RETINA ROUNDUP

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Macular Hole Closure Without Endotamponade Application

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Purpose:
We describe an alternative vitreoretinal technique that allows for the macular hole closure without filling the vitreous cavity with gas.

Methods:
A prospective interventional one-center case series from March 2019 to January 2020. The patients underwent the formation of viscoelastic-assisted temporal internal limiting membrane flap without any gas endotamponade. Preoperative and postoperative visual acuity and foveal structure in optical coherence tomography images were evaluated.

Results:
Macular hole closure was achieved with a single procedure in 11 of 12 eyes with no endotamponade application. Preoperative, mean best-corrected visual acuity was 1.11 (Snellen equivalent 20/258) ± 0.28 logarithm of the minimal angle of resolution (range 1.398–0.523). We were able to assess visual acuity as early as on the first postoperative day in all patients. It ranged from 1.398 to 0.523 logarithm of the minimal angle of resolution (Snellen equivalent 20/500–20/67) with a mean of 0.97 (20/186) ± 0.29. Final best-corrected visual acuity was 0.31 (Snellen equivalent 20/40) ± 0.18 (range 0.699–0.1) at the end of the 3-month follow-up.

Conclusion:
This technique avoids the application of any tamponade, does not require positioning, and seems to provide macular hole closure rates similar to those of traditional vitrectomy with gas.

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Four-Year Visual Outcomes in the Protocol W Randomized Trial of Intravitreous Aflibercept for Prevention of Vision-Threatening Complications of Diabetic Retinopathy

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Abstract Anti–vascular endothelial growth factor (VEGF) injections in eyes with nonproliferative diabetic retinopathy (NPDR) without center-involved diabetic macular edema (CI-DME) reduce development of vision-threatening complications from diabetes over at least 2 years, but whether this treatment has a longer-term benefit on visual acuity is unknown.

Purpose

To compare the primary 4-year outcomes of visual acuity and rates of vision-threatening complications in eyes with moderate to severe NPDR treated with intravitreal aflibercept compared with sham. The primary 2-year analysis of this study has been reported.

Methods

Randomized clinical trial conducted at 64 clinical sites in the US and Canada from January 2016 to March 2018, enrolling 328 adults (399 eyes) with moderate to severe NPDR (Early Treatment Diabetic Retinopathy Study [ETDRS] severity level 43-53) without CI-DME.

Eyes were randomly assigned to 2.0 mg aflibercept (n = 200) or sham (n = 199). Eight injections were administered at defined intervals through 2 years, continuing quarterly through 4 years unless the eye improved to mild NPDR or better. Aflibercept was given in both groups to treat development of high-risk proliferative diabetic retinopathy (PDR) or CI-DME with vision loss.

Outcomes Development of PDR or CI-DME with vision loss (≥10 letters at 1 visit or ≥5 letters at 2 consecutive visits) and change in visual acuity (best corrected ETDRS letter score) from baseline to 4 years.

Result - Among participants (mean age 56 years; 42.4% female; 5% Asian, 15% Black, 32% Hispanic, 45% White), the 4-year cumulative probability of developing PDR or CI-DME with vision loss was 33.9%

with aflibercept vs 56.9% with sham (adjusted hazard ratio, 0.40 [97.5% CI, 0.28 to 0.57]; P < .001). The mean (SD) change in visual acuity from baseline to 4 years was -2.7 (6.5) letters with aflibercept and -2.4 (5.8) letters with sham (adjusted mean difference, -0.5 letters [97.5% CI, -2.3 to 1.3]; P = .52). Antiplatelet Trialists' Collaboration cardiovascular/cerebrovascular event rates were 9.9% (7 of 71) in bilateral participants, 10.9% (14 of 129) in unilateral aflibercept participants, and 7.8% (10 of 128) in unilateral sham participants.

Conclusions

Among patients with NPDR but without CI-DME at 4 years treatment with aflibercept vs sham, initiating aflibercept treatment only if vision-threatening complications developed, resulted in statistically significant anatomic improvement but no improvement in visual acuity. Aflibercept as a preventive strategy, as used in this trial, may not be generally warranted for patients with NPDR without CI-DME

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Long-Term Effect of SARS-CoV-2 Infection on the Retinal and Choroidal Microvasculature

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Abstract

The purpose of this study was to evaluate the persistent changes in microvascular parameters based on optical coherence tomography angiography (OCTA) in patients hospitalized due to COVID-19 bilateral pneumonia. The case-control prospective study was carried out among 49 patients with COVID-19 and 45 healthy age- and gender-matched 2 and 8 months after hospital discharge. We found a significantly decreased vessel density (VD) in superficial capillary plexus (SCP) in COVID-19 patients. Significantly decreased vessel density (VD) in the superficial capillary plexus (SCP), the deep capillary plexus (DCP), and choriocapillaris (CC), with significantly increased vessel density observed in the choriocapillaris in the foveal area (FCC). The foveal avascular zone in DCP (FAZd) was significantly increased in the COVID-19 group. We found differences between OCTA parameters according to gender. The foveal VD in SCP and DCP was significantly decreased in women compared to men. The FAZ area in SCP (FAZs) and superior VD in the choriocapillaris (SCC) were significantly increased in women. In conclusion, we noticed persistent changes in the ocular parameters of OCTA in COVID-19 patients. At the second follow-up visit, we observed a widened FAZ zone in SCP and decreased VD in some regions of the retina and choroid.

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Photobiomodulation therapy for large soft drusen and drusenoid pigment epithelial detachment in age-related macular degeneration: a single-center prospective pilot study

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Purpose: To evaluate visual acuity and morphologic changes after photobiomodulation (PBM) for patients affected with large soft drusen and/or drusenoid pigment epithelial detachment (dPED) associated to dry age-related macular degeneration (AMD).

Method: Twenty eyes with large soft drusen and/or dPED AMD were included and treated with the LumiThera® Valeda™ Light Delivery System. All subjects underwent 2 treatments per week for 5 weeks. Outcome measures included best corrected visual acuity (BCVA), microperimetry- scotopic testing, drusen volume (DV), central drusen thickness (CDT), quality of life (QoL) score at baseline and month 6 (M6) follow up. Data of BCVA, DV and CDT was also recorded at week 5 (W5).

Results: BCVA significantly improved at M6 with a mean score gain of 5.5 letters (p = 0.007). Retinal sensitivity (RS) decreased by 0.1 dB (p=0.17). Mean fixation stability increased by 0.45 % (P=0.72). DV decreased by 0.11 mm^3 (p=0.03). CDT was reduced by a mean of 17.05 µm (p=0.01). GA area increased by 0.06 mm^2 (p=0.01) over a 6 months follow up, quality of life score increased by 3,07 points on average (p=0.05). One patient presented a dPED rupture at M6 after PBM treatment.

Conclusion: The visual and anatomical improvements in our patients support previous reports on PBM. PBM may provide a valid therapeutic option for large soft drusen and dPED AMD and may potentially slow the natural course of the disease.

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Management and outcomes of posterior persistent fetal vasculature

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Purpose: To describe the clinical features, management and outcomes of posterior persistent fetal vasculature (PFV) and suggest a management algorithm.

Methods: Retrospective analysis of the clinical characteristics of posterior PFV. We reported at diagnosis: age, gender, presenting symptoms, intraocular pressure (IOP), visual acuity (VA). Patients were divided in four group depending on severity and involvement or not of the anterior segment. We reported the vitreoretinal surgical techniques used.

Results: A total of 96 patients were included. Median age at diagnosis was 8 months (mean 18.9±30.9 months) with a mean follow-up of 27±31.2 months. Although PFV is often an isolated disease, it was associated with a systemic disease in 8% of cases. Posterior PFV was associated with anterior involvement in 62 eyes (64%). Forty-one eyes (42.7%) were microphthalmic and were more frequently associated with severe PFV [53% vs. 25%; (p=0.01)]. Surgery was performed in 85 patients (89%). Of them, 69 (81%) were a total success, 5 (6%) were a partial success due to a persistent limited peripheral retinal detachment (RD), and 11 (13%) were a failure due to persistent total RD after surgery. Twenty-four eyes presented post-operative adverse events including ocular hypertension requiring eye drop medication (6.6%), secondary cell proliferation around the IOL (7.7%), intravitreal hemorrhages (6.6%), persistent tractional RD (9.9%). A second surgery was performed in 15 patients (16%). At last follow-up, VA could be measured in logMAR in 43 children (45%), was light perception in 21 eyes (22%), and no light perception or impossible to assess in 32 eyes (33%).

Conclusions: In our case-series, most of patients presenting PFV with posterior involvement received complex vitreoretinal surgery. Goals of the surgery varies, and include retinal flattening, reduction of vitreoretinal traction, freeing of the visual axis and aesthetic concerns.

We proposed a surgical and medical management algorithm for PFV.

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