SESSION: AMD and Medical Retina
DATE: September 3, 2023
HALL: HALL 1
TIME: 09:40 – 10:20
Moderators: Judy Kim, Daniela Bacherini

The Impact of OCT Double Layer Sign Characteristics on Long-Term Visual Prognosis of Patients with Non-Exudative Age Related Macular Degeneration

Aysegul Mavi Yildiz
Bursa Retina Göz Hastanesi

Purpose: To assess the predictive value of optical coherence tomography (OCT) double layer sign (DLS) features on subclinical, non-exudative macular neovascularization (NE-MNV) and visual prognosis in patients with non-exudative age-related macular degeneration (NE-AMD).
Methods: 48 patients with DLS on OCT who were diagnosed with NE-AMD between 2016-2020 were included. The minimum follow-up was 12 months. The presence of NE-MNV on OCT angiography, the maximum area of the DLS and type 1 MNV on en-face structural OCT, the thickness of the choroid beneath the DLS, and its topographically symmetrical area with respect to the horizontal raphe on EDI-OCT and the maximum base width and height of the DLS were recorded. The relationship between the features of the 'double layer sign' and the presence and exudation rates of NE-MNV during the follow-up period were recorded.
Results: The mean age was 75.9±7.5 years. The mean follow-up period was 20.9±9.5 months. NE-MNV was detected in 83.3% of the patients and signs of exudation were observed in 30% of these cases. The mean area of 'DLS and MNV were 3.1±3.6 (0.1-13.2) mm2 and 2.9±2.9 (0.4-10.0) mm2 respectively. The thickness of the sub-DLS and topographically symmetrical choroid were 301.4±74.1 µm and 221,9±64,3 µm respectively ($p<0.001$). The base width and height of the DLS were 1895.0±1114.6 µm and 105.5±50.2 µm respectively. The mean area and base width of the 'DLS were significantly correlated with the presence exudation rate of MNV ($p<0.05$).
Conclusions: A significant correlation of 70-85% has been reported between the type 1 MNV and DLS in AMD cases. Upon the current literature, our study revealed that the base width and the area of the DLS are also significant predictive features to estimate the presence and exudation rate of NE-MNV.

Keywords: Age related macular degeneration, double layer sign, macular neovascularization

Future of anti-VEGF- Biosimilars and biobetters

Dhanashree Ratra
Department of Vitreoretinal Diseases, Sankara Nethralaya, Chennai, India

Anti-VEGFs are now the gold standard of treatment for many diseases including wet AMD, diabetic retinopathy, and others. But the exorbitant cost of the treatment is a major factor responsible for non-compliance and suboptimal visual results. Biosimilars which are copies of the original molecule can prove to be the saviors owing to their cost-effectiveness and easy availability. Biobetters are better than the original biologic but require more research and development. Very soon numerous biosimilars are expected to get approved for therapeutic use from the US FDA and the EMA. There are several misconceptions in the mind of ophthalmologists and it is believed that biosimilars might not be as effective as the original biologics. It is important that we have in depth knowledge about biosimilars. This presentation will introduce the biosimilars, and elaborate on their manufacturing and regulatory processes. Data from several clinical and real world studies will be presented to show the non-inferiority of biosimilars.

Keywords: anti-VEGF, biosimilars, biologics

Effect of vitreomacular traction on the intraocular vascular endothelial growth factor and placental growth factor levels in patients with neovascular age-related macular degeneration

Kenan Sonmez1, Tugce Horozoglu Ceran2
1University of Health Sciences, Ankara Etlik City Hospital, Department of Ophthalmology, Ankara, Turkey
2University of Health Sciences, Ankara Diskapi Yildirim Beyazit Training and Research Hospital Department of Ophthalmology, Ankara, Turkey

Purpose: The aim of this study is to investigate the effect of vitreomacular traction (VMT) on intraocular VEGF and PlGF levels in patients with neovascular age-related macular degeneration (nAMD).
Material-Methods: The study group consisted of 10 patients opting for pars plana vitrectomy (PPV) or pneumatic vitreolysis (PVL) due to VMT with nAMD; the control groups included 17 patients opting for PPV or PVL due to VMT, 24 nAMD patients opting for vitrectomy due to posterior capsule rupture during cataract surgery and 19 healthy patients opting for vitrectomy due to posterior capsule rupture during cataract surgery. VEGF and PlGF levels were measured by sandwich-ELISA method in vitreous samples obtained during surgery from all patients participating in the study and in aqueous humor samples from some patients with nAMD.
Results: The mean vitreous VEGF level was 34.7±4.98 pg/ml in the study group; 32.36±4.55 pg/ml in the VMT group; 34.02±3.79 pg/ml in the AMD group, and 32.33±2.4pg/ml in the healthy control group having cataract otherwise healthy patients. The mean vitreous PlGF level was 58.92±20.83 pg/ml in the study group; 46.29±3.45pg/ml in the VMT group; 54.64±16.88 pg/ml in the nAMD group; 53.66±19.35 pg/ml in the healthy control group. There was no statistically significant difference among the groups when the vitreous VEGF and PlGF levels were examined ($p>0.05$ and $p>0.05$, respectively). Humor aqueous VEGF and PlGF levels were found to be significantly higher than vitreous levels ($p=0.005$ and $p=0.005$, respectively).
Conclusion: Vitreous VEGF and PlGF levels having not been increased in both VMT+nYBMD and VMT cases may suggest that their coexistence may be more likely due to chronic inflammation. In addition, the fact that the aqueous humour PlGF and VEGF levels are significantly higher than the levels in the vitreous may suggest the role of plasma angiogenic factors in the development of CNV.

Keywords: neovascular type age-related macular degeneration, vascular endothelial growth factor, vitreomacular traction

Prognostic impact of the vitreomacular interface in the treatment of neovascular age-related macular degeneration

Puren Isik, Selcuk Sizmaz, Ebru Esen, Nihal Demircan
Department of Ophthalmology, Cukurova University, Adana, Turkiye

Purpose: To evaluate the effect of the vitreomacular interface (VMI) on outcomes of anti-vascular endothelial growth factor therapy (anti-VEGF) in patients with neovascular age-related macular degeneration (n-AMD).

Methods: A total of 633 patients who were diagnosed with n-AMD between 2014 and 2021 were retrospectively reviewed. A total of 171 eyes of 141 patients with treatment-naive n-AMD were included. All patients received three monthly loading doses of intravitreal anti-VEGF injections followed by a pro-re-nata treatment regimen. VMI features were identified as follows: the presence of posterior vitreous detachment (PVD), vitreomacular adhesion/vitreomacular traction (VMA/VMT), and epiretinal membrane (ERM). Treatment efficacy was evaluated as the change in best corrected visual acuity (BCVA, logMAR), central foveal thickness (CFT) and the presence of subretinal or intraretinal fluid, scar formation, and atrophy. The impact of the VMI features on outcome parameters was evaluated.

Results: The mean follow-up period was 45.4±22.5 months (12-96). The mean number of intravitreal injections was 10.8±6.7 (4-33). Ninety-two (53.8%) eyes had complete PVD, 22 (12.2%) eyes had incomplete PVD, 23 (13.4%) eyes had persistent VMA/VMT, 34 (19.8%) eyes had ERM at the last visit. The mean follow-up time was similar between groups (p=0.105). BCVA gain was found to be lower in eyes with ERM compared to other groups (p=0.002).
There was no significant difference between the groups in the mean CFT change (p=0.794).
According to OCT findings, the rate of scarring or atrophy was highest (p=0.04), while the rate of exudation was lowest in eyes with ERM (p=0.042). The mean number of injections in eyes with PVD was significantly higher than in eyes with VMA/VMT and ERM (12 vs 8.9, 9.1, respectively, p=0.023).

Conclusion: The presence of ERM in eyes with n-AMD can be predicted to be associated with poor anatomical and visual prognosis, regardless of anti-VEGF treatment intensity.

Keywords: Vitreomacular interface, neovascular age-related macular degeneration, anti-vascular endothelial growth factor

High Dose Aflibercept Treatment in Naive Neovascular Age-Related Macular Degeneration: A Real Life Data

Seren Mert Pehlivanoğlu1, Nur Acar Göçgil2
1Seren Mert Pehlivanoğlu, MD, Beyoğlu Eye Research and Training Hospital, Istanbul, Turkey,
2Nur Acar Göçgil, Prof, FEBO, Neoretina Eye Clinic, Istanbul, Turkey

Purpose: To evaluate the efficacy and safety of intravitreal injections of high dose aflibercept(IVT-AFL) in treatment-naïve patients with neovascular age-related macular degeneration(nAMD) in treat and extend(T&E) dosing regimens.

Methods: This study was longitudinal. Participants diagnosed with nAMD were taken with a detailed history, including demographic data and systemic and ocular history. Written informed consent was obtained from all individuals. A complete ophthalmologic examination, including best-corrected visual acuity(BCVA) measurements, applanation tonometry, a detailed fundus examination after pupil dilation, and optical coherence tomography(OCT) findings were evaluated at the time of initial presentation, on the day of each intravitreal Anti-VEGF administration and at subsequent follow-up visits. All patients received three monthly doses of IVT-AFL 4mg. After loading the dose, a T&E regimen with 4mg IVT-AFL was performed.

Results: Seventeen eyes of 15 patients were included in this study. The mean follow-up time was 18.46±9.28 months. The mean age was 74.9±7.3(61-86) years, and 9(60%)of the patients were women. 58.8% of the cases were right eye while 41.2% left eye. The mean baseline BCVA was 59.76±15.1 letter and baseline IOP was 14.1±1.26mmHg. The mean of number of injection was 8.7±3.3(4-14). Final BCVA was 72.7±9.1 letter and was found to be increased after IVT-AFL and was statistically significant ($p<0.01$). There was no difference between IOP measures before and after injection ($p=0.06$). In none of the injections anterior chamber parasynthesis was needed. No serious adverse effect or ocular inflammation was detected in study group.

Conclusions: Intravitreal high dose(4 mg) aflibercept treatment with standard three monthly loading doses followed by T&E regimen significantly improved BCVA in patients with neovascular AMD. Additionally, the 4 mg dosing was well tolerated and reduced the need for a repeat injection.Further studies with large numbers and longer follow-up are warrented.

Keywords: neovascular AMD, highdose aflibercept injection, treat and extend

Long-term retinal pigment epithelium detachment and drusen changes in eyes with non-neovascular aged related macular degeneration

Aylin Karalezli1, Sema Tamer Kaderli2
1Mugla Sitki Kocman University
2Mugla Training and Research Hospital

Purpose: To evaluate the changes in size of drusens and pigment epithelium detachment (PED) in patients with non-neovascular age-related macular degeneration (AMD).
Methods: Twenty-two cases with of non-neovascular AMD tracked using SD-OCT through periods of growth and collapse were evaluated. Demographic and clinical data included age, sex, laterality, best-corrected visual acuity (BCVA)(logMAR), height and weight of drusens and PED (μm) and subfoveal choroidal thickness (μm) measured at baseline and at the last available follow-up. The presence of geographic atrophy (GA) and macular neovascularization (MNV) was also assessed.
Results: Twenty-two eyes of 22 patients were included in the analysis. Mean age at baseline was 70 ± 7.3 years. In 16 eyes drusenoid PED and in 6 eyes serous PED were obtained. During follow-up period (meanfollow-up period was 3.9 ±1.1 years) PED collapse was observed in 4 eyes with drusenoid PED and in 2 eyes with serous PED. Mean BCVA, mean maximum PED height, and mean subfoveal choroidal thickness significantly decreased from baseline to the last visit ($p < 0.001$) in patients showing PED collapse. There was no significant change in terms of drusens' size. 10 eyes (45.4%) developed GA and 4 eyes (18.1%).
Conclusions: Choroidal thickness significantly decreased in eyes showing drusenoid PED collapse. Observation of PED and choroidal thickness may be useful for monitoring non neovascular AMD.

Keywords: retinal pigment epithelium detachment, drusen, aged related macular degeneration