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MD Research News

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This free weekly bulletin lists the latest published research articles on macular degeneration (MD) as indexed in the NCBI, PubMed (Medline) and Entrez (GenBank) databases. These articles were identified by a search using the key term “macular degeneration”.

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Drug treatment

Ophthalmology. 2013 Oct 18. pii: S0161-6420(13)00795-1. doi: 10.1016/j.ophtha.2013.08.035. [Epub ahead of print]

Intravitreal Aflibercept for Treatment-Resistant Neovascular Age-Related Macular Degeneration.

Chang AA, Li H, Broadhead GK, Hong T, Schlub TE, Wijeyakumar W, Zhu M.

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OBJECTIVE: To assess the effectiveness of intravitreal aflibercept in patients with neovascular age-related macular degeneration (AMD) previously resistant to treatment with other anti-vascular endothelial growth factor agents.

DESIGN: Prospective, open-label, noncontrolled, registered clinical trial.

PARTICIPANTS: Forty-nine patients with treatment-resistant neovascular AMD.

INTERVENTION: A dose of 2 mg intravitreal aflibercept was administered as 3 initial loading doses every 4 weeks (week 0, week 4, and week 8), followed by further injections every 8 weeks (weeks 16 and 24) across a 24-week period in total. All patients underwent a complete ophthalmic examination, including measurement of Early Treatment Diabetic Retinopathy Study (ETDRS) best-corrected visual acuity (BCVA), intraocular pressure assessment, adverse event monitoring, and spectral-domain optical coherence tomography at every visit. Baseline fluorescein angiography and indocyanine green angiography also were performed.

MAIN OUTCOME MEASURES: Outcomes assessed included proportions of patients with a gain or loss of more than 5 ETDRS letters and a decrease or increase in central retinal thickness (CRT) of more than 150 μm at week 24 compared with baseline, change in mean BCVA and CRT between baseline and week 24, and descriptive safety data.

RESULTS: The BCVA improved and CRT was reduced significantly at all follow-up visits compared with baseline ($P < 0.001$), with a mean improvement of 6.9 letters of BCVA and a decrease of 89.4 μm in CRT at week 24. Spacing of injections from every 4 weeks to 8 weeks resulted in an increase of 37.4 μm in CRT ($P < 0.001$); however, this was not correlated with a significant change in vision. There was 1 (2%) patient who lost more than 5 ETDRS letters, and 27 (55%) patients who gained more than 5 letters. Two (4%) patients had a more than 150 μm increase in CRT at week 24, and 10 (20%) patients showed a decrease in CRT of more than 150 μm.

CONCLUSIONS: Intravitreal aflibercept is effective in previously treatment-resistant neovascular AMD. Further follow-up is required to determine whether these improvements can be maintained.

PMID: 24144450 [PubMed - as supplied by publisher]

Clin Ophthalmol. 2013;7:1987-93. doi: 10.2147/OPTH.S39635. Epub 2013 Oct 10.

A pharmacogenetics study to predict outcome in patients receiving anti-VEGF therapy in age related macular degeneration.

Kitchens JW, Kassem N, Wood W, Stone TW, Isernhagen R, Wood E, Hancock BA, Radovich M, Waymire J, Li L, Schneider BP.

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PURPOSE:To ascertain whether single nucleotide polymorphisms (SNPs) in the Vascular Endothelial Growth factor (VEGFA), Complement Factor H (CFH), and LOC387715 genes could predict outcome to anti-VEGF therapy for patients with age related macular degeneration (AMD).

METHODS:Patients with "wet" AMD were identified by chart review. Baseline optical coherence tomography (OCT) and visual acuity (VA) data, and at least 6 months of clinical follow up after 3 initial monthly injections of bevacizumab or ranibizumab were required for inclusion. Based on OCT and VA, patients were categorized into two possible clinical outcomes: (a) responders and (b) non-responders. DNA was extracted from saliva and genotyped for candidate SNPs in the VEGFA, LOC387715, and CFH genes. Clinical outcomes were statistically compared to patient genotypes.

RESULTS:101 patients were recruited, and one eye from each patient was included in the analysis. 97% of samples were successfully genotyped for all SNPs. We found a statistically significant association between the LOC387715 A69S TT genotype and outcome based on OCT.

CONCLUSION:Genetic variation may be associated with outcome in patients receiving anti-VEGF therapy.

PMID: 24143065 [PubMed] PMCID: PMC3797648

Retina. 2013 Oct 17. [Epub ahead of print]

COMPARISON OF INTRAVITREAL RANIBIZUMAB IN PHAKIC AND PSEUDOPHAKIC NEOVASCULAR AGE-RELATED MACULAR DEGENERATION PATIENTS WITH GOOD BASELINE VISUAL ACUITY.

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PURPOSE: To compare the efficacy of intravitreal ranibizumab for the treatment of neovascular age-related macular degeneration between phakic and pseudophakic eyes with visual acuity ≥0.5 Snellen equivalent.

METHODS: This was a retrospective, interventional, comparative study. The newly diagnosed neovascular age-related macular degeneration patients with visual acuity of ≥0.5 Snellen equivalent were included in the study. The patients were divided into two subgroups: phakic group and pseudophakic. All patients received three consecutive monthly intravitreal ranibizumab injections, and then, reinjection was performed as needed. Patients were examined monthly, and the data at the baseline, at Months 3, 6, 9, and 12 were evaluated. The changes in visual acuity, central retinal thickness, and the number of injections were compared between the groups.

RESULTS: The study included 96 eyes of 96 patients (56 phakic and 40 pseudophakic). Mean Snellen visual acuity at the baseline, at Months 3, 6, 9, and 12 was 0.56 ± 0.09, 0.64 ± 0.15, 0.62 ± 0.21, 0.60 ± 0.22, and 0.61 ± 0.20 for the phakic group; and 0.55 ± 0.08, 0.63 ± 0.14, 0.60 ± 0.13, 0.58 ± 0.14, and 0.59 ± 0.13 for the pseudophakic group, respectively. The change in mean visual acuity and central retinal thickness at the study visits was not statistically significant between the 2 groups ($P > 0.05$ for all). Mean injection number at Month 12 was 4.5 and 4.3 in the phakic and pseudophakic group, respectively ($P = 0.5$).

CONCLUSION: Intravitreal ranibizumab treatment on an as-needed treatment regimen is effective in preserving vision and improving central retinal thickness in both the phakic and pseudophakic group of neovascular age-related macular degeneration patients with good baseline visual acuity.

PMID: 24141904 [PubMed - as supplied by publisher]

Ophthalmic Res. 2013 Oct 22;51(1):1-8. [Epub ahead of print]

VEGF Gene Polymorphism and Response to Intravitreal Ranibizumab in Neovascular Age-Related Macular Degeneration.

Dos Reis Veloso CE, Frota de Almeida LN, Recchia FM, Pelayes D, Nehemy MB.

Department of Ophthalmology, Federal University of Minas Gerais, Belo Horizonte, Brazil.

Background/Aims: To investigate the association between VEGF gene polymorphism and response to ranibizumab in neovascular age-related macular degeneration (AMD).

Methods: A total of 92 patients were genotyped for the VEGF rs1413711 single nucleotide polymorphism. Patients with neovascular AMD initially received 3 monthly ranibizumab intravitreal injections and were retreated as needed. Visual acuity (VA) and central retinal thickness (CRT) were measured before and 1, 3, 6 and 12 months after treatment.

Results: For patients with TT and CT genotypes, paired comparisons of mean VA showed improvement when the data obtained at all visits were compared with baseline values, in contrast to patients with the CC genotype. CRT statistically improved at all visits for all genotypes.

Conclusion: Patients with the CC genotype showed poorer long-term functional and anatomical response to anti-VEGF therapy.

PMID: 24157918 [PubMed - as supplied by publisher]

World J Diabetes. 2013 Oct 15;4(5):165-9. doi: 10.4239/wjd.v4.i5.165.

Current status in diabetic macular edema treatments.

Romero-Aroca P.

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Abstract: Diabetes is a serious chronic condition, which increase the risk of cardiovascular diseases, kidney failure and nerve damage leading to amputation. Furthermore the ocular complications include diabetic macular edema, is the leading cause of blindness among adults in the industrialized countries. Today, blindness from diabetic macular edema is largely preventable with timely detection and appropriate interventional therapy. The treatment should include an optimized control of glycemia, arterial tension, lipids and renal status. The photocoagulation laser is currently restricted to focal macular edema in some countries, but due the high cost of intravitreal drugs, the use of laser treatment for focal and diffuse diabetic macular edema (DME), can be valid as gold standard in many countries. The intravitreal anti vascular endothelial growth factor drugs (ranibizumab and bevacizumab), are indicated in the treatment of all types of DME, but the correct protocol for administration should be defined for the different Retina Scientific Societies. The corticosteroids for diffuse DME, has a place in pseudophakic patients, but its complications restricted the use of these drugs for some patients. Finally the intravitreal interface plays an important role and its exploration is mandatory in all DME patients.

PMID: 24147200 [PubMed]

Surv Ophthalmol. 2013 Oct 15. pii: S0039-6257(13)00198-7. doi: 10.1016/j.survophthal.2013.07.003. [Epub ahead of print]

The Harvard angiogenesis story.

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Abstract: I shall discuss the work of researchers at Harvard Medical School who came together in the early 1990s. Scattered across various Harvard-affiliated hospitals and research centers, these individuals were unified by their interest in ocular neovascularization. Together and separately, they investigated models of ocular neovascularization, exploring tumor angiogenesis in eye development and disease.

PMID: 24138892 [PubMed - as supplied by publisher]

Clin Experiment Ophthalmol. 2013 Nov;41(8):723-6. doi: 10.1111/ceo.12212.

Lessons learnt inform our approach to new antivascular endothelial growth factor treatments for neovascular age-related macular degeneration.

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Centre for Eye Research Australia (CERA), Royal Victorian Eye and Ear Hospital, University of Melbourne, East Melbourne, Victoria, Australia.

PMID: 24152187 [PubMed - in process]

Other treatment & diagnosis

Ophthalmic Res. 2013 Oct 22;51(1):32-36. [Epub ahead of print]

Microperimetry of Subretinal Drusenoid Deposits.

Forte R, Cennamo G, de Crecchio G, Cennamo G.

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Purpose: To investigate light sensitivity in eyes presenting with subretinal drusenoid deposits (SDD).

Methods: All consecutive patients with SDD only seen between January 2012 and July 2012 were included. A control group of consecutive age- and sex-matched control subjects presenting at least one eye with early age-related macular degeneration was considered. In all cases best-corrected visual acuity (BCVA), color fundus photography, fundus autofluorescence imaging and spectral-domain-optical coherence tomography with integrated microperimetry were performed.

Results: Twenty-one eyes (21 patients, 9 females, 12 males, mean age 69.2 ± 5.3 years, mean BCVA 0.18 ± 0.14 LogMAR) were included in the SDD group. Twenty eyes of 20 patients (13 females, 7 males, mean age 69.1 ± 3.9 years, mean BCVA 0.16 ± 0.15 LogMAR) were included in the control group. In eyes with SDD the choroid was thinner at the subfoveal location, and at 1,500 μm superior, inferior, temporal and nasal to the fovea ($p < 0.05$). In eyes with SDD, the overall mean light sensitivity in the central macula (4.21 ± 2.46 dB) was significantly reduced when compared to the control group (6.81 ± 2.12 dB, $p = 0.001$), while stable fixation was present in both groups. Correlation between BCVA and mean light sensitivity in the central 7 × 7 mm square was low in the SDD group (Pearson's rho = 0.4, $p = 0.01$), while it was good in the control group (Pearson's rho = 0.7, $p = 0.001$).

Conclusions: Eyes with SDD showed reduced sensitivity despite preserved BCVA. Reduced choroidal

thickness could be involved in reduction of light sensitivity.

PMID: 24158037 [PubMed - as supplied by publisher]

Prog Retin Eye Res. 2013 Oct 15. pii: S1350-9462(13)00059-1. doi: 10.1016/j.preteyeres.2013.09.003. [Epub ahead of print]

Photodynamic Therapy for Polypoidal Choroidal Vasculopathy.

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Abstract: The first effective therapy for exudative macular degeneration (AMD) was Photodynamic Therapy (PDT). Diagnosis of the disease was to a large extent by fluorescein angiography (FA). Distinguishing between the leaky choroidal neovessels (CNV) associated with exudative AMD, and the polypoidal structures associated with Polypoidal Choroidal Vasculopathy (PCV) is not always easy using FA alone. The switch to Indocyanine Green angiography helped to pinpoint PCV, and thus to study the efficacy of photodynamic therapy of this particular form of retinal disease, which is more frequently encountered among pigmented individuals. The results appear to be quite promising, and in the year following treatment only a small fraction of the patients had to be retreated. Alternatively, treating PCV with repeated intravitreal VEGF blocking agents was not as successful as it was in the treatment of wet AMD. However, combining PDT-induced angio-occlusion of the polypoidal lesions with anti-vascular endothelial growth factor therapy was shown to be quite effective, and the combination of PDT with an anti-angiogenic agent as well as a steroid, in a triple therapy, was recently also shown to be a quite promising option. In the present article we review the data on PDT of PCV, including combination therapies and alternative treatments. We also report on similarities and differences between AMD and PCV.

PMID: 24140257 [PubMed - as supplied by publisher]

Ophthalmology. 2013 Oct 21. pii: S0161-6420(13)00807-5. doi: 10.1016/j.ophtha.2013.09.002. [Epub ahead of print]

Phase-Variance Optical Coherence Tomography: A New Technique for Noninvasive Angiography.

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PURPOSE: Phase-variance optical coherence tomography (PV-OCT) provides volumetric imaging of the retinal vasculature without the need for intravenous injection of a fluorophore. We compare images from PV-OCT and fluorescein angiography (FA) for normal individuals and patients with age-related macular degeneration (AMD) and diabetic retinopathy.

DESIGN: This is an evaluation of a diagnostic technology.

PARTICIPANTS: Four patients underwent comparative retinovascular imaging using FA and PV-OCT. Imaging was performed on 1 normal individual, 1 patient with dry AMD, 1 patient with exudative AMD, and 1 patient with nonproliferative diabetic retinopathy.

METHODS: Fluorescein angiography imaging was performed using a Topcon Corp (Tokyo, Japan) (TRC-50IX) camera with a resolution of 1280 (H) × 1024 (V) pixels. The PV-OCT images were generated by software data processing of the entire cross-sectional image from consecutively acquired B-scans. Bulk axial motion was calculated and corrected for each transverse location, reducing the phase noise introduced from eye motion. Phase variance was calculated through the variance of the motion-corrected

phase changes acquired within multiple B-scans at the same position. Repeating these calculations over the entire volumetric scan produced a 3-dimensional PV-OCT representation of the vasculature.

MAIN OUTCOME MEASURES: Feasibility of rendering retinal and choroidal microvasculature using PV-OCT was compared qualitatively with FA, the current gold standard for retinovascular imaging.

RESULTS: Phase-variance OCT noninvasively rendered a 2-dimensional depth color-coded vasculature map of the retinal and choroidal vasculature. The choriocapillaris was imaged with better resolution of microvascular detail using PV-OCT. Areas of geographic atrophy and choroidal neovascularization imaged by FA were depicted by PV-OCT. Regions of capillary nonperfusion from diabetic retinopathy were shown by both imaging techniques; there was not complete correspondence between microaneurysms shown on FA and PV-OCT images.

CONCLUSIONS: Phase-variance OCT yields high-resolution imaging of the retinal and choroidal microvasculature that compares favorably with FA.

PMID: 24156929 [PubMed - as supplied by publisher]

Pathogenesis

Graefes Arch Clin Exp Ophthalmol. 2013 Oct 22. [Epub ahead of print]

Inner retinal layer comparisons of eyes with exudative age-related macular degeneration and eyes with age-related macular degeneration and glaucoma.

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BACKGROUND: The incidence of glaucoma increases with age, as does age-related macular degeneration (AMD), with the reported incidence of glaucoma among AMD subjects being 5.4 %. Optical coherence tomography (OCT) can detect glaucomatous changes in the inner retina with high sensitivity. The purpose of this study was to compare ganglion cell complex (GCC) parameters and the thickness of the peripapillary retinal nerve fiber layer (RNFL) in normal eyes to that observed in eyes with age-related macular degeneration (AMD) and eyes with both AMD and glaucoma.

METHODS: The GCC components [GCC thickness, focal loss volume (FLV), and global loss volume (GLV)] and peripapillary RNFL thickness were measured using RTVue spectral-domain OCT (SD-OCT). The GCC and RNFL parameters of normal eyes, AMD eyes treated with different types of therapy, and AMD eyes with and without glaucoma were evaluated using nonparametric tests. Univariate and multivariate analyses were used to determine whether the GCC and RNFL parameters could be used to differentiate AMD eyes with glaucoma from those without glaucoma.

RESULTS: Seventy-one normal eyes, 120 eyes with AMD, and 23 eyes with AMD and glaucoma were studied. The values of all GCC components were significantly different in the normal eyes from those observed in the eyes with AMD, except for the RNFL thicknesses. The GCC and RNFL parameters were not significantly different between the eyes receiving different types of therapy among the AMD groups. The RNFL thickness was significantly correlated with glaucoma diagnosis in AMD eyes.

CONCLUSIONS: These findings indicate that there is damage to the inner retinal layers in eyes with AMD. The RNFL thickness can be a useful parameter for differentiating eyes with AMD from eyes with both AMD and glaucoma.

PMID: 24146272 [PubMed - as supplied by publisher]

EMBO Mol Med. 2013 Oct 21. doi: 10.1002/emmm.201302692. [Epub ahead of print]

CCR2+ monocytes infiltrate atrophic lesions in age-related macular disease and mediate photoreceptor degeneration in experimental subretinal inflammation in Cx3cr1 deficient mice.

Sennlaub F, Auvynet C, Calippe B, Lavalette S, Poupel L, Hu SJ, Dominguez E, Camelo S, Levy O, Guyon E, Saederup N, Charo IF, Rooijen NV, Nandrot E, Bourges JL, Behar-Cohen F, Sahel JA, Guillonneau X, Raoul W, Combadiere C.

Inserm, U 968, Paris, France; UPMC Univ Paris 06, UMR_S 968, Institut de la Vision, Paris, France; Centre Hospitalier National d'Ophtalmologie des Quinze-Vingts, INSERM-DHOS CIC 503, Paris, France; Hôtel Dieu, Service d'Ophtalmologie, Centre de Recherche Ophtalmologique, Paris, France.

Abstract: Atrophic age-related macular degeneration (AMD) is associated with the subretinal accumulation of mononuclear phagocytes (MPs). Their role in promoting or inhibiting retinal degeneration is unknown. We here show that atrophic AMD is associated with increased intraocular CCL2 levels and subretinal CCR2+ inflammatory monocyte infiltration in patients. Using age- and light-induced subretinal inflammation and photoreceptor degeneration in Cx3cr1 knockout mice, we show that subretinal Cx3cr1 deficient MPs overexpress CCL2 and that both the genetic deletion of CCL2 or CCR2 and the pharmacological inhibition of CCR2 prevent inflammatory monocyte recruitment, MP accumulation and photoreceptor degeneration in vivo. Our study shows that contrary to CCR2 and CCL2, CX3CR1 is constitutively expressed in the retina where it represses the expression of CCL2 and the recruitment of neurotoxic inflammatory CCR2+ monocytes. CCL2/CCR2 inhibition might represent a powerful tool for controlling inflammation and neurodegeneration in AMD.

PMID: 24142887 [PubMed - as supplied by publisher]

Angiogenesis. 2013 Oct 24. [Epub ahead of print]

Antagonism of PDGF-BB suppresses subretinal neovascularization and enhances the effects of blocking VEGF-A.

Dong A, Seidel C, Snell D, Ekawardhani S, Ahlskog JK, Baumann M, Shen J, Iwase T, Tian J, Stevens R, F Hackett S, Stumpp MT, A Campochiaro P.

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Abstract: Hypoxia-inducible factor-1 (HIF-1) plays an important role in retinal and subretinal neovascularization (NV). Increased levels of HIF-1 cause increased expression of vascular endothelial growth factor (VEGF-A) and current therapies for ocular NV focus on neutralizing VEGF-A, but there is mounting evidence that other HIF-1-responsive gene products may also participate. In this study, we tested the effect of a designed ankyrin repeat protein (DARPin) that selectively binds and antagonizes the hypoxia -regulated gene product PDGF-BB in three models of subretinal NV (relevant to neovascular age-related macular degeneration) and compared its effects to a DARPin that selectively antagonizes VEGF-A. Daily intraperitoneal injections of 10 mg/kg of the anti-PDGF-BB DARPin or 1 mg/kg of the anti-VEGF DARPin significantly suppressed subretinal NV from laser-induced rupture of Bruch's membrane. Injections of 1 mg/kg/day of the anti-PDGF-BB DARPin had no significant effect, but when combined with 1 mg/kg/day of the anti-VEGF-A DARPin there was greater suppression than injection of the anti-VEGF-A DARPin alone. In Vldlr -/- mice which spontaneously develop subretinal NV, intraocular injection of 1.85 μg of anti-PDGF-BB or anti-VEGF-A DARPin caused significant suppression of NV and when combined there was greater suppression than with either alone. The two DARPins also showed an additive effect in Tet/opsin/VEGF double transgenic mice, a particularly severe model of subretinal NV and exudative retinal detachment. In addition, intraocular injection of 1.85 μg of anti-PDGF-BB DARPin strongly suppressed ischemia-induced retinal NV, which is relevant to proliferative diabetic retinopathy and retinopathy of prematurity. These data demonstrate that PDGF-BB is another hypoxia-regulated gene product that along with VEGF-A contributes to ocular NV and suppression of both provides an additive effect.

PMID: 24154861 [PubMed - as supplied by publisher]

Curr Eye Res. 2013 Oct 22. [Epub ahead of print]

Retinal Blood Flow Velocity in Patients with Age-Related Macular Degeneration.

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Abstract Purpose/Aim: To study changes in retinal blood flow velocity in patients with early and neovascular age-related macular degeneration (AMD). We used the Retinal Function Imager (RFI, Optical Imaging Ltd., Rehovot, Israel), a noninvasive diagnostic approach for measuring blood flow velocity.

Materials and Methods: Sixty eyes of 43 AMD patients and 53 eyes of 35 healthy individuals over the age of 50 were recruited for this study. All patients were scanned by the RFI with analysis of blood flow velocity of secondary and tertiary branches of arteries and veins. Differences among groups were assessed by mixed linear models.

Results: The average velocity in AMD patients was significantly lower compared to controls in arteries (3.6 ± 1.4 versus 4.3 ± 1.0 mm/sec, p = 0.009) but not in veins (2.6 ± 0.9 versus 3.1 ± 0.6 mm/sec, p = 0.08). When comparing the velocity between low- and high-grade AMD eyes, venous velocity was slower in the high grade AMD eyes only in the "narrow" group of vessels.

Conclusions: Decreased blood flow velocity in retinal arteries in patients with AMD was found. Despite the fact that AMD is essentially a choroidal disease, retinal vessels show a functional abnormality, which may suggest that the vascular abnormality in this disease is more generalized.

PMID: 24147793 [PubMed - as supplied by publisher]

Genetics

Mol Vis. 2013 Sep 27;19:2050-7.

TOMM40 rs2075650 polymorphism shows no association with neovascular age-related macular degeneration or polypoidal choroidal vasculopathy in a Chinese population.

Guo J, Li H, Zhang C, Sun Y, Deng X, Bai Y, Li S, Zhao M, Miao H, Yu W, Wang B, Huang L, Li X.

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PURPOSE: Age-related macular degeneration (AMD) and Alzheimer disease (AD) are age-related neurodegenerative diseases that share similar environmental risk factors, cellular pathologies, and genetic backgrounds. Recently, the rs2075650 single nucleotide polymorphism in the translocase of outer mitochondrial membrane 40 homolog (TOMM40) gene was identified as a risk factor for AMD and Alzheimer disease. We aimed to examine the associations between the TOMM40 rs2075650 polymorphism and neovascular age-related macular degeneration (nAMD) and polypoidal choroidal vasculopathy (PCV) in a Chinese population.

METHODS: The study consisted of 900 subjects, including 300 controls, 300 cases with nAMD, and 300 cases with PCV. Genomic DNA was extracted from venous blood leukocytes. The allelic variant of rs2075650 was determined with matrix-assisted laser desorption/ionization time-of-flight mass spectrometry. Differences in the observed genotypic distributions between the case and control groups were tested using chi-square tests, with age and gender adjusted using logistic regression analysis.

RESULTS: The TOMM40 rs2075650 polymorphism was not statistically significantly associated with the

nAMD or PCV phenotype (p>0.05). The difference remained insignificant after correction for age and gender differences based on the logistic regression models (p>0.05).

CONCLUSIONS: Our data provide no evidence to support an association of rs2075650 in TOMM40 with nAMD or PCV, suggesting that this gene is unlikely to be a major AMD and PCV susceptibility gene locus in the Chinese population.

PMID: 24146538 [PubMed - in process]

Rehabilitation

Cochrane Database Syst Rev. 2013 Oct 23;10:CD003303. [Epub ahead of print]

Reading aids for adults with low vision.

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BACKGROUND: The purpose of low-vision rehabilitation is to allow people to resume or to continue to perform daily living tasks, with reading being one of the most important. This is achieved by providing appropriate optical devices and special training in the use of residual-vision and low-vision aids, which range from simple optical magnifiers to high-magnification video magnifiers.

OBJECTIVES: To assess the effects of reading aids for adults with low vision.

SEARCH METHODS: We searched CENTRAL (which contains the Cochrane Eyes and Vision Group Trials Register) (The Cochrane Library 2013, Issue 1), Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid MEDLINE Daily, Ovid OLDMEDLINE, (January 1950 to January 2013), EMBASE (January 1980 to January 2013), Latin American and Caribbean Literature on Health Sciences (LILACS) (January 1982 to January 2013), OpenGrey (System for Information on Grey Literature in Europe) (www.opengrey.eu/), the metaRegister of Controlled Trials (mRCT) (www.controlled-trials.com), ClinicalTrials.gov (www.clinicaltrials.gov/) and the WHO International Clinical Trials Registry Platform (ICTRP) (www.who.int/ictrp/search/en). We did not use any date or language restrictions in the electronic searches for trials. We last searched the electronic databases on 31 January 2013. We searched the reference lists of relevant articles and used the Science Citation Index to find articles that cited the included studies and contacted investigators and manufacturers of low-vision aids. We handsearched the British Journal of Visual Impairment from 1983 to 1999 and the Journal of Visual Impairment and Blindness from 1976 to 1991.

SELECTION CRITERIA: This review includes randomised and quasi-randomised trials in which any device or aid used for reading had been compared to another device or aid in people aged 16 or over with low vision as defined by the study investigators.

DATA COLLECTION AND ANALYSIS: At least two authors independently assessed trial quality and extracted data.

MAIN RESULTS: We included nine small studies with a cross-over-like design (181 people overall) and one study with three parallel arms (243 participants) in the review. All studies reported the primary outcome, results for reading speed.Two studies including 92 participants found moderate- or low-quality evidence suggesting that reading speed is higher with stand-mounted electronic devices or electronic devices with the camera mounted in a 'mouse' than with optical magnifiers, which in these trials were generally stand-mounted or, less frequently, hand-held magnifiers or microscopic lenses. In another study of 20 participants there was moderate-quality evidence that optical devices are better than head-mounted electronic devices (four types).There was low-quality evidence from three studies (93 participants) that reading using head-mounted electronic devices is slower than with stand-based electronic devices. The technology of electronic devices may have changed and improved since these studies were conducted.One study

suggested no difference between a diffractive spectacle-mounted magnifier and either refractive (15 participants) or aplanatic (15 participants) magnifiers.One study of 10 people suggested that several overlay coloured filters were no better and possibly worse than a clear filter.A parallel-arm study including 243 participants with age-related macular degeneration found that custom or standard prism spectacles were no different from conventional reading spectacles, although the data did not allow precise estimates of performance to be made.

AUTHORS' CONCLUSIONS: There is insufficient evidence on the effect of different types of low-vision aids on reading performance. It would be necessary to investigate which patient characteristics predict performance with different devices, including costly electronic devices. Better-quality research should also focus on assessing sustained long-term use of each device. Authors of studies testing several devices on the same person should consider design and reporting issues related to their sequential presentation and to the cross-over-like study design.

PMID: 24154864 [PubMed - as supplied by publisher]

Curr Eye Res. 2013 Oct 21. [Epub ahead of print]

Impact of Visual Impairment on Vision-Specific Quality of Life among Older Adults Living in Nursing Home.

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Abstract Background: Visual impairment (VI) has a significant negative impact on quality of life (QoL) amongst older people living in nursing homes. The purpose of this study was to determine the prevalence of VI and blindness and to explore the association between severity of VI and vision-specific QoL among older people living in nursing homes of Kathmandu, Nepal.

Methods: This cross-sectional study involved 158 residents aged 60 years or older residing in seven nursing homes of Kathmandu Valley, Nepal. Near acuity, presenting and the best corrected distance visual acuity (VA) were assessed in each eye and considered in the better eye after adequate refraction. A complete anterior and posterior segment examination was carried out. Face-to-face interviews were conducted using a 57-item Nursing Home Vision-Targeted Health-Related Quality of Life (NHVQoL) questionnaire.

Results: The mean age of residents was 75.60 ± 7.12 years and the majority were female (66.46%). The prevalence of VI and blindness was 45.57% and its leading cause was cataract, which was followed by age -related macular degeneration, corneal opacity, glaucoma and macular scar. The mean composite score of NHVQoL questionnaire was 52.22 ± 12.49. There was a consistent overall deterioration in the mean composite score as well as each subscale score of NHVQoL questionnaire with a worsening of VA.

Conclusion: VI and blindness are highly prevalent among older people living in nursing homes. VI has a significant negative impact on vision-specific QoL. Vision-specific QoL is reduced, and the reduction in the QoL bears a positive association with severity of VI among older people living in nursing homes.

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Diet & lifestyle

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In vitro effects of vitamin supplements on platelet-activating factor and its metabolism in age-related macular degeneration.

Moschos MM, Chatziralli IP, Stamatakis G, Papakonstantinou VD, Demopoulos CA.

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Abstract Objective: The purpose of our study was to investigate for the first time a series of vitamin supplements used for age-related macular degeneration (AMD) as potential inhibitors of platelet-activating factor (PAF).

Materials and methods: Various vitamin supplements were tested in washed rabbit platelets (WRPs), in order to investigate the interaction between vitamin supplements (InShape, Nutrof, Ocuvite, Vitalux) and inhibition of PAF-induced platelet aggregation. Additionally, we examined their ability to affect PAF-metabolism, through their in vitro effect on PAF basic metabolic enzymes (PAF-CPT, lyso PAF-AT, and PAF-AH).

Results: Nutrof exhibited the strongest anti-PAF activity, while Vitalux was the most potent anti-inflammatory factor.

Conclusion: This is the first study to bring in surface potent anti-inflammatory and anti-angiogenic activities of some vitamin supplements used against AMD, through their in vitro anti-PAF effects in WRPs and the rabbit plasma and leukocyte PAF metabolism, suggesting a promising role of vitamin supplements and especially resveratrol, concerning its potent anti-angiogenic activity in AMD.

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Over the past decade, Optometry and Vision Science (OVS) has regularly published Feature Issues dedicated to advances in research on clinically important topics. These Feature issues have

been well cited.

OVS now plans a Feature Issue entirely devoted to the advances and challenges in AMD research and management. The Feature Issue will be published mid-2014.

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