Retina Roundup
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BRAIN HEALTH ASSESSMENT IN MACULAR DEGENERATION PATIENTS UNDERGOING INTRAVITREAL ANTI-VASCULAR ENDOTHELIAL GROWTH FACTOR INJECTIONS (THE BHAM STUDY): An Interim Analysis

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ABSTRACT

Purpose: After intravitreal injection, anti-vascular endothelial growth factor (VEGF) agents are found in the systemic circulation and can suppress systemic VEGF levels. Neuronal health and cognitive function in the central nervous system have been associated with normal physiological levels of VEGF expression. We wished to determine whether there was an association between cumulative anti-VEGF exposure and cognitive function.

Methods: One hundred and seventy-five patients aged 65 to 85 with vision of at least 20/50 or better in one eye and a diagnosis of age-related macular degeneration took an iPad-based brain health assessment to determine their risk of mild cognitive impairment. The result for each patient was compared with the total number of anti-VEGF injections per individual patient. Patients were then stratified into groups with 0 injections (control), 1 to 9 injections, 10 to 20 injections, or greater than 20 injections.

Results: The group of patients with more than 20 injections had a higher likelihood of mild cognitive impairment compared with the control group, with statistically significant worse mean Z-scores (P = 0.04).

Conclusion: Our study is the first to associate worsening cognitive health with higher cumulative anti-VEGF injections. This study was not designed to show a causal link, but does suggest that additional investigation is warranted.

NATURAL COURSE OF VITREOMACULAR TRACTION IN EYES WITH DIABETIC RETINOPATHY AND FACTORS ASSOCIATED WITH SPONTANEOUS RELEASE

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ABSTRACT

Purpose: The aim of this study was to determine the natural course of vitreomacular traction (VMT) in patients with diabetic retinopathy and to evaluate the factors associated with VMT relief.

Methods: Seventy-four eyes of 65 patients with VMT accompanying diabetic retinopathy were evaluated retrospectively. The presence of intravitreal injection and the presence of panretinal photocoagulation were obtained from the medical records of the patients. Spontaneous release of VMT, the horizontal length of vitreomacular traction, the presence of hyperreflective retinal spots, the presence of the epiretinal membrane, and the grade of VMT were evaluated from the spectral-domain optical coherence tomography images. Factors associated with the spontaneous release of VMT were evaluated by logistic regression analysis.

Results: Spontaneous release was observed in 28 eyes (37.8%). The horizontal length of VMT was lower in the release of the VMT group compared with the persistent VMT group (P = 0.03). The persistent VMT group had a higher rate of hyperreflective retinal spots and epiretinal membrane compared with the release of the VMT group (respectively; P = 0.003 and P = 0.031). No statistically significant difference was observed between the release of VMT and persistent VMT groups in terms of intravitreal injection and panretinal photocoagulation treatment (respectively; P = 0.938 and P = 0.36). The absence of hyperreflective retinal spots was the most important prognostic factor for the spontaneous release of VMT (P = 0.029).

Conclusion: Spontaneous release of VMT observed higher rates of patients without hyperreflective retinal spots, epiretinal membrane, and patients with lower horizontal length of VMT.

Anti-retinal autoantibodies in myopic macular degeneration: a pilot study

Sim SS, Wong CW, Hoang QV, Lee SY, Wong TY, Cheung CMG
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ABSTRACT

Aim: The aim of this study is to evaluate the frequency and types of anti-retinal autoantibodies (ARAs) in highly myopic patients and to explore any association between ARAs and the severity of myopic macular degeneration (MMD).

Methods: This was a clinic-based study of 16 patients with high myopia (spherical equivalent worse than -6 dioptres or axial length (AL) ≥ 26.5 mm) recruited from the High Myopia clinic of the Singapore National Eye Centre. MMD was graded from fundus photographs according to the Meta-analysis for Pathologic Myopia (META-PM) classification. Severe MMD was defined as META-PM category 3 or 4. AL and logarithm of the minimal angle of resolution (logMAR) best corrected visual acuity (BCVA) were measured. Sera were obtained from subjects and analysed for the presence of ARAs with the western blot technique.

Results: The mean AL was significantly longer in patients with severe MMD (n = 8) than those without severe MMD (n = 8) (31.50 vs. 28.51, p = 0.005). There was at least one ARA identified in all patients. The most common ARA was anti-carbonic anhydrase II (anti-CAII), present in nine patients (56.3%). Anti-CAII was detected in more patients with severe MMD than those without (75 vs. 37.5%, p = 0.32). LogMar BCVA was also worse in subjects with anti-CAII (0.5 ± 0.38 vs. 0.22 ± 0.08, p = 0.06). The number of ARAs significantly correlated with increasing AL (r = 0.61, p = 0.012).

Conclusions: ARAs are prevalent in patients with high myopia, and this increases with increasing AL. In particular, anti-CAII antibodies were highly prevalent in patients with severe MMD, suggesting that ARAs may be associated with MMD. Further studies are necessary to confirm these observations in larger cohorts.

FEATURES AND OUTCOMES OF EYES THAT UNDERWENT SURGICAL REPAIR OF RHEGMATOGENOUS RETINAL DETACHMENTS AFTER BEING TREATED FOR ACUTE ENDOPHTHALMITIS

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ABSTRACT

Purpose: To evaluate the etiology, clinical course, and outcomes of eyes that suffered postendophthalmitis rhegmatogenous retinal detachments.

Methods: A retrospective, consecutive case series was conducted of patients managed at Associated Retinal Consultants P.C. from January 2013 to December 2019. Patients were identified as having had endophthalmitis by ICD-9/10 codes. Those with endophthalmitis and/or rhegmatogenous retinal detachment not managed at Associated Retinal Consultants from January were excluded.

Results: Charts of 413 patients were reviewed and 19 met inclusion criteria. Incidence of rhegmatogenous retinal detachment following infectious endophthalmitis was 4.6%. The most common inciting events for endophthalmitis was intravitreal injection (9 of 19) and cataract surgery (7 of 19). Fifteen of 19 patients were treated with an injection of intravitreal antibiotics and 4 underwent immediate vitrectomy with antibiotic injection. Biopsy cultures were obtained in 18 of 19 patients and yielded positive growth in 12 (66.7%). Seventeen of the 19 eyes were operable. Final retinal reattachment rate was 88.2% (15 of 17). Mean final logMAR visual acuity was 1.58 (Snellen 20/765). Factors associated with worse final visual acuity after surgical repair included preceding intravitreal injection ($P = 0.001$), streptococcus species ($P = 0.024$), presence of proliferative vitreoretinopathy ($P = 0.015$), and use of silicone oil during primary rhegmatogenous retinal detachment repair ($P = 0.010$).

Conclusion: Rhegmatogenous retinal detachments following endophthalmitis occur infrequently. Although most eyes can be repaired surgically, visual outcomes are often poor, particularly in eyes that were infected with streptococcal species and had associated proliferative vitreoretinopathy.

Outcomes of early versus deferred laser after intravitreal ranibizumab in aggressive posterior retinopathy of prematurity

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ABSTRACT

Purpose: The aim of this study was to report the treatment outcomes of early and deferred laser in infants of aggressive posterior retinopathy of prematurity (APROP) after initial treatment with intravitreal Ranibizumab (IVR).

Methods: In a prospective, randomized, interventional study, infants with APROP received IVR (0.25 mg) and were randomized into two groups prior to laser. Laser was done at 1 week (group 1) or at 6 weeks or earlier if there was a recurrence of plus disease (group 2). The structural outcome, number of laser spots, duration of laser procedure and refractive error at 6 months were compared. Favorable structural outcome was defined as, complete regression of disease at 6 weeks after laser.

Results: 63 eyes of 32 infants with APROP were enrolled. Mean gestational age (GA) and birth weight (BW) were 30.2 ± 2.3 weeks and 1294 ± 372.8 grams respectively. GA, BW, and disease severity were comparable at baseline. 27 (90%) eyes in group 1 and 29 (93.5%) eyes in group 2 had favorable structural outcome (P = 0.61) at 6 weeks after laser. Eyes in group 2 (2149.8 ± 688.7) required lesser number of laser spots than group 1 (2570.8 ± 615) (P = 0.01). At six months, more eyes in group 1 had myopic refractive error (Mean spherical equivalent: -1.0D ± 1.3) than those in group 2 (Mean spherical equivalent: 0.5D ± 1.9) (P = 0.002).

Conclusion: Infants with APROP receiving IVR have comparable structural outcomes after an early or deferred laser. Moreover, eyes undergoing deferred laser require less number of laser spots and have a less myopia at 6 months after laser.

Selective Ophthalmic Artery Chemotherapy with Melphalan in the Management of Unilateral Retinoblastoma: A Prospective Study

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ABSTRACT

Purpose: To determine prospectively the efficacy and to assess potential side effects of melphalan selective ophthalmic artery chemotherapy (SOAC) as first-line treatment for unilateral retinoblastoma.

Design: Phase 2 nonrandomized, prospective study.

Participants: Patients with unilateral retinoblastoma group B, C, or D of the International Classification for Intraocular Retinoblastoma (IRC). Group D eyes with massive vitreous seeding were not eligible.

Methods: Melphalan SOAC associated with diode laser thermotherapy, cryotherapy, or both at 4-week intervals (3-6 cycles). For persistent vitreous seeding, intravitreal melphalan chemotherapy also was used.

Main outcome measures: The primary outcome was globe preservation rate. Secondary outcomes were tumor relapse rate, occurrence of ocular or systemic adverse events, and measurement of the dose area product (DAP).

Results: Between 2012 and 2017, 39 patients (39 eyes) with unilateral retinoblastoma were included prospectively. Three included patients did not receive SOAC (2 catheterization failures and 1 case of viral syndrome) and were considered failures. At diagnosis, IRC groups for the 36 treated patients were: B, n = 4 (11%); C, n = 13 (36%); and D, n = 19 (53%); median age was 21.5 months (range, 3.2-61.6 months). Median number of SOAC cycles was 3.9 (range, 1-6 cycles), and median melphalan dose was 4.9 mg/procedure. The median DAP was 1.24 Gy.cm2/procedure. Median follow-up was 63 months (range, 34-93

months). SOAC was associated with local treatments for 31 patients (86%): diode laser thermotherapy for all of them and cryotherapy or intravitreal chemotherapy for 10 (32%) and 9 patients (25%), respectively. SOAC treatment was interrupted in 5 patients because of severe ophthalmic (ptosis, n = 2; retinal ischemia, n = 2) or systemic (hypotension, n = 1) adverse events. At the cutoff date analysis, all patients were alive without metastasis. The 18-month eye preservation rate was 80% (range, 68.6%-94.6%). After a follow-up of at least 30 months, the ocular preservation rate was 69% (n = 24 preservations).

Conclusions: This first prospective trial demonstrated that SOAC with melphalan alone as first-line treatment for retinoblastoma is efficient and well tolerated with no metastatic events, although ocular ischemic complications were observed.

RETINAL SURFACE WRINKLING AS AN INDICATOR FOR INTERNAL LIMITING MEMBRANE PEELING DURING VITRECTOMY FOR RETINAL DETACHMENT

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ABSTRACT

Purpose: To assess the validity of retinal surface wrinkling (RSW) as an indicator to select patients relevant for internal limiting membrane peeling during vitrectomy for rhegmatogenous retinal detachment, to prevent postoperative visual decline due to epiretinal membrane growth.

Methods: This was a prospective, interventional case series of 78 consecutive eyes that underwent initial vitrectomy to repair rhegmatogenous retinal detachments and were followed for 6 months. The presence/absence of RSW was evaluated presurgically on en face optical coherence tomographic images. The internal limiting membrane was peeled if RSW was identified. The main outcome measure was the prevalence of postsurgical epiretinal membrane growth that caused a visual decline of 0.2 or more in logarithm of the minimum angle of resolution unit.

Results: The internal limiting membrane was peeled for RSW appearance in 22 eyes (28.2%). Mild epiretinal membranes developed in 8 of the 56 internal limiting membrane-unpeeled eyes (10.3% of total, 6 eyes at stage 1 in the classification of Govetto); however, visual decline occurred in none of them with the mean visual acuity of these 8 eyes maintained at -0.08 ± 0.11 in logarithm of the minimum angle of resolution (≈20/16).

Conclusion: Visual decline due to epiretinal membrane growth after rhegmatogenous retinal detachment repair was entirely prevented by peeling

the internal limiting membrane in about 30% of cases selected for the presence of RSW.

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