Retina Roundup
June 2019

Anti-VEGF Therapy for Persistent Neovascularization after Complete Panretinal Photocoagulation in Proliferative Diabetic Retinopathy.

Mehanna CJ, Abdul Fattah M, Haddad S, Tamim H, Ghazi N, Salti H.

Ophthalmol Retina. 2019 Jun;3(6):473-477. doi: 10.1016/j.oret.2019.02.001.
PMID:31174668

ABSTRACT

PURPOSE:

To report the rate of new vessel (NV) regression after monthly injections of bevacizumab in laser-treated proliferative diabetic retinopathy (PDR) eyes with persistent neovascularization.

DESIGN:

Prospective cohort study.

PARTICIPANTS:

Eyes with PDR with incomplete response to prior complete panretinal photocoagulation (PRP).

METHODS:

Ninety eyes of 80 patients with persistent PDR (pPDR) despite adequate PRP were prospectively followed on a monthly basis with anti-vascular endothelial growth factor (VEGF) injections when needed and stereo fundus images looking at the regression of NVs.

MAIN OUTCOME MEASURES:

Regression of NVs.

RESULTS:

A total of 70 of 90 eyes (77.8%) had regression of the NV. Mean number of injections to reach quiescence was 9±3 for pPDR in the high-risk characteristics (HRC) group (80 eyes) and 3±1 for PDR in the group without HRC (10 eyes) ($P < 0.001$). All patients with PDR without HRC responded to the adjuvant therapy, whereas 75.0% of the eyes with PDR with HRC responded. Eyes with initial retinal neovascularization all responded to the adjuvant treatment. Eyes without a vitreous hemorrhage at study entry were more likely to respond (odds ratio, 5.43; 95% confidence interval, 1.37-21.44; $P < 0.01$). Therapy was judged unsuccessful because of the continuous growth of the NV despite treatment (3 eyes), the development of traction (5 eyes), and the development of a dense vitreous hemorrhage (6 eyes).

CONCLUSIONS:

Anti-VEGF rescue therapy has a potential role in select cases of laser-treated PDR with persistent NVs and no evidence of traction to achieve regression of neovessels.

Risk of rhegmatogenous retinal detachment in acute retinal necrosis with and without prophylactic intervention.

Risseeuw S, de Boer JH, Ten Dam-van Loon NH, van Leeuwen R.

Am J Ophthalmol. 2019 doi: 10.1016/j.ajo.2019.05.023. PMID:31170391

ABSTRACT

PURPOSE:

To study whether preventive laser or preventive vitrectomy is able to lower the risk of rhegmatogenous retinal detachment (RRD) in patients with acute retinal necrosis (ARN).

DESIGN:

A retrospective, interventional case-series.

METHODS:

We performed a retrospective study of 59 patients (63 eyes) with ARN treated in a single tertiary referral center. We analyzed different groups with either no prophylaxis, prophylactic laser, or prophylactic vitrectomy. Main outcome measure was incidence of a RRD.

RESULTS:

Overall incidence of RRD was 44.4%, including 13% at presentation. In a crude analysis, the risk of RRD was highest in 33 patients with prophylactic laser (45.5%), lower in 15 patients with no prophylaxis (26.7%), and lowest in 7 patients with prophylactic vitrectomy (14.3%). Baseline BCVA differed between these groups, but zone and percentage of involved retina did not. In a multivariable model including prophylactic laser and ARN severity, only zone was predictive of RRD.

CONCLUSION:

When correcting for severity of disease, we did not observe a reduction in the risk of RRD by prophylactic laser in eyes with ARN. Therefore, prophylactic laser may be abandoned. The role of prophylactic vitrectomy is still unclear, but deserves further investigation.

KEYWORDS:

Acute retinal necrosis; early vitrectomy; laser demarcation; prophylaxis; retinal detachment.

PERIPHERAL ISCHEMIC RETINAL PHOTOCOAGULATION IN ADDITION TO INTRAVITREAL BEVACIZUMAB VERSUS INTRAVITREAL BEVACIZUMAB ALONE FOR THE TREATMENT OF MACULAR EDEMA SECONDARY TO CENTRAL RETINAL VEIN OCCLUSION: A Randomized Double-Masked Controlled Clinical Trial.

Nourinia R, Emamverdi M, Ramezani A, Amizadeh Y, Khorshidifar M, Behnaz N, Safi S.

Retina. 2019 doi: 10.1097/IAE.0000000000002573. PMID: 31157710

ABSTRACT

PURPOSE:

To investigate the effects of peripheral ischemic retinal photocoagulation in addition to intravitreal bevacizumab (IVB) in the treatment of macular edema due to ischemic central retinal vein occlusion.

METHODS:

Forty-eight eyes of 48 treatment-naive patients were randomly selected and divided into 2 groups. Group A comprised 24 eyes that were treated with three consecutive monthly injections of IVB, and Group B comprised 24 eyes that were treated with IVB plus photocoagulation of the peripheral nonperfused retina. Further IVB injections were administered as needed in both groups. Monthly follow-up was conducted for 9 months after the first injection.

RESULTS:

The data of 46 patients were analyzed. Best-corrected visual acuity changes from the fourth to eighth month follow-up in comparison with the baseline were significantly higher in Group B (P = 0.002-0.044-0.002-0.002-0.012). In addition, significant differences were observed in central macular thickness in Group B throughout the study period (all P < 0.001). Group B required less frequent IVB injections during the 9-month study period.

CONCLUSION:

Photocoagulation of the retinal nonperfused area in patients with macular edema because of central retinal vein occlusion might amplify the beneficial effects of IVB on best-corrected visual acuity and central macular thickness and reduce the frequency of IVB injection.

Smartphone guided wide-field imaging for retinopathy of prematurity in neonatal intensive care unit - a Smart ROP (SROP) initiative.

Goyal A, Gopalakrishnan M, Anantharaman G, Chandrashekharan DP, Thachil T, Sharma A.

Indian J Ophthalmol. 2019 Jun;67(6):840-845. doi: 10.4103/ijo.IJO_1177_18.
PMID:31124499

ABSTRACT

PURPOSE:

To suggest a low cost, non-contact smartphone-based screening system in retinopathy of prematurity (ROP), and to illustrate its potential clinical application as a potential future tool for teleophthalmology.

METHODS:

Neonatal intensive care unit (NICU)-based bedside ROP screening done between January 2018 and May 2018. Documentation of ROP was done by using a smartphone and +40D, +28D, or +20D indirect non-contact condensing lenses. By using the coaxial light source of the phone, this system works as an indirect ophthalmoscope that creates a digital image of the fundus. With smartphone-based camera we extracted high-quality still images extracted from the video clip.

RESULTS:

Total of 228 eyes of 114 infants screened for ROP between January 2018 and May 2018. Incidence of total ROP was 23.68%, out of which incidence of type 1 ROP was 8.77%. After initial screening with indirect ophthalmoscope, we used smartphone imaging to document ROP in 28 eyes out of 55 eyes having ROP. Image quality was good in 89.28% eyes. Field of view vary from 46°, 53°, and 90° with +20D, +28D, and +40D indirect condensing lenses, respectively, which gives excellent images for bedside ROP documentation.

CONCLUSION:

The described technique of smartphone fundus photography is a light weight, cost-effective, user friendly, high-quality wide-field fundus photographs for bedside documentation of ROP in NICUs using readily available instruments that are handy and portable with simple power sources. Smartphones has the potential to be operated with only one hand. It can also be used as a future tele screening device.

KEYWORDS:

Condensing lens-Smartphone-MIIRetCam (CSM) device assembly; neonatal intensive care unit; retinopathy of prematurity.

Is Myopia associated with the Incidence and Progression of Diabetic Retinopathy?

Man RE, Gan AT, Gupta P, Fenwick EK, Sabanayagam C, Tan NY, Mitchell P, Wong TY, Cheng CY, Lamoureux EL.

Am J Ophthalmol. 2019 doi:10.1016/j.ajo.2019.05.012. PMID:31103525

ABSTRACT

PURPOSE:

To determine the association of refractive error (RE) and its associated determinants (axial length [AL], anterior chamber depth (ACD) and corneal curvature [CC]) with the incidence and progression of diabetic retinopathy (DR).

DESIGN:

Population-based cohort study METHODS: A total of 1562 eyes of 840 individuals with diabetes and gradable retinal photographs (mean age [SD]: 57.0 [8.3] years, 48.2% female), from the Singapore Malay and Indian Eye Studies, at baseline (2004-2009) and follow-up (2011-2015) examinations were included in analyses. RE was calculated as sphere plus half negative cylinder, while AL, ACD and CC were assessed using optical biometry. Incident DR was defined as having no baseline DR and any DR at follow-up; incident vision-threatening DR (VTDR) as no baseline VTDR but present at follow-up; and DR progression as an increase in severity at follow-up from at least minimal baseline DR. Eye-specific data and generalized estimating equation models to account for between-eye correlation were utilized to determine the relationships between the exposures and outcomes, adjusted for traditional DR risk factors.

RESULTS:

At follow-up, 164 of 1273 (12.9%) had incident DR, 17 of 1542 (1.1%) eyes had incident VTDR, and 75 of 269 (27.9%) eyes with baseline DR experienced progression. A longer AL (per mm increase, risk ratio, 95% confidence interval: 0.58, 0.38, 0.88) was associated with lower risk of incident DR. No other associations were found.

CONCLUSION:

Our findings show that a longer AL is protective of incident DR.

International Practice Patterns for the Management of Acute Postsurgical and Postintravitreal Injection Endophthalmitis: European Vitreo-Retinal Society Endophthalmitis Study Report 1.

Soliman MK, Gini G, Kuhn F, Iros M, Parolini B, Ozdek S, Michalewska Z, Bopp S, Adelman RA, Sallam AB; European Vitreo-Retinal Society Endophthalmitis Study Group.

Ophthalmol Retina. 2019 Jun;3(6):461-467. doi: 10.1016/j.oret.2019.03.009. PMID:31043364

ABSTRACT

PURPOSE:

To study the practice patterns for the management of acute postoperative and postinjection endophthalmitis.

DESIGN:

Retrospective, interventional, nonrandomized, multicenter study.

PARTICIPANTS:

Data on 237 eyes diagnosed with acute endophthalmitis occurring after intraocular surgery or procedures provided by 57 retina specialists from 28 countries.

MAIN OUTCOME MEASURES:

Rates of pars plana vitrectomy (PPV), repeat intravitreal injection, and adjunctive therapeutic regimens (local and systemic antibiotics and steroids).

RESULTS:

Of 237 analyzed eyes, acute endophthalmitis secondary to cataract surgery or secondary lens implantation represented 64.6% of cases (153 eyes), whereas the remaining were secondary to intravitreal injections (35 eyes [14.8%]), PPV (29 eyes [12.2%]), and other intraocular surgeries (20 eyes [8.4%]). All eyes received intravitreal antibiotics on the same day of diagnosis. Overall, early PPV was used within the first week of presentation in 176 eyes (74.3%). There was no statistical difference in the proportion of eyes requiring a second intravitreal injection of antibiotics whether the eye was managed primarily with intravitreal antibiotics alone versus early PPV plus intravitreal antibiotics (29.5% [18 eyes] vs. 25.0% [44 eyes], respectively). Adjunctive therapies in the form of intravitreal steroids, systemic steroids, and systemic antibiotics were used in 25.3%, 21.9%, and 66.6% of eyes, respectively. The absence of disc or macular view and absence of endophthalmitis after cataract surgery

were associated with an increased likelihood for early PPV (odds ratios 4.1 and 5.1, respectively).

CONCLUSIONS:

Pars plana vitrectomy was frequently performed regardless of the presenting vision in eyes with endophthalmitis after cataract surgery and intravitreal injections. Increased vitreous opacification was associated with a higher probability for performing PPV.

INTRAVITREAL ANTI-VASCULAR ENDOTHELIAL GROWTH FACTOR INJECTIONS FOR EXUDATIVE RETINAL ARTERIAL MACROANEURYSMS.

Mansour AM, Foster RE, Gallego-Pinazo R, Moschos MM, Sisk RA, Chhablani J, Rojanaporn D, Sujirakul T, Arevalo JF, Lima LH, Wu L, Charbaji A, Saatci AO, Mansour HA, Martinez-Rubio C, Patel Y, Gangakhedkar S.

Retina. 2019 Jun;39(6):1133-1141. doi: 10.1097/IAE.0000000000002131. PMID:29505440

ABSTRACT

PURPOSE:

There is no established therapy for exudative-hemorrhagic complications in primary retinal arteriolar macroaneurysm (RAM).

METHODS:

Retrospective multicenter interventional study of anti-vascular endothelial growth factor in symptomatic RAMs. Central macular thickness in µm and best-corrected visual acuity in logMar were correlated with the RAM size and distance to the macula. Statistical analyses were performed using paired comparisons and Pearson correlation.

RESULTS:

Thirty-two eyes (32 patients) were treated with a mean of 2.7 injections over a mean follow-up of 16.6 months. Initial best-corrected visual acuity correlated with the RAM size and distance to the macula (P = 0.02). Central macular thickness decreased by 131,180, and 211 µm at 1, 2, and 3 months after the first injection (P < 0.001). Best-corrected visual acuity improved by 0.47 and 0.38 Early Treatment Diabetic Retinopathy Study lines at 2 and 3 months (P = 0.005). Anti-vascular endothelial growth factor response correlated with the RAM size (P = 0.04) and the distance to the macula (P = 0.009).

CONCLUSION:

Symptomatic RAMs can be treated successfully with anti-vascular endothelial growth factor injections, leading to a decrease in macular edema.

June 2019 segment compiled by: Dr. Chitaranjan Mishra, Aravind Eye Hospital Madurai