ACUTE MACULAR AND PERIPAPILLARY ANGIOGRAPHIC CHANGES WITH INTRAVITREAL INJECTIONS.

Barash A, Chui TYP, Garcia P, Rosen RB. Retina. 2020;40(4):648–656.
doi:10.1097/IAE.0000000000002433

ABSTRACT

PURPOSE:

Intravitreal injections acutely and temporarily increase intraocular pressure (IOP), and this may have cumulative long-term effects including an increased risk for glaucoma surgery. This study was designed to measure retinal perfusion density changes on optical coherence tomography (OCT) angiography and OCT thickness alterations associated with acutely increased IOP after intravitreal injections.

METHODS:

Retrospective observational clinical study of 40 eyes (39 patients) with various retinopathies from October 2016 to June 2017 at a tertiary care retina clinic in NYC. Patients were older than 18 years, with vision >20/100, able to fixate and without media opacities precluding OCT angiography, receiving intravitreal bevacizumab or aflibercept for diabetic retinopathy, retinal vein occlusion, macular degeneration, retinal neovascularization, or radiation retinopathy. The 3-mm × 3-mm macular and 4.5-mm × 4.5-mm peripapillary OCT angiography perfusion density, macular OCT thickness, and IOP were measured before and immediately after intravitreal injections. Paired t-test was used to compare preinjection and postinjection values for perfusion density and OCT thickness. Regression analysis was performed for potential effects of baseline IOP, IOP change, and age.

RESULTS:

Statistically significant decreases in angiographic perfusion density ($P < 0.05$) were found in most areas of the superficial and deep layer macular OCT angiography, and the overall optic nerve head and the radial peripapillary capillary layer, preferentially temporal. Macular OCT thickness was significantly decreased in the temporal region and increased in the nasal region. Regression analysis showed relationships between age and decreased superficial macular perfusion. Preinjection IOP was only related to OCT thickness in the fovea. Intraocular pressure change was related only to decreased superficial macular perfusion density.

CONCLUSION:

Intravitreal injections produce acute IOP changes that are associated with reduced macular and peripapillary perfusion density. Therefore, it is possible that patients receiving regular intravitreal injections may be sustaining perfusion-related injury to ocular structures that may produce glaucomatous damage to the macula and optic nerve.

TIMING INFLUENCE ON OUTCOMES OF VITRECTOMY FOR OPEN-GLOBE INJURY: A Prospective Randomized Comparative Study.

He Y, Zhang L, Wang F, Zhu M, Wang Y, Liu Y. Retina. 2020;40(4):725–734.
doi:10.1097/IAE.0000000000002447

ABSTRACT

PURPOSE:

To compare the impact of surgical timing on anatomical and functional outcomes of vitrectomy for open-globe injury.

METHODS:

Fifty-three patients were entered into this prospective open-label study, with 26 patients randomized into early surgery group (vitrectomy conducted within 4 days) and 27 into delayed surgery group (vitrectomy performed between 10-14 days after injury). Six-month data were available for 46 patients and 7 were lost to follow-up. The main outcome measures were incidence of traumatic proliferative vitreoretinopathy assessed intraoperatively and postoperatively, reattachment of retina, eye enucleation, improvement of the best-corrected visual acuity, and complications.

RESULTS:

Patient demographics and surgical intervention were similar in both groups. Final analysis of 46 patients demonstrated higher rates of traumatic proliferative vitreoretinopathy assessed both intraoperatively and postoperatively in the delayed group (P = 0.000; P = 0.054). In the early surgery group, 18 of 21 patients had retinal detachment, of which 15 patients (83%) achieved retinal reattachment by the first vitreoretinal surgery, 2 patients (11%) by a second surgery, and 1 (6%) received enucleation. In the delayed surgery group, 22 of 25 patients had retinal detachment. Retinal reattachment was achieved in 7 (32%) and 8 (36%) with the first and the second surgery, respectively, and 7 patients (32%) received enucleation (P = 0.005). In the early surgery group, best-corrected visual acuity improved significantly, moderately, and decreased in 8 patients (38%), 11 eyes (52%) and 2 eyes (10%), respectively. In the delayed surgery group, best-corrected visual acuity improved significantly, moderately, and worsened in 3 eyes (12%), 12 eyes (48%), and 10 eyes (40%) (P = 0.041), respectively. No statistically significant difference was observed in the rate of postoperative complications between the two groups.

CONCLUSION:

Early vitrectomy after open-globe injury leads to better anatomical and functional outcomes.

Efficacy and Safety of Abicipar in Neovascular Age-Related Macular Degeneration: 52-Week Results of Phase 3 Randomized Controlled Study.

Kunimoto D, Yoon YH, Wykoff CC, Chang A, Khurana RN, Maturi RK et al on behalf of the CEDAR and SEQUOIA Study Groups

Ophthalmology, Published Online: April 09, 2020

https://doi.org/10.1016/j.ophtha.2020.03.035

ABSTRACT

OBJECTIVE:

To compare the efficacy and safety of abicipar every 8 weeks and quarterly (after initial doses) versus ranibizumab every 4 weeks in treatment-naïve patients with neovascular age-related macular degeneration (AMD).

DESIGN:

Two randomized, multicenter, double-masked, parallel-group, active-controlled, phase 3 clinical trials (CEDAR, SEQUOIA) with identical protocols were conducted. Data from both trials were pooled for analysis.

PRTICIPANTS:

Patients with active choroidal neovascularization secondary to AMD and best-corrected visual acuity (BCVA) of 24–73 Early Treatment Diabetic Retinopathy Study letters in the study eye were enrolled.

METHODS:

Patients (n = 1888) were randomized in a 1:1:1 ratio to study eye treatment with abicipar 2 mg every 8 weeks after 3 initial doses at baseline and weeks 4 and 8 (Q8), abicipar 2 mg every 12 weeks after 3 initial doses at baseline and weeks 4 and 12 (Q12), or ranibizumab 0.5 mg every 4 weeks (Q4).

MAIN OUTCOME MEASURES:

The primary efficacy endpoint was proportion of patients with stable vision (defined as <15-letter loss in BCVA from baseline) in the study eye at week 52. Secondary endpoints included change from baseline in BCVA and central retinal thickness (CRT) at week 52. Safety measures included adverse events (AEs).

RESULTS:

The proportion of patients with stable vision at week 52 was 93.2%, 91.3%, and 95.8% in the abicipar Q8, abicipar Q12, ranibizumab Q4 groups, respectively, with both abicipar Q8 and Q12 noninferior to ranibizumab Q4. Week 52 mean change from baseline in BCVA was 7.5, 6.4, and 8.4 letters and in CRT was −144, −145, and −144 μm in the abicipar Q8, abicipar Q12, and ranibizumab Q4 groups, respectively. The incidence of intraocular inflammation (IOI) AEs was 15.4%, 15.3%, and 0.3% of patients, respectively. IOI AEs typically were mild or moderate in severity and were treated with topical corticosteroids; 62/192 patients (32.3%) were treated with oral and/or injectable corticosteroids.

CONCLUSION:

Abicipar Q8 and Q12 were both noninferior to ranibizumab Q4 in the primary endpoint of stable vision at week 52. IOI was more frequent with abicipar. Quarterly and Q8 abicipar reduce nAMD disease and treatment burden compared with monthly treatment.

Five-Year Outcomes after Initial Aflibercept, Bevacizumab, or Ranibizumab Treatment for Diabetic Macular Edema (Protocol T Extension Study).

Glassman AR, Wells III JA , Josic K, Maguire MG, Antoszyk AN, Baker C et al for the DRCR Retina Network. Ophthalmology, Published Online: March 28, 2020

ABSTRACT

PURPOSE:

Assess follow-up treatment and clinical outcomes at 5 years in eyes initially treated with anti-VEGF therapy for center involved diabetic macular edema (CI-DME) in a 2-year randomized clinical trial.

DESIGN:

Multicenter cohort study.

PARTICIPANTS:

Participants with DME and visual acuity (VA) 20/32 to 20/320 enrolled in DRCR.net Protocol T with visits 5 years after randomization (3 years after Protocol T completion).

METHODS:

Participants were assigned randomly to aflibercept, bevacizumab, or ranibizumab with protocol-defined follow-up and retreatment for 2 years. Thereafter, participants were managed at clinician discretion and recalled for a 5-year visit.

MAIN OUTCOME MEASURES:

Anti-VEGF treatment, VA letter score, and central subfield thickness.

RESULTS:

Sixty-eight percent (317 of 463) of eligible participants completed the 5-year visit. Between years 2 and 5, 68% (217 of 317) of study eyes received at least one anti-VEGF treatment (median [interquartile range] 4 [0, 12]). At 5 years, mean VA improved from baseline by 7.4 letters (95% confidence interval [CI]: 5.9 to 9.0), but decreased by 4.7 letters (95%CI: 3.3 to 6.0) between 2 and 5 years. When baseline VA was 20/50 to 20/320, mean 5-year VA was 11.9 letters (95%CI: 9.3 to 14.5) better than baseline, but 4.8 letters (95% CI: 2.5 to 7.0) worse than 2 years. When baseline VA was 20/32 to 20/40, mean 5-year VA was 3.2 letters (95% CI: 1.4 to 5.0) better than baseline, but 4.6 letters (95% CI: 3.1 to 6.1) worse than 2 years. Mean

central subfield thickness decreased from baseline to 5 years by 154µm (95% CI: 142 to 166) and was stable between 2 and 5 years (-1µm [95% CI: -12 to 9]).

CONCLUSION:

Among the two-thirds of eligible Protocol T participants who completed a 5-year visit, mean VA improved from baseline to 5 years without protocol-defined treatment after follow-up ended at 2 years. Although mean retinal thickness was similar at 2 and 5 years, mean VA worsened during this period. Additional investigation into strategies to improve long-term outcomes in eyes with DME seems warranted to determine if VA can be better maintained with different management approaches. Five-year VA improved from baseline after randomization to anti-VEGF for DME in Protocol T. During standard clinical care for 3 years after protocol end (at Year 2), VA decreased without a change in retinal thickness.

Anatomical and functional outcomes following switching from aflibercept to ranibizumab in neovascular age-related macular degeneration in Europe: SAFARI study.

Gale RP, Pearce I, Eter N, Ghanchi F, Holz FG, Schmitz-Valckenberg S et al. Br J Ophthalmol. 2020;104(4):493–499. doi:10.1136/bjophthalmol-2019-314251.

ABSTRACT

BACKGROUND/AIMS:

Prospective data on switching anti-vascular endothelial growth factors in patients with neovascular age-related macular degeneration (nAMD) who have previously shown no/partial response are limited. This prospective study assessed the effect of switching from aflibercept to ranibizumab on anatomical and functional outcomes in patients with persistent/recurrent disease activity.

METHODS:

SAFARI (NCT02161575) was a 6-month, prospective, single-arm study conducted in the UK and Germany. Patients, meeting strict eligibility criteria for one of two subgroups (primary treatment failure or suboptimal treatment response), received 3 monthly intravitreal ranibizumab injections (0.5 mg). Thereafter, ranibizumab was administered pro re nata at monthly visits. The primary endpoint was change from baseline (CfB) to day 90 in central subfield retinal thickness (CSRT). Best-corrected visual acuity (BCVA) and retinal morphology parameters were assessed.

RESULTS:

One hundred patients were enrolled (primary treatment failure, 1; suboptimal treatment response, 99). In the overall population, there was a significant CfB in median CSRT of -30.75 µm (95% CI -59.50,-20.50; $p<0.0001$) to day 90. Improvements were also observed in other quantitative and qualitative optical coherence tomography parameters. In Early Treatment Diabetic Retinopathy Study letters assessed by category, 55% and 59% of patients gained 0-≥15 letters versus baseline at day 90 and day 180, respectively. However, mean improvements in BCVA (CfB) to each time point were small (≤2 letters). No new safety signals were identified.

CONCLUSIONS:

Switching from aflibercept to ranibizumab led to a significant improvement in CSRT, with ~60% experiencing stabilised/improved BCVA. Therefore, patients with nAMD who have shown a suboptimal response to aflibercept may benefit from switching to ranibizumab.

Tailored internal limiting membrane flap technique for primary macular hole.

Hung JH, Horng YH, Chu HC, Li MS, Sheu SJ. Graefes Arch Clin Exp Ophthalmol. 2020;258(4):759–766. doi:10.1007/s00417-019-04596

ABSTRACT

PURPOSE:

To investigate the outcomes of primary full-thickness macular hole (MH) after surgical intervention with tailored internal limiting membrane (ILM) flap technique.

METHODS:

Patients were reviewed for their clinical characteristics and surgical outcomes. The technique included incomplete circular peeling of the perifoveal ILM which was then trimmed according to the size of the MH. Fluid-gas exchange was done without further manipulation.

RESULTS:

Nineteen eyes of 19 patients were included. The patients were in average 61 years old (range 41-83) and had an average follow-up period of 11.0 months. At baseline visit, minimal linear diameter of the MH was 311.6 μm (range 80-768). After a single surgery, the MH closed in all cases with improvement of mean visual acuity (from 0.9 to 0.4 logarithm of the minimum angle of resolution units, $p < 0.0001$, Wilcoxon signed-rank test). At the final visit, 15 (78.9%) eyes achieved a visual acuity ≥ 20/40. Outer retinal gliosis was found to be associated with less favorable postoperative visual acuity. Factors related to the formation of outer retinal gliosis were worse preoperative visual acuity and a large MH with a diameter > 400 μm.

CONCLUSION:

Tailored ILM flap technique is an effective method for favorable anatomical and visual outcomes for treatment of primary MH.Simultaneous intravitreal dexamethasone and aflibercept for refractory macular edema secondary to retinal vein occlusion.

Simultaneous Intravitreal Dexamethasone and Aflibercept for Refractory Macular Edema Secondary to Retinal Vein Occlusion.

Giuffrè C, Cicinelli MV, Marchese A, Coppola M, Parodi MB, Bandello F
Graefes Arch Clin Exp Ophthalmol. 2020;258(4):787–793. doi:10.1007/s00417-019-04577-8

ABSTRACT

PURPOSE:

To assess the functional and anatomical outcomes of concurrent administration of aflibercept injection and dexamethasone (DEX) implant in patients with macular edema (ME) secondary to retinal vein occlusion (RVO), refractory to each of the two drugs previously administered as monotherapy. Secondary outcomes included the number of retreatments required in a 12-month follow-up and safety.

METHODS:

This is a prospective, interventional case series of consecutive patients with refractory ME secondary to RVO, followed over a year. One injection of aflibercept was followed by a DEX implant on the same day; retreatment was driven by the persistence of ME on SD-OCT at least 4 months after the previous combined therapy. Central retinal thickness (CRT), best-corrected visual acuity (BCVA), and intraocular pressure (IOP) were collected at 1 month and then every 2 months until the end of follow-up.

RESULTS:

Thirty eyes of 30 Caucasian patients were enrolled; mean duration of RVO before the first combined treatment was 25 ± 5 months (range 11 ± 30). Baseline BCVA was 0.73 ± 0.5 LogMAR, with no significant changes at 12 months (0.77 ± 0.51 μm, p = 0.2). Baseline CRT was 578.3 ± 161 μm, reducing to 352.5 ± 81 μm at 12 months (p = 0.003). Thirteen eyes (43.3%) required a second treatment. Twenty eyes (66.6%) showed no ME at the end of follow-up. One patient (3.3%) required topical IOP-lowering therapy during the study.

CONCLUSION:

In eyes with ME secondary to RVO unresponsive to either aflibercept or DEX administered singularly, a combination therapy with simultaneous administration of aflibercept and DEX was effective in resolving ME, despite the absence of visual improvement. Earlier combined treatment in the course of the disease might lead to better functional outcomes.

April Segment Compiled by: Dr. Jayant Kumar, Aravind Eye Hospital, Madurai