCIDENCE OF NEOVASCULARIZATION IN CENTRAL SEROUS CHORIORETINOPATHY BY OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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Abstract

Purpose:

To evaluate the incidence of neovascularization (NV) secondary to central serous chorioretinopathy (CSC)-a condition belonging to the spectrum of pachychoroid disorders by means of optical coherence tomography angiography.

Methods:

One hundred and seventy five eyes with CSC were evaluated in this retrospective observational study. The eyes with acute or chronic CSC with no NV were included in Group 1, and those with NV were evaluated in Group 2. Only eyes that had undergone structural optical coherence tomography and optical coherence tomography angiography were included. Age, best-corrected visual acuity, and subfoveal choroidal thickness were evaluated in all eyes. In Group 2, the type and morphology of NV and the occurrence of exudation were considered.

Results:

Of a total of 175 eyes with CSC, 86 had the acute form and 89 the chronic. Approximately 140 belonged to Group 1 (80%) and 35 to Group 2 (20%). Approximately 39.2% of all patient with chronic CSC developed NV. Mean age in Groups 1 and 2 was 53.3 years (±10.9) and 66.6 years (±10.2), respectively.

Mean best-corrected visual acuity in Groups 1 and 2 was 45.7 (±11.7) and 30.9 (±17.9) early treatment diabetic retinopathy study letters, respectively. Mean CCT in Group 1 and 2 was 417.5 µm (±123) and 344.2 µm (±165.9), respectively. In Group 2, all patients had Type 1 NV (100%); 29 eyes (83%) had filamentous feature, and 6 eyes (17%) had irregular shape. Silent nonexudative NV was observed in 7 eyes (20%), all belonging to Group 2.

Conclusion:

The use of optical coherence tomography angiography in everyday clinical practice allows for the accurate analysis of the chorioretinal vascular setting, with the identification of new vessels that could remain misdiagnosed.

FLOW DYNAMICS OF BEVELED-TIP AND FLAT-TIP VITREOUS CUTTERS

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Retina . 2021 Feb 1;41(2):445-453.PMID: 32271276. DOI: 10.1097/IAE.0000000000002811

Abstract

Purpose:

To compare the flow dynamics of beveled-tip to that of flat-tip vitreous cutters.

Method:

The aspiration rates of balanced salt solution and swine vitreous were measured for 25-gauge and 27-gauge beveled-tip and flat-tip vitreous cutters. Fluorescent polymer microspheres were mixed with balanced salt solution to make the flow visible. The flow dynamics at maximal cutting rates and reflux of balanced salt solution were measured with video images of a high-speed camera.

Results:

The aspiration rates of balanced salt solution of the 25-gauge and 27-gauge beveled-tip cutters were significantly higher than that of the flat-tip cutters at 7,500 cut/min ($P = 0.0001$, $P = 0.038$, respectively). The aspiration rate of swine vitreous by the 25-gauge beveled-tip cutter was significantly higher than that of the flat-tip cutters ($P = 0.006$). The mean aspiration flow in front of the cutter was significantly faster for both beveled-tip than flat-tip cutters ($P = 0.003$, $P = 0.023$). The angle of the mean aspiration flow of both beveled-tip cutters was turned to the proximal side ($P = 0.004$, $P = 0.003$). The mean reflux flow of both beveled-tip cutters was significantly faster than that of the flat-tip cutters ($P = 0.006$, $P = 0.006$).

Conclusion: The beveled-tip cutters have a greater velocity of aspirating frontal and proximal flow resulting in higher aspiration rates and greater reflux flow velocity.

VISUAL OUTCOME OF EARLY VITRECTOMY AND INTRAVITREAL ANTIBIOTICS IN ACUTE POSTSURGICAL AND POSTINTRAVITREAL INJECTION ENDOPHTHALMITIS: European Vitreo-Retinal Society Endophthalmitis Study Report Two

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Retina . 2021 Feb 1;41(2):423-430. PMID: 32467482. DOI: 10.1097/IAE.0000000000002856

Abstract

Purpose:

To evaluate the visual outcome associated with intravitreal antibiotics (IVA) and pars plana vitrectomy (PPV) for acute postprocedure endophthalmitis.

Methods:

Data from 237 eyes presenting with acute postprocedure endophthalmitis were collected from 57 retina specialists in 28 countries. All eyes were treated with IVA on the day of presentation. We classified eyes according to the method of treatment used as IVA and early PPV (IVA + PPV within 1 week of presentation) groups.

Results:

After exclusion of ineligible eyes, data from 204 eyes were analyzed. The mean (SD) age of patients was 62.7 (21.8) years and 69.3 (12.7) years in the IVA and PPV groups, respectively (P = 0.18). Endophthalmitis secondary to cataract, intravitreal injections, PPV, and other intraocular procedures represented 64.2%, 16.2%, 13.7%, and 5.9% of cases, respectively. Intravitreal antibiotics alone were administered in 55 eyes (27.0%), and early PPV was performed in 149 eyes (73.0%).

No difference was found between groups in the final visual acuity of ≥20/60 (43.6%, 65 eyes vs. 34.5%, 19 eyes) and ≤counting fingers (30.9%, 46 eyes vs. 36.4%, 20 eyes) for IVA versus early PPV groups, respectively. Vision of light perception (odds ratio = 12.2; 95% confidence interval: 2.0-72.6) and retinal detachment (odds ratio = 7.7; 95% confidence interval: 1.5-409) at baseline were predictive of vision of ≤counting fingers. Retinal detachment at baseline (odds ratio = 20.4; 95% confidence interval: 1.1-372.1) was predictive of final retinal detachment status.

Conclusion:

The current retrospective multicenter cohort of eyes with acute postprocedure endophthalmitis reports similar outcomes after treatment with IVA alone when compared with IVA and early PPV within 1 week of presentation.

RANIBIZUMAB WITH OR WITHOUT VERTEPORFIN PHOTODYNAMIC THERAPY FOR POLYPOIDAL CHOROIDAL VASCULOPATHY: Predictors of Visual and Anatomical Response in the EVEREST II Study

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Abstract

Purpose:

To evaluate the demographic and imaging factors at baseline and Month 3 (M3) that predict visual or anatomical responses at Month 12 (M12) in the EVEREST-II study for polypoidal choroidal vasculopathy.

Methods:

Post-hoc analysis of 322 participants in the EVEREST-II study. Patient factors, best-corrected visual acuity (BCVA), treatment, and imaging parameters at baseline and M3 were evaluated with respect to outcomes at M12 using univariate and multivariable analysis.

Results:

Younger age ($P < 0.001$) and lower baseline BCVA ($P < 0.001$) were associated with higher BCVA gains at M12. Smaller baseline polypoidal lesion area was associated with higher BCVA gains at M12 only in the ranibizumab monotherapy arm ($P = 0.008$). Central subfield thickness at M3, area of branching vascular network at M3, BCVA at M3, and age were associated with change in BCVA from M3 at M12. Higher odds of fluid-free retina at M12 were associated with lower baseline central subfield thickness ($P = 0.006$), treatment with combination therapy (baseline and M3 models; $P < 0.001$), and absence of subretinal fluid at M3 ($P < 0.001$).

Conclusion: Several imaging parameters at baseline and M3 can predict treatment outcome. The interaction between treatment arm and total polypoidal lesion area suggests this feature may assist selecting between initial ranibizumab monotherapy or combination therapy.

PERFLUOROCARBON LIQUID-ASSISTED INVERTED INTERNAL LIMITING MEMBRANE FLAP TECHNIQUE VERSUS INTERNAL LIMITING MEMBRANE PEELING FOR HIGHLY MYOPIC MACULAR HOLE RETINAL DETACHMENT

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Abstract

Purpose:

To compare the efficacy of a modified perfluorocarbon liquid-assisted inverted internal limiting membrane (ILM) flap technique with the standard ILM peeling for the treatment of macular hole retinal detachment in highly myopic eyes.

Methods:

This was a retrospective, consecutive, nonrandomized comparative study. Forty-two macular hole retinal detachment eyes of 42 patients were included into either a perfluorocarbon liquid-assisted inverted ILM flap technique group (n = 22, inverted group) or standard ILM removal group (n = 20, peeling group). Outcomes measured were macular hole closure, retinal reattachment, and best-corrected visual acuity at least 6 months after surgery.

Results:

Macular hole closure was achieved in 20 eyes (90.9%) in the inverted group and in eight eyes (40%) in the peeling group ($P < 0.01$). Reattachment rates were 100% in the inverted group and 95% in the peeling group ($P = 0.476$). The mean best-corrected visual acuity improvement from baseline was 27.4 ± 19.9 Early Treatment Diabetic Retinopathy Study letters in the inverted group while the best-corrected visual acuity improvement was 13.6 ± 22.5 Early Treatment Diabetic Retinopathy Study letters in the peeling group ($P = 0.044$).

Conclusion: The perfluorocarbon liquid-assisted inverted ILM flap technique was effective in sealing the macular hole, reattaching retina, and improving visual function postoperatively in highly myopic macular hole retinal detachment.

February 2021 segment compiled by: Dr. Chitaranjan Mishra, Aravind Eye Hospital Madurai