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MD Research News

Issue 209

Tuesday 2 December, 2014

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Drug treatment

Ophthalmic Surg Lasers Imaging Retina. 2014 Nov 1;45(6):534-41.

Reduced-fluence photodynamic therapy in polypoidal choroidal vasculopathy nonresponsive to ranibizumab.

Byon IS, Kwon HJ, Kim SI, Shin MK, Park SW, Lee JE.

BACKGROUND AND OBJECTIVE: To evaluate the effect of reduced-fluence photodynamic therapy (PDT) on polypoidal choroidal vasculopathy (PCV) unresponsive to intravitreal ranibizumab.

PATIENTS AND METHODS: Patients with PCV unresponsive to ranibizumab administered 3 months consecutively who then received reduced-fluence PDT were retrospectively surveyed. Nonresponders were defined as patients having no reduction in intraretinal and/or subretinal fluid after 3 consecutive treatments.

RESULTS: In total, 22 of 104 eyes (21.2%) were non-responders, and 16 of 22 nonresponders received reduced-fluence PDT. Nine eyes achieved complete fluid resolution, and six had reduced but persistent fluid. In one eye, fluid persisted at 6 months despite an additional anti-vascular endothelial growth factor (anti-VEGF) injection after reduced-fluence PDT. Mean macular thickness decreased significantly at 3 and 6 months after PDT, but the mean visual acuity was worse than baseline.

CONCLUSION: Reduced-fluence PDT in nonresponders gradually decreased intraretinal and/or subretinal fluid over several months but did not maintain visual acuity.

PMID: 25423633 [PubMed - in process]

Ophthalmic Surg Lasers Imaging Retina. 2014 Nov 1;45(6):526-33.

Response to Aflibercept After Frequent Re-treatment With Bevacizumab or Ranibizumab in Eyes With Neovascular AMD.

Thorell MR, Nunes RP, Chen GW, Doshi RR, Dugar J, George MK, Kim BT, Lowrance MD, Modi D, Nahas Z, Gregori G, Yehoshua Z, Feuer W, Rosenfeld PJ.

BACKGROUND AND OBJECTIVE: To evaluate the effects of switching to aflibercept in eyes with neovascular age-related macular degeneration (AMD) requiring frequent re-treatment with bevacizumab or ranibizumab.

PATIENTS AND METHODS: Retrospective review of 73 eyes of 65 patients with neovascular AMD switched to aflibercept due to persistent or recurrent macular fluid after at least 1 year of intravitreal bevacizumab or ranibizumab with re-treatment at least every 6 weeks. Minimum post-switch follow-up was

6 months. All patients were treated using a treat-and-extend strategy. The treatment intervals immediately after and before the switch were the same.

RESULTS: The mean pre-switch anti-VEGF therapy duration was 45 months, and the mean number of injections was 31. In the 6 months after the switch, the average number of injections was reduced by 0.6 compared with the 6 months before the switch (P < .001). Visual acuity was unchanged during this period (P = .78). Central retinal thickness (CRT) decreased by 19 µm after the switch (P < .001). Seventy eyes had vascularized retinal pigment epithelial detachments (PEDs). The decrease in the PED cube-root volume during the 6 months after the switch was statistically significant (-0.07 mm; P = .007).

CONCLUSION: The number of injections, CRT, and PED volume decreased significantly after the switch to aflibercept, but visual acuity was unchanged.

PMID: 25423632 [PubMed - in process]

BMC Ophthalmol. 2014 Nov 22;14(1):138.

Funduscopic results after 4-year follow-up treatment with ranibizumab for age-related macular degeneration in a region of Spain.

Coco RM, Sanabria MR, Castrejon M, Lopez-Galvez MI, Monje-Fernandez L, Fernandez-Munoz M, Anton A, de Juan-Marcos L, Villaron-Alvarez S, Fernandez I.

BACKGROUND: The study aims to survey longstanding funduscopic and functional outcomes of age-related macular degeneration (AMD) after ranibizumab treatment and verify the accuracy of a new method to compare the retinal thickness measured with different optical coherence tomography (OCT) tools.

METHODS:Case series included 314 eyes with 2-4 years of follow-up. Main Outcome Measures were visual acuity (VA), number of injections, retinal thickness, OCT morphology, and final macular funduscopic status.

RESULTS: One hundred twenty-two men and 177 women (mean age, 78.3 years) were included. The mean time to the first injection was 17.3 ± 14.6 days. Initial VA was O.8(20/125) ± 0.5; 0.7(20/100) ± 0.5 at 3 months; 0.8(20/125) ± 0.5 at a year; 1(20/200) ± 0.6 at year 2; 1(20/200) ± 0.6 at year 3 and 1.1(20/250) ± 0.6 at year 4. Number of visits at 3 months was 2.7 ± 0.8; 7.3 ± 2.1 at a year; 5.2 ± 2.7 along the 2nd year; 3.9 ± 2.3 at year 3 and 3.6 ± 2.2 at year 4. Number of injections at 3 months was 2.6 ± 0.5; 3.9 ± 1.5 at a year; 1.1 ± 1.5 along the 2nd year; 1.5 ± 2.4 at year 3 and 1.8 ± 3.1 at year 4. Patients with worse VA outcomes received more injections and were older. The formula to calculate changes in retinal thickness showed a 30% reduction in thickness, which correlated well with the OCT morphology. Patients with polypoidal choroidal vasculopathy (PCV) had a worse final outcome. The final disciform macular status (37%) was related to fewer injections and a greater decrease in thickness. Final well-preserved maculas (12.%) needed more injections and treatment changes; those that were atrophic at the final visit (30.8%) had a worse initial VA and greater decrease in thickness at the 3-month visit.

CONCLUSIONS: Younger patients had better final outcomes. Our method to compare retinal thickness using different OCT tools worked well. The final visual outcome after a long follow-up was poor, which may be related to advanced age, poor initial VA, and the high incidence of final fibrosis or atrophy.

PMID: 25416399 [PubMed - as supplied by publisher]

Br J Ophthalmol. 2014 Nov 25. [Epub ahead of print]

Dexamethasone intravitreal implant as adjunct therapy for patients with wet age-related macular degeneration with incomplete response to ranibizumab.

Calvo P, Ferreras A, Al Adel F, Wang Y, Brent MH.

PURPOSE: To evaluate the visual and anatomical outcomes of dexamethasone intravitreal implant (DXI; 700 µg, Ozurdex; Allergan, Irvine, California, USA) as adjunctive therapy for patients with refractory wet age-related macular degeneration (AMD).

METHODS: Retrospective review of the medical records of seven patients (seven eyes) who initially responded well to intravitreal ranibizumab but subsequently developed persistent intra/sub-retinal fluid (IRF/SRF) and underwent a single injection of DXI, between May 2012 and May 2013. Two weeks after DXI, the patients continued with their monthly ranibizumab injections. Best corrected visual acuity (BCVA) logarithm of the minimum angle of resolution (logMAR) and central retinal thickness (CRT) were recorded at baseline, 2 weeks, 6 weeks, 3 months and 6 months after DXI injection. Complications were recorded too.

RESULTS: All patients had at least 24 months of ranibizumab treatment. Mean age was 81.5±5.8 years. At baseline, mean BCVA was 0.53±0.13 logMAR (20/70 Snellen) and mean CRT was 273.14±50.94 µm. BCVA did not change significantly after DXI over the follow-up period. However, all eyes had lost fewer than 0.3 logMAR units. Complete resolution of the persistent IRF/SRF was achieved in five eyes (71.4%) at 6 weeks, and remained stable at 3 months. Two weeks after DXI injection, the mean CRT diminished compared with baseline (248.28±31.8 µm; p=0.03) and the greatest reduction was observed at 3 months after DXI injection (241.5±36.6 µm; p=0.04). Progression of lens opacity was detected in one case (50% of phakic eyes). Retreatment with DXI was performed in two eyes.

CONCLUSIONS: DXI appears to be effective in vision stabilisation, decreasing IRF/SRF and improvement of CRT in eyes with refractory wet AMD.

PMID: 25425713 [PubMed - as supplied by publisher]

Ophthalmologica. 2014 Nov 26. [Epub ahead of print]

RaScaL: A Pilot Study to Assess the Efficacy, Durability, and Safety of a Single Intervention with Ranibizumab plus Peripheral Laser for Diabetic Macular Edema Associated with Peripheral Nonperfusion on Ultrawide-Field Fluorescein Angiography.

Suñer IJ, Peden MC, Hammer ME, Grizzard WS, Traynom J, Cousins SW.

Background and Objectives: To determine the efficacy, durability, and safety of a single treatment with intravitreal ranibizumab plus peripheral scatter laser (RaScaL) in patients with diabetic macular edema associated with peripheral retinal nonperfusion on ultrawide-field fluorescein angiography (UWFA).

Study Design: A 6-month, randomized, controlled, prospective phase I/II study of 30 treatment-naïve eyes of 22 patients (8 bilateral patients) with visual impairment secondary to diabetic macular edema associated with peripheral nonperfusion on UWFA. Patients were randomized to receive ranibizumab plus UWFA-guided peripheral scatter laser (n = 15) or triamcinolone acetonide plus macular laser (n = 15).

Results: At 6 months, the RaScaL group patients had fewer recurrences warranting retreatment (33% vs. 80%, p < 0.003). Mean change in final visual acuity and central foveal thickness were not statistically significant between groups.

Conclusion: This pilot study suggests the efficacy, safety and durability of the RaScaL treatment regimen in patients with diabetic macular edema associated with peripheral nonperfusion on UWFA.

PMID: 25427532 [PubMed - as supplied by publisher]

Recent Pat Biomed Eng. 2012 Apr 1;5(1):83-101.

Recent Patents on Emerging Therapeutics for the Treatment of Glaucoma, Age Related Macular Degeneration and Uveitis.

Vadlapudi AD, Patel A, Cholkar K, Mitra AK.

Abstract: Advancements in the field and rising interest among pharmaceutical researchers have led to the development of new molecules with enhanced therapeutic activity. Design of new drugs which can target a particular pathway and/or explore novel targets is of immense interest to ocular pharmacologists worldwide. Delivery of suitable pharmacologically active agents at proper dose (within the therapeutic window) to the target tissues without any toxicity to the healthy ocular tissues still remain an elusive task. Moreover, the presence of static and dynamic barriers to drug absorption including the corneal epithelium (lipophilic), corneal and scleral stroma (hydrophilic), conjunctival lymphatics, choroidal vasculature and the blood-ocular barriers also pose a significant challenge for achieving therapeutic drug concentrations at the target site. Although many agents are currently available, new compounds are being introduced for treating various ocular diseases. Deeper understanding of the etiology and complex mechanisms associated with the disease condition would aid in the development of potential therapeutic candidates. Novel small molecules as well as complex biotechnology derived macromolecules with superior efficacy, safety and tolerability are being developed. Therefore, this review article provides an overview of existing drugs, treatment options, advances in emerging therapeutics and related recent patents for the treatment of ocular disorders such as glaucoma, age related macular degeneration (AMD) and uveitis.

PMID: 25414810 [PubMed] PMCID: PMC4235159

JAMA Ophthalmol. 2014 Nov 27. [Epub ahead of print]

Comparative Effectiveness of Bevacizumab and Ranibizumab in the Comparison of Age-Related Macular Degeneration Treatments Trials. (Letter)

Messori A.

PMID: 25429419 [PubMed - as supplied by publisher]

Other treatment & diagnosis

Hum Gene Ther. 2014 Nov 24. [Epub ahead of print]

GENE DELIVERY OF A VIRAL ANTI-INFLAMMATORY PROTEIN TO COMBAT OCULAR INFLAMMATION.

Ildefonso CJ, Jaime H, Rahman MM, Li Q, Boye SE, Hauswirth WW, Lucas AR, McFadden G, Lewin AS.

Abstract: Inflammation of the retina is a contributing factor in ocular diseases such as uveitis, diabetic retinopathy, and age related macular degeneration (AMD). The M013 immunomodulatory protein from myxoma virus has been shown to interfere with the pro-inflammatory signaling pathways involving both the NLRP3 inflammasome and NF-κB. We have developed and characterized an adeno-associated virus (AAV) vector that delivers a secretable and cell penetrating form of the M013 protein (TatM013). The expressed TatM013 protein was secreted and blocked the endotoxin-induced secretion of IL-1β in monocyte derived cells and the reactive aldehyde induced secretion of IL-1β in RPE cells. The local anti-inflammatory effects of AAV-delivered TatM013 were evaluated in an endotoxin induced uveitis (EIU) mouse model following intravitreal injection of mice with an AAV2-based vector containing either TatM013 fused to a secreted GFP tag (sGFP-TatM013) or GFP. Expression of the sGFP-TatM013 transgene was demonstrated by fluorescence fundoscopy in living mice. In EIU, the number of infiltrating cells and the concentration of IL-1β in the vitreous body was significantly lower in the eyes injected with AAV-sGFP-TatM013 than in the eyes injected with control AAV-GFP. These results suggest that a virus-derived inhibitor of the innate immune response, when delivered via AAV, could be a generalized therapy for various inflammatory diseases of the eye.

PMID: 25420215 [PubMed - as supplied by publisher]

Ophthalmic Surg Lasers Imaging Retina. 2014 Nov 1;45(6):496-505.

Ultrahigh-Speed Swept-Source OCT Angiography in Exudative AMD.

Moult E, Choi W, Waheed NK, Adhi M, Lee B, Lu CD, Jayaraman V, Potsaid B, Rosenfeld PJ, Duker JS, Fujimoto JG.

BACKGROUND AND OBJECTIVE: To investigate the potential of ultrahigh-speed swept-source optical coherence tomography angiography (OCTA) to visualize retinal and choroidal vascular changes in patients with exudative age-related macular degeneration (AMD).

PATIENTS AND METHODS: Observational, prospective cross-sectional study. An ultrahigh-speed swept-source prototype was used to perform OCTA of the retinal and choriocapillaris microvasculature in 63 eyes of 32 healthy controls and 19 eyes of 15 patients with exudative AMD.

MAIN OUTCOME MEASURE: qualitative comparison of the retinal and choriocapillaris microvasculature in the two groups.

RESULTS: Choroidal neovascularization (CNV) was clearly visualized in 16 of the 19 eyes with exudative AMD, located above regions of severe choriocapillaris alteration. In 14 of these eyes, the CNV lesions were surrounded by regions of choriocapillaris alteration.

CONCLUSION: OCTA may offer noninvasive monitoring of the retinal and choriocapillaris microvasculature in patients with CNV, which may assist in diagnosis and monitoring.

PMID: 25423628 [PubMed - in process]

Ophthalmic Surg Lasers Imaging Retina. 2014 Nov 1;45(6):614-7.

High-Speed Ultrahigh-Resolution OCT of Bruch's Membrane in Membranoproliferative Glomerulonephritis Type 2.

Adhi M, Read SP, Liu JJ, Fujimoto JG, Duker JS.

Abstract: Membranoproliferative glomerulonephritis (MPGN) type 2 is characterized by electron-dense deposits in the glomerular basement membrane and drusen-like deposits in Bruch's membrane. Over time, atrophic changes in the retina and retinal pigment epithelium occur, which can progress to choroidal neovascularization (CNV). This report describes a patient with MPGN type 2 who developed progressive loss of vision secondary to CNV. High-speed ultrahigh-resolution optical coherence tomography (UHR-OCT) showed an irregular Bruch's membrane that measured 10 μm beneath the foveal center. High-speed UHR-OCT can potentially be used to analyze Bruch's membrane in secondary ocular manifestations of diseases such as MPGN type 2 and primary retinal diseases such as age-related macular degeneration. [Ophthalmic Surg Lasers Imaging Retina. 2014;45:614-617.].

PMID: 25423645 [PubMed - in process]

BMC Ophthalmol. 2014 Nov 27;14(1):148. [Epub ahead of print]

The effect of incorrect scanning distance on boundary detection errors and macular thickness measurements by spectral domain optical coherence tomography: a cross sectional study.

Varga BE, Tátrai E, Cabrera DeBuc D, Somfai GM.

BACKGROUND: To investigate the influence of scan distance on retinal boundary detection errors (RBDEs) and retinal thickness measurements by spectral domain optical coherence tomography (SD-OCT).

METHODS: 10 eyes of healthy subjects, 10 eyes with diabetic macular edema (DME) and 10 eyes with neovascular age-related macular degeneration (AMD) were examined with RTVue SD-OCT. The MM5 protocol was used in two consecutive sessions to scan the macula. For the first session, the device was set 3.5 cm from the eye in order to obtain detectable signal with low fundus image quality (suboptimal setting) while in the second session a distance of 2.5 cm was set with a good quality fundus image. The signal strength (SSI) value was recorded. The score for retinal boundary detection errors (RBDE) was calculated for ten scans of each examination. RBDE scores were recorded for the whole scan and also for the peripheral 1.0 mm region. RBDE scores, regional retinal thickness values and SSI values between the two sessions were compared. The correlation between SSI and the number of RBDEs was also examined.

RESULTS: The SSI was significantly lower with suboptimal settings compared to optimal settings (63.9+/-12.0 vs. 68.3+/-12.2, respectively, p=0.001) and the number of RBDEs was significantly higher with suboptimal settings in the "all-eyes" group along with the group of healthy subjects and eyes with DME (9.1+/-6.5 vs. 6.8+/-6.3, p=0.007; 4.4+/-2.6 vs. 2.5+/-1.6, p=0.035 and 9.7+/-3.3 vs. 5.1+/-3.7, p=0.008, respectively). For these groups, significant negative correlation was found between the SSI and the number of RBDEs. In the AMD group, the number of RBDEs was markedly higher compared to the other groups and there was no difference in RBDEs between optimal and suboptimal settings with the errors being independent of the SSI. There were significantly less peripheral RBDEs with optimal settings in the "all-eyes" group and the DME subgroup (2.7+/-2.6 vs. 4.2+/-2.8, p=0.001 and 1.4+/-1.7 vs. 4.1+/-2.2, p=0.007, respectively). Retinal thickness in the two settings was significantly different only in the outer-superior region in DME.

CONCLUSIONS: Optimal distance settings improve SD-OCT SSI with a decrease in RBDEs while retinal thickness measurements are independent of scanning distance.

PMID: 25428608 [PubMed - as supplied by publisher]

Pathogenesis

Pflugers Arch. 2014 Nov 27. [Epub ahead of print]

Activation of endogenously expressed ion channels by active complement in the retinal pigment epithelium.

Genewsky A, Jost I, Busch C, Huber C, Stindl J, Skerka C, Zipfel PF, Rohrer B, Strauß O.

Abstract: Defective regulation of the alternative pathway of the complement system is believed to contribute to damage of retinal pigment epithelial (RPE) cells in age-related macular degeneration. Thus we investigated the effect of complement activation on the RPE cell membrane by analyzing changes in membrane conductance via patch-clamp techniques and Ca2+ imaging. Exposure of human ARPE-19 cells to complement-sufficient normal human serum (NHS) (25 %) resulted in a biphasic increase in intracellular free Ca2+ ([Ca2+]i); an initial peak followed by sustained Ca2+ increase. C5- or C7-depleted sera did not fully reproduce the signal generated by NHS. The initial peak of the Ca2+ response was reduced by sarcoplasmic Ca2+-ATPase inhibitor thapsigargin, L-type channel blockers (R)-(+)-BayK8644 and isradipine, transient-receptor-potential (TRP) channel blocker ruthenium-red and ryanodine receptor blocker dantrolene. The sustained phase was carried by CaV1.3 L-type channels via tyrosine-phosphorylation. Changes in [Ca2+]I were accompanied by an abrupt hyperpolarization, resulting from a transient increase in membrane conductance, which was absent under extracellular Ca2+- or K+-free conditions and blocked by (R)-(+)-BayK8644 or paxilline, a maxiK channel inhibitor. Single-channel recordings confirmed the contribution of maxiK channels. Primary porcine RPE cells responded to NHS in a comparable manner. Pre-incubation with NHS reduced H2O2-induced cell death. In summary, in a concerted manner, C3a, C5a and sC5b-9 increased [Ca2+]i by ryanodine-receptor-dependent activation of L-type channels in addition to maxi-K channels and TRP channels absent from any insertion of a lytic pore.

PMID: 25427445 [PubMed - as supplied by publisher]

Epidemiology

Am J Ophthalmol. 2014 Oct;158(4):808-15.

Visual impairment and blindness due to macular diseases globally: a systematic review and meta-analysis.

Jonas JB, Bourne RR, White RA, Flaxman SR, Keeffe J, Leasher J, Naidoo K, Pesudovs K, Price H, Wong TY, Resnikoff S, Taylor HR; Vision Loss Expert Group of the Global Burden of Disease Study.

PURPOSE: To estimate the number of people visually impaired or blind due to macular diseases except those caused by diabetic maculopathy.

DESIGN: Meta-analysis.

METHODS: Based on the Global Burden of Disease Study 2010 and ongoing literature research, we examined how many people were affected by vision impairment (presenting visual acuity <6/18, ≥3/60) and blindness (presenting visual acuity <3/60) due to macular diseases, with diabetic maculopathy excluded.

RESULTS: In 2010, of 32.4 million blind people and 191 million vision-impaired people, 2.1 million (95% uncertainty interval [UI]: 1.9, 2.7) people were blind, and 6.0 million (95% UI: 5.2, 8.1) million were visually impaired due to macular diseases. In 2010, macular diseases caused 6.6% (95% UI: 6.0, 7.9) of all blindness and 3.1% (95% UI: 2.7, 4.0) of all vision impairment, worldwide. These figures were lower in regions with young populations than in high-income regions. Between 1990 and 2010, the number of people who were blind or visually impaired due to macular diseases increased by 36%, or 0.6 million people (95% UI: 0.5, 0.8) and by 81%, or 2.7 million (95% UI: 2.6, 3.9) people, respectively, whereas the global population increased by 30%. Age-standardized global prevalence of macula-related blindness and vision impairment in adults 50 years of age and older decreased from 0.2% (95% UI: 0.2, 0.2) in 1990 to 0.1% (95% UI: 0.1, 0.2) in 2010 and remained unchanged from 0.4% (95% UI: 0.3, 0.5) to 0.4% (95% UI: 0.4, 0.6), respectively.

CONCLUSIONS: In 2010, 2.1 million people were blind and 6.0 million people were visually impaired due to macular diseases, except those caused by diabetic maculopathy. Of every 15 blind people, 1 was blind due to macular disease, and of every 32 visually impaired people, 1 was visually impaired due to macular disease.

PMID: 24973605 [PubMed - indexed for MEDLINE]

Front Aging Neurosci. 2014 Nov 7;6:309. eCollection 2014.

Cognitive Impairment and Age-Related Vision Disorders: Their Possible Relationship and the Evaluation of the Use of Aspirin and Statins in a 65 Years-and-Over Sardinian Population.

Mandas A, Mereu RM, Catte O, Saba A, Serchisu L, Costaggiu D, Peiretti E, Caminiti G, Vinci M, Casu M, Piludu S, Fossarello M, Manconi PE, Dessí S.

Abstract: Neurological disorders (Alzheimer's disease, vascular and mixed dementia) and visual loss (cataract, age-related macular degeneration, glaucoma, and diabetic retinopathy) are among the most common conditions that afflict people of at least 65 years of age. An increasing body of evidence is emerging, which demonstrates that memory and vision impairment are closely, significantly, and positively linked and that statins and aspirin may lessen the risk of developing age-related visual and neurological problems. However, clinical studies have produced contradictory results. Thus, the intent of the present study was to reliably establish whether a relationship exist between various types of dementia and age-related vision disorders, and to establish whether statins and aspirin may or may not have beneficial effects on these two types of disorders. We found that participants with dementia and/or vision problems were more likely to be depressed and displayed worse functional ability in basic and instrumental activities of daily living than controls. Mini mental state examination scores were significantly lower in patients with

vision disorders compared to subjects without vision disorders. A closer association with macular degeneration was found in subjects with Alzheimer's disease than in subjects without dementia or with vascular dementia, mixed dementia, or other types of age-related vision disorders. When we considered the associations between different types of dementia and vision disorders and the use of statins and aspirin, we found a significant positive association between Alzheimer's disease and statins on their own or in combination with aspirin, indicating that these two drugs do not appear to reduce the risk of Alzheimer's disease or improve its clinical evolution and may, on the contrary, favor its development. No significant association in statin use alone, aspirin use alone, or the combination of these was found in subjects without vision disorders but with dementia, and, similarly, none in subjects with vision disorders but without dementia. Overall, these results confirm the general impression so far; namely, that macular degeneration may contribute to cognitive disorders (Alzheimer's disease in particular). In addition, they also suggest that, while statin and aspirin use may undoubtedly have some protective effects, they do not appear to be magic pills against the development of cognitive impairment or vision disorders in the elderly.

PMID: 25426067 [PubMed - as supplied by publisher] PMCID: PMC4224124

BMC Ophthalmol. 2014 Nov 22;14:140.

Association of rs6982567 near GDF6 with neovascular age-related macular degeneration and polypoidal choroidal vasculopathy in a Han Chinese cohort.

Ji Y, Zhang X, Wu K, Su Y, Li M, Zuo C, Wen F1.

BACKGROUND: Growth differentiation factor 6 (GDF6) has been reported to be a novel disease gene for age-related macular degeneration (AMD) in Caucasians. This study aimed to investigate whether rs6982567 was associated with neovascular AMD (nAMD) or polypoidal choroidal vasculopathy (PCV) in a Han Chinese cohort.

METHODS: A total of 612 participants (251 PCV patients, 157 nAMD patients and 204 controls) were included in this study. The SNaPshot system was used to genotype the rs6982567. PLINK software was used to evaluate the genotypes and allele frequencies of patients and controls.

RESULTS: The allele frequencies of rs6982567 were not significantly associated with nAMD, PCV or PCV and nAMD combined. Subjects with the TT genotype had a 2.42-fold greater risk of PCV (95% confidence interval, 1.07-5.43, p = 0.0290) than subjects with CC genotype. A recessive model of rs6982567 was statistically significantly associated with PCV (odds ratio, 2.29; 95% confidence interval, 1.04-5.05; p = 0.0351). However, the association did not withstand stringent Bonferroni correction. There were no significant differences in genotype distributions or models in nAMD.

CONCLUSIONS: There was a possible weak association between the rs6982567 near GDF6 and PCV in this replication study with an independent Han Chinese cohort. A complete survey of the GDF6 locus with a larger sample size is needed in future studies.

PMID: 25416513 [PubMed - in process]