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MD Research News

Issue 227

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Drug treatment

Ophthalmology. 2015 Apr 4. [Epub ahead of print]

Two-Year Outcomes of "Treat and Extend" Intravitreal Therapy for Neovascular Age-Related Macular Degeneration.

Arnold JJ, Campain A, Barthelmes D, Simpson JM, Guymer RH, Hunyor AP, McAllister IL, Essex RW, Morlet N, Gillies MC; Fight Retinal Blindness Study Group.

PURPOSE: To report 24-month outcomes of anti-vascular endothelial growth factor (VEGF) therapy for treatment-naïve eyes with neovascular age-related macular degeneration (nAMD) using a treat and extend treatment regimen in routine clinical practice.

DESIGN: Database observational study.

PARTICIPANTS: We included treatment-naïve eyes receiving predominantly ranibizumab for nAMD in routine clinical practice treated using a treat and extend regimen that were tracked in the Fight Retinal Blindness observational registry.

METHODS: A cohort of eyes treated by practitioners using exclusively a treat and extend regimen was extracted from the Fight Retinal Blindness observational registry.

MAIN OUTCOME MEASURES: Change in visual acuity (VA) over 2 years and number of injections and visits.

RESULTS: Data from 1198 eyes from 1011 patients receiving anti-VEGF therapy using a treat and extend regimen for treatment-naïve nAMD between January 2007 and December 2012 and with 24-month follow-up were included in the analysis. Mean VA increased by +5.3 logarithm of the minimum angle of resolution letters from 56.5 letters (20/80+1) at initial visit to 61.8 (20/60+2) letters at 24 months. Mean VA gains improved and number of injections increased with successive years from +2.7 letters for eyes commencing in 2007 after a mean of 9.7 injections in 2 years, to +7.8 letters for eyes commencing in 2012 after a mean of 14.2 injections over 2 years. The proportion of eyes with VA >20/40 increased from 27% when starting treatment to 45% after 24 months; the proportion with vision of <20/200 remained unchanged (13% initial, 11% at 24 months). Of the included eyes, 90.5% avoided a vision loss of ≥15 letters. There was an overall mean of 13.0 injections over the 24 months, 7.5 injections in the first year and 5.5 in the second year, with a mean of 14.8 clinic visits.

CONCLUSIONS: These data indicate that eyes managed in routine clinical practice with a treat and extend regimen can achieve good visual outcomes while decreasing the burden of treatments and clinic visits.

PMID: 25846847 [PubMed - as supplied by publisher]

Clin Ophthalmol. 2015 Mar 20;9:533-42. eCollection 2015.

Current perspectives on ranibizumab.

Dedania VS, Bakri SJ.

BACKGROUND: This review summarizes the Phase III studies addressing intravitreal ranibizumab treatment in patients with neovascular age-related macular degeneration (AMD), macular edema (ME) from retinal vein occlusion (RVO), and diabetic ME (DME).

RESULTS: The data from 12 major Phase III studies: six studies in patients with neovascular AMD, two studies in patients with ME from RVO, and four studies in patients with DME demonstrate significant improvement in vision in patients undergoing treatment with intravitreal ranibizumab over patients receiving no treatment or receiving only grid laser. These effects are achieved with low incidences of ocular and nonocular adverse events.

CONCLUSION: Intravitreal ranibizumab is a highly effective and safe therapy for improving vision and reducing vision loss in patients with neovascular AMD, ME from RVO, and DME. Patients generally require long-term treatment although some data show that frequency of treatment necessary to maintain visual outcomes decreases over time.

PMID: 25848203 [PubMed] PMCID: PMC4376306

J Ocul Pharmacol Ther. 2015 Apr 8. [Epub ahead of print]

The Effects of the Frequency of the Initial Treatment with Intravitreal Bevacizumab on Macular Volume and Visual Acuity.

Segal O, Mimouni M, Nemet AY, Segev F, Geffen N, Nesher R.

PURPOSE: The ideal notion of monthly intravitreal injections is difficult to achieve when it comes to real-life scenarios. In reality, patients often are treated with larger intervals due to circumstances. The purpose of this study was to compare the results of intravitreal bevacizumab injections with shorter intervals versus longer intervals for the treatment of choroidal neovascularization (CNV) in age-related macular degeneration (AMD) in a real-life clinic.

METHODS: A retrospective, consecutive cohort study of naive eyes of patients with CNV secondary to AMD treated with intravitreal bevacizumab. Patients included underwent at least 3 consecutive injections with intervals <45 days in between them (Group A) or >45 days (Group B). Best corrected visual acuity (BCVA) and optical coherence tomography were performed before the initial intravitreal injections and after the last injection.

RESULTS: Group A consisted of 24 eyes of 18 patients and Group B 30 eyes of 25 patients. There was a significantly larger mean of consecutive (5.0 vs. 3.78, P=0.013) and total (9.44 vs. 7.2, P=0.021) injections in Group B. There was a significant improvement in average BCVA in Group A only (0.65-0.52, P=0.006). However, a significant and similar improvement in retinal volume was found in both groups (P<0.05).

CONCLUSION: This study emphasizes the importance of achieving consecutive injections with short intervals. Practitioners and decision makers should be mindful that providing additional resources to accomplish proper frequency may be more effective (visual outcome), cost effective (less injections), and safer (less exposure) for the patient.

PMID: 25853291 [PubMed - as supplied by publisher]

J Pediatr Ophthalmol Strabismus. 2015 Apr 3:1-7. [Epub ahead of print]

Spectral-Domain OCT Analyses of Macular Changes After Ranibizumab Therapy for Type 1 Retinopathy of Prematurity.

Erol MK, Coban DT, Özdemir Ö, Tunay ZÖ, Bilgin AB, Dogan B.

PURPOSE: To investigate the clinical and macular spectral-domain optical coherence tomography (SD-OCT) findings after intravitreal ranibizumab treatment for type 1 retinopathy of prematurity (ROP).

METHODS: Eighteen eyes of 10 premature infants with type 1 ROP were retrospectively studied. All eyes were treated with intravitreal ranibizumab as monotherapy. Macular SD-OCT was performed before and after intravitreal ranibizumab therapy using a portable SD-OCT machine; the follow-up images were taken 1 day, 1 week, 1 month, and 2 months after therapy.

RESULTS: Among the 10 infants, there were six males and four females. Mean central foveal thickness before and 2 months after intravitreal ranibizumab was 292.5 ± 61.4 and 171.6 ± 21.7 μm, respectively. Differences were statistically significant (P = .01). Sixteen eyes of eight patients had macular edema before treatment. Two eyes of two patients developed a crack in the outer hyperreflective line on SD-OCT corresponding with retinal pigment epithelium with serous retinal detachment 1 day after treatment. Macular edema regressed in all patients 2 months after intravitreal ranibizumab therapy. Mean follow-up time was 11.4 ± 1.5 months. No recurrence was seen except in both eyes of one patient treated with intravitreal ranibizumab monotherapy.

CONCLUSIONS: Intravitreal ranibizumab injection is effective for the treatment of type 1 ROP as a monotherapy agent; however, macular changes not seen with indirect ophthalmoscope may develop.

PMID: 25859685 [PubMed - as supplied by publisher]

Ophthalmic Surg Lasers Imaging Retina. 2015 Mar 1;46(3):345-8.

Prevalence of Outer Retinal Tubulation After Anti-VEGF Therapy for Age-Related Macular Degeneration.

Gildener-Leapman JR, Srivistava S, Ehlers JP, Kaiser PK.

BACKGROUND AND OBJECTIVE: To assess whether there is a correlation between anti-vascular endothelial growth factor (VEGF) therapy and the incidence of outer retinal tubulation (ORT) in patients with exudative age-related macular degeneration (AMD).

PATIENTS AND METHODS: A retrospective review of all patients at the Cole Eye Institute who received anti-VEGF injections for exudative AMD and underwent optical coherence tomography (OCT) evaluation was performed. A total of 543 patients were identified and included in the study. The number of treatments and the change in Snellen visual acuity from the time of diagnosis until the development of ORT were tabulated.

RESULTS: Seventy individuals with ORT were identified. The data analyzed showed a wide variation in the number of treatments until the development of ORT and did not show a significant correlation between ORT incidence and decreased visual acuity.

CONCLUSION: Although a correlation was found between the increased incidence of ORT and length of anti-VEGF treatment, there was no evidence of decreased visual acuity, which suggests that the ORT might be benign.

PMID: 25856821 [PubMed - in process]

Other treatment & diagnosis

Ophthalmic Surg Lasers Imaging Retina. 2015 Mar 1;46(3):338-43.

One-Year Results From Clinical Practice of Epimacular Strontium-90 Brachytherapy for the Treatment of Subfoveal Choroidal Neovascularization Secondary to AMD.

Zur D, Loewenstein A, Barak A.

BACKGROUND AND OBJECTIVE: To evaluate clinical feasibility, safety, and efficacy of epiretinal strontium-90 brachytherapy in subfoveal choroidal neovascularization (CNV) due to age-related macular degeneration (AMD) in eyes unresponsive to repeated anti-VEGF injections.

PATIENTS AND METHODS: A retrospective, single-center study on patients treated with strontium-90 brachytherapy for CNV secondary to neovascular AMD. Patients underwent pars plana vitrectomy with a single 24 Gy dose brachytherapy. They were re-treated with anti-VEGF injections on an as-needed basis if subretinal or intraretinal fluid was detected on optical coherence tomography imaging.

RESULTS: Twenty-two patients were treated, and 20 completed 12 months of follow-up. Ten patients maintained stable vision, eight gained vision, and two lost more than three Snellen lines. The mean best corrected visual acuity change from baseline was -8 ± 5.7 letters. A mean of 5.5 ± 4.4 anti-VEGF injections were administered throughout 12 months.

CONCLUSION: Epimacular brachytherapy is feasible in clinical practice. While some patients benefit from the treatment and need significantly fewer as-needed injections, others appear not to react to irradiation treatment after 1 year of follow-up. Larger numbers of patients are needed to evaluate therapeutic efficacy and to determine which patients can benefit from combined radiation and anti-VEGF therapy.

PMID: 25856820 [PubMed - in process]

Photodiagnosis Photodyn Ther. 2015 Apr 2. [Epub ahead of print]

Vascular-targeted photodynamic therapy in the treatment of neovascular age-related macular degeneration; clinical perspectives.

Kawczyk-Krupka A, Bugaj AM, Potempa M, Wasilewska K, Latos W, Sieroń A.

Abstract: Vascular targeted photodynamic therapy (VTP), with use of verteporfin as a photosensitizer is one of the few therapies, which has been shown to effectively slow the progression of the "wet" form of age-related macular degeneration (AMD), and even to stabilize visual acuity over many years. Although, due to considerable advance of AMD treatment, it is currently not recommended in monotherapy of AMD, however, its combination with steroids and anti-angiogenic biologic drugs may reveal high therapeutic potential in the treatment of neovascular AMD. The future of VTP as a method of AMD treatment is development of new selective and targeted photosensitizer and combination of this method with other therapeutic strategies targeting cellular structures or pathways involved in AMD progression.

PMID: 25843911 [PubMed - as supplied by publisher]

Nihon Ganka Gakkai Zasshi. 2015 Mar;119(3):195-214; discussion 215.

[Age-related macular degeneration: paradigm shift from recent findings].[Article in Japanese]

Yanagi Y.

Abstract: This review describes recent advances in age-related macular degeneration (AMD), based mainly on our own research findings. First, we investigated the effect of choroidal abnormality and found that choroidal hyperpermeability was observed more often in eyes with polypoidal choroidal vasculopathy (PCV)

than in eyes with typical AMD; however, even in eyes with typical AMD, substantial proportion of eyes showed hyperpermeability. Exudative AMD eyes with choroidal hyperpermeability showed thickened choroid more widely than previously demonstrated, and there were more frequent abnormalities with fundus autofluorescence examination. Thus, rather than classifying exudative AMD into PCV and typical AMD, AMD classification by choroidal hyperpermeability may be useful in illustrating the difference of certain clinical characteristics. Second, we investigated the importance of vitreomacular adhesion in the treatment outcome of exudative AMD. The currently prevailing hypothesis is that premacular VEGF concentration is lower in eyes with posterior vitreous detachment (PVD) than in eyes without PVD, thus leading to good treatment outcomes; however, in the current study, we showed that not only VEGF but also anti-angiogenic factor, interferon-inducible protein 10 (IP-10), is affected according to PVD. These results suggest that the effect of PVD on the intraocular environment is more complicated than previously thought, and may have diverse functions. Last, we explained the mechanism of AMD progression based mainly on our basic research. Our research showed that age-related decline of autophagic activity may, at least partly, contribute to the precursor lesion of AMD.

PMID: 25854110 [PubMed - in process]

Pathogenesis

Mol Med Rep. 2015 Mar 31. [Epub ahead of print]

SirT1 and STAT3 protect retinal pigmented epithelium cells against oxidative stress.

Li L, Wei W, Zhang Y, Tu G, Zhang Y, Yang J, Xing Y.

Abstract: It has been previously demonstrated that there are interactions between sirtuin 1 (SirT1) and signal transducer and activator of transcription 3 (STAT3), which have versatile roles in various microenvironments. However, whether or not there is crosstalk between these two molecules during oxidative stress, and what mechanism of crosstalk occurs in retinal pigmented epithelium cells (RPEs), the protection of which may delay the process of age‑related macular degeneration (AMD), has required further elucidation. The present study aimed to investigate the interactions between SirT1 and STAT3 in RPEs, following exposure to oxidative stress. The rates of proliferation and apoptosis, levels of intracellular reactive oxygen species and cell senescence of RPEs, induced by oxidants [H2O2 and oxidized low density lipoprotein (oxLDL)], were evaluated. The results revealed a downregulation of SirT1 expression, and an upregulation of STAT3 expression during oxidative stress. Further investigation indicated that SirT1 protected RPEs from oxidative stress‑induced damage. Furthermore, gain‑ and loss‑of‑function experiments indicated that SirT1 had negative effects on the regulation of STAT3 expression in RPEs during oxidative stress. Notably, STAT3 directly protected the cells from oxidative stress, rather than depending on SirT1. Additionally, the protective effects of STAT3 had no association with the modulation of cell senescence during oxidative stress. In conclusion, SirT1 had negative effects on the regulation of STAT3 expression during oxidative stress. However, SirT1 and STAT3 demonstrated protective roles against oxidative stress in RPEs. These results therefore suggested that there was an equilibrium mechanism between SirT1 and STAT3 against oxidative stress, meaning that an equilibrium mechanism is required to be considered when combined application of STAT3 and SirT1 were performed to treat AMD.

PMID: 25847123 [PubMed - as supplied by publisher]

Am J Pathol. 2015 Apr 6. [Epub ahead of print]

Pathophysiological Function of Endogenous Calcitonin Gene-Related Peptide in Ocular Vascular Diseases.

Toriyama Y, Iesato Y, Imai A, Sakurai T, Kamiyoshi A, Ichikawa-Shindo Y, Kawate H, Yamauchi A, Igarashi K, Tanaka M, Liu T, Xian X, Zhai L, Owa S, Murata T, Shindo T.

Abstract: Calcitonin gene-related peptide (CGRP; official name CALCA) has a variety of functions and exhibits both angiogenic and anti-inflammatory properties. We previously reported the angiogenic effects of the CGRP family peptide adrenomedullin in oxygen-induced retinopathy; however, the effects of CGRP on ocular angiogenesis remain unknown. Herein, we used CGRP knockout (CGRP-/-) mice to investigate the roles of CGRP in ocular vascular disease. Observation of pathological retinal angiogenesis in the oxygen-induced retinopathy model revealed no difference between CGRP-/- and wild-type mice. However, much higher levels of the CGRP receptor were present in the choroid than the retina. Laser-induced choroidal neovascularization (CNV), a model of exudative age-related macular degeneration, revealed more severe CNV lesions in CGRP-/- than wild-type mice, and fluorescein angiography showed greater leakage from CNV in CGRP-/-. In addition, macrophage infiltration and tumor necrosis factor (TNF)-α production were enhanced within the CNV lesions in CGRP-/- mice, and the TNF-α, in turn, suppressed the barrier formation of retinal pigment epithelial cells. In vivo, CGRP administration suppressed CNV formation, and CGRP also dose dependently suppressed TNF-α production by isolated macrophages. From these data, we conclude that CGRP suppresses the development of leaky CNV through negative regulation of inflammation. CGRP may thus be a promising therapeutic agent for the treatment of ocular vascular diseases associated with inflammation.

PMID: 25857228 [PubMed - as supplied by publisher]

Ophthalmic Surg Lasers Imaging Retina. 2015 Mar 1;46(3):362-8.

Serum inflammatory markers after rupture retinal laser injury in mice.

Paulus YM, Kuo CH, Morohoshi K, Nugent A, Zheng LL, Nomoto H, Blumenkranz MS, Palanker D, Ono SJ.

BACKGROUND AND OBJECTIVE: To characterize the cellular, immunological, and inflammatory response to retinal photocoagulation of intense rupture laser lesions as a model of retinal degenerative diseases.

MATERIALS AND METHODS: Seven C57BL/6 mice were irradiated using a 532-nm laser to induce 10 retinal burns per eye that ruptured Bruch's membrane. Blood was drawn from the saphenous vein before and 2 months after laser treatment. The serum was run on antigen microarrays with 85 molecular markers associated with retinal degenerative diseases.

RESULTS: Rupture laser resulted in dramatic changes in the immunoglobulin reactivity of most inflammatory markers 2 months after laser injury. Approximately two-thirds increased expression and one-third decreased expression. Notable markers that were increased included complement C3, CRP, PKM2, and aldolase.

CONCLUSION: Rupture laser injury causes a change in the serum inflammatory markers after 2 months similar to macular degeneration, diabetic retinopathy, and cancer-associated retinopathy. This animal model could be used as a biomarker for disease stage and activity in retinal degenerations.

PMID: 25856824 [PubMed - in process]

Clin Ophthalmol. 2015 Mar 20;9:549-52. eCollection 2015.

Vitreous estrogen levels in patients with an idiopathic macular hole.

Inokuchi N, Ikeda T, Nakamura K, Morishita S, Fukumoto M, Kida T, Oku H.

PURPOSE: Estrogen, a female hormone, activates collagenase and might be associated with the pathogenesis of vitreoretinal collagen fiber disease. The purpose of the present study was to investigate the vitreous levels of estrone (E1) and estradiol (E2) in subjects with an idiopathic macular hole (IMH).

METHODS: Vitreous samples were obtained from ten female patients with an IMH and from nine female patients with other retinal diseases (six with rhegmatogenous retinal detachment and three with age-related

macular degeneration) as a control at the time of vitreous surgery. E1 and E2 levels in the vitreous samples were then determined using the Coat-A-Count(®) Estradiol Radioimmunoassay (RIA) Kit and the DSL-70 Estrone RIA Kit, respectively.

RESULTS: The mean vitreous levels of E1 and E2 in the subjects with IMH were 1.83±2.00 pg/mL and 7.03±2.97 pg/mL, respectively, whereas in the control subjects they were 2.42±1.25 pg/mL and 4.90±2.90 pg/mL, respectively. Thus, the vitreous E2 levels in the subjects with IMH were significantly higher than in the controls (P<0.05).

CONCLUSION: The findings of this study suggest that E2 might be associated with the pathogenesis of IMH, but further investigation is needed to elucidate that association.

PMID: 25848205 [PubMed] PMCID: PMC4376308

Epidemiology

Am J Ophthalmol. 2015 Apr 6. [Epub ahead of print]

Incidence of late stage age related macular degeneration in American whites: systematic review and meta-analysis.

Rudnicka AR, Kapetanakis VV, Jarrar Z, Wathern AK, Wormald R, Fletcher AE, Cook DG, Owen CG.

PURPOSE: To estimate incidence of age related macular degeneration (AMD) by subtype in United States (US) whites aged ≥50 years.

DESIGN: Systematic review and meta-analysis METHODS: SETTING: Prospective cohort studies of AMD incidence in populations of white European ancestry published in MEDLINE, EMBASE and Web of Science.

STUDY POPULATION: - Fourteen publications in 10 populations that examined AMD incident cases were identified.

OBSERVATION PROCEDURE: - Data on age-sex-specific incidence of late AMD, geographic atrophy (GA) and neovascular AMD (NVAMD), year of recruitment, AMD grading method and continent were extracted.

MAIN OUTCOME MEASURE(S): - Annual incidence of late AMD, GA and NVAMD by age-sex in US whites aged ≥50years from a Bayesian meta-analysis of incidence studies was compared with incidence extrapolated from published prevalence estimates.

RESULTS: Incidence rates from the review agreed with those derived from prevalence, but the latter were based on more data, especially at older ages and by AMD subtypes. Annual incidence (estimated from prevalence) of late AMD in US whites was 3.5 per 1000 aged ≥50 years (95% credible interval 2.5,4.7 per 1000) equivalent to 293,000 new cases in US whites per year (95% credible interval 207,000,400,000). Incidence rates approximately quadrupled per decade in age. Annual incidence GA rates were 1.9 per 1000 aged ≥50 years, NVAMD rates were 1.8 per 1000. Late AMD incidence was 38% higher in women versus men (95% credible interval 6%,82%).

CONCLUSIONS: Estimating AMD incidence from prevalence allows better characterisation at older ages and by AMD subtype where longitudinal data from incidence studies are limited.

PMID: 25857680 [PubMed - as supplied by publisher]

Coll Antropol. 2014 Dec;38(4):1095-7.

Epidemiological study of visual functions--refractive errors, macular degeneration and glaucoma in children in the Karst area of Opatija.

Nadarević VS, Vojniković B, Mićović V, Linsak Z, Lakoseljac D, Malatestinić D, Nadarević T, Sesar Z.

Abstract: Authors of earlier studies examined the epidemiological characteristics of certain eye diseases: age-related macular degeneration (AMD), refractive errors and glaucoma in the area of Primorsho-goranska County (the island of Rab, Novi Vinodolshi and Delnice). It was found that the occurrence of AMD is most common on the island of Rab, followed by Novi Vinodolski and it is least common in Gorshi Kotar. This fact is associated with the intensity of solar radiation in the UV-A and UV-B fields. The highest percentage of the occurrence of glaucoma was also identified on the island of Rab. In comparison to this study, it was found that in the karst area of Opatija (Mune, Brgud, Zejane, Bresca, Zvonece, Pasjak, Sapjane and Zaluki) there is a very high incidence of glaucoma (27% suspected and 7% diagnosed glaucoma) within the indigenous population. Glaucoma does not appear among children whose parents migrated to the karst area of Opatija. Refractive errors are far less common among children of indigenous population than among the children whose parents migrated to this area. The occurrence ofAMD was not found in any child that was born and lives in this area, regardless of whether their parents are indigenous or not. This statement is very important because it confirms author's earlier statement which claims that at low exposure to solar UV-A and UV-B there is no occurrence of AMD.

PMID: 25842739 [PubMed - in process]

Diet, lifestyle and low vision

Cochrane Database Syst Rev. 2015 Apr 9;4:CD010015. [Epub ahead of print]

Omega 3 fatty acids for preventing or slowing the progression of age-related macular degeneration.

Lawrenson JG, Evans JR.

BACKGROUND: Evidence from animal models and observational studies in humans has suggested that there is an inverse relationship between dietary intake of omega 3 long-chain polyunsaturated fatty acids (LCPUFA) and risk of developing age-related macular degeneration (AMD) or progression to advanced AMD.

OBJECTIVES: To review the evidence that increasing the levels of omega 3 LCPUFA in the diet (either by eating more foods rich in omega 3 or by taking nutritional supplements) prevents AMD or slows the progression of AMD.

SEARCH METHODS: We searched CENTRAL (which contains the Cochrane Eyes and Vision Group Trials Register) (2015, Issue 1), Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid MEDLINE Daily, Ovid OLDMEDLINE (January 1946 to February 2015), EMBASE (January 1980 to February 2015), Latin American and Caribbean Health Sciences Literature Database (LILACS) (January 1982 to February 2015), the ISRCTN registry (www.isrctn.com/editAdvancedSearch), ClinicalTrials.gov (www.clinicaltrials.gov) and the World Health Organization (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 2 February 2015.

SELECTION CRITERIA: We included randomised controlled trials (RCTs) where increased dietary intake of omega 3 LCPUFA was compared to placebo or no intervention with the aim of preventing the development of AMD, or slowing its progression.

DATA COLLECTION AND ANALYSIS: Both authors independently selected studies, assessed them for risk of bias and extracted data. One author entered data into RevMan 5 and the other author checked the data entry. We conducted a meta-analysis for one primary outcome, progression of AMD, using a fixed-effect inverse variance model.

MAIN RESULTS: We included two RCTs in this review, in which 2343 participants with AMD were randomised to receive either omega 3 fatty acid supplements or a placebo. The trials, which had a low risk

of bias, were conducted in the USA and France. Overall, there was no evidence that people who took omega 3 fatty acid supplements were at decreased (or increased risk) of progression to advanced AMD (pooled hazard ratio (HR) 0.96, 95% confidence interval (CI) 0.84 to 1.10, high quality evidence). Similarly, people taking these supplements were no more (or less) likely to lose 15 or more letters of visual acuity (USA study HR 0.96, 95% CI 0.84 to 1.09; French study at 36 months risk ratio (RR) 1.25, 95% CI 0.69 to 2.26, participants = 230). The number of adverse events was similar in the intervention and placebo groups (USA study participants with one or more serious adverse event RR 1.00, 95% CI 0.91 to 1.09, participants = 2080; French study total adverse events RR 1.05, 95% CI 0.97 to 1.13, participants = 263).

AUTHORS' CONCLUSIONS: This review found that omega 3 LCPUFA supplementation in people with AMD for periods up to five years does not reduce the risk of progression to advanced AMD or the development of moderate to severe visual loss. No published randomised trials were identified on dietary omega 3 fatty acids for primary prevention of AMD. Currently available evidence does not support increasing dietary intake of omega 3 LCPUFA for the explicit purpose of preventing or slowing the progression of AMD.

PMID: 25856365 [PubMed - as supplied by publisher]

JAMA Ophthalmol. 2015 Apr 9. [Epub ahead of print]

Self-reported Calcium Supplementation and Age-Related Macular Degeneration.

Kakigi CL, Singh K, Wang SY, Enanoria WT, Lin SC.

Importance: Despite widespread use of calcium supplementation among elderly people, little is known about the association between such consumption and the prevalence of age-related macular degeneration (AMD) in the United States.

Objective: To investigate the association between self-reported supplementary calcium consumption and the prevalence of AMD in a representative US sample.

Design, Setting, and Participants: This cross-sectional study included 3191 participants 40 years and older in the 2007-2008 National Health and Nutrition Examination Survey (NHANES) who were evaluated for the presence or absence of AMD by fundus photography. Participants were interviewed regarding use of dietary supplements and antacids during the 30-day period preceding enrollment. Self-reported supplementary intake of calcium was aggregated and divided into quintiles. Fundus photographs were graded for the presence or absence of AMD. Information regarding demographics, comorbidities, and health-related behaviors was obtained via interview. Multivariable logistic regression models were created to determine the odds of an AMD diagnosis among participants in each quintile of self-reported calcium vs participants not self-reporting supplementary calcium consumption after adjusting for confounders.

Interventions: Self-reported use of calcium supplements.

Main Outcomes and Measures: Presence or absence of AMD by fundus photography.

Results: A total of 248 participants (7.8%) were diagnosed with AMD. Mean ages were 67.2 years for those with AMD and 55.8 for those without AMD. After adjustment for potential confounding variables, study participants who self-reported consumption of more than 800 mg/d of supplementary calcium were found to have higher odds of an AMD diagnosis based on fundus photography evaluation compared with those not self-reporting supplementary calcium consumption (odds ratio, 1.85; 95% CI, 1.25-2.75). The association between self-reported supplementary calcium intake and AMD was stronger in older than younger individuals (odds ratio, 2.63; 95% CI, 1.52-4.54). A clear dose-response association between the quintiles of self-reported supplementary calcium intake and AMD was not established.

Conclusions and Relevance: Self-reported supplementary calcium consumption is associated with increased prevalence of AMD, with the findings suggesting a threshold rather than a dose-response relationship. The stronger association in older individuals may be due to relatively longer duration of

calcium supplementation in older individuals.

PMID: 25856252 [PubMed - as supplied by publisher]

Ophthalmic Physiol Opt. 2015 Apr 6. [Epub ahead of print]

Misidentifying a tennis racket as keys: object identification in people with age-related macular degeneration.

Thibaut M, Tran TH, Delerue C, Boucart M.

PURPOSE: Previous studies showed that people with age-related macular degeneration (AMD) can categorise a pre-defined target object or scene with high accuracy (above 80%). In these studies participants were asked to detect the target (e.g. an animal) in serial visual presentation. People with AMD must rely on peripheral vision which is more adapted to the low resolution required for detection than for the higher resolution required to identify a specific exemplar. We investigated the ability of people with central vision loss to identify photographs of objects and scenes.

METHODS: Photographs of isolated objects, natural scenes and objects in scenes were centrally displayed for 2 s each. Participants were asked to name the stimuli. We measured accuracy and naming times in 20 patients with AMD, 15 age-matched and 12 young controls.

RESULTS: Accuracy was lower (by about 30%) and naming times were longer (by about 300 ms) in people with AMD than in age-matched controls in the three categories of images. Correct identification occurred in 62-66% of the stimuli for patients. More than 20% of the misidentifications resulted from a structural and/or semantic similarity between the object and the name (e.g. spectacles for dog plates or dolphin for shark). Accuracy and naming times did not differ significantly between young and older normally sighted participants indicating that the deficits resulted from pathology rather than to normal ageing.

CONCLUSIONS: These results show that, in contrast to performance for categorisation of a single pre-defined target, people with central vision loss are impaired at identifying various objects and scenes. The decrease in accuracy and the increase in response times in patients with AMD indicate that peripheral vision might be sufficient for object and scene categorisation but not for precise scene or object identification.

PMID: 25847590 [PubMed - as supplied by publisher]

Rev Neurol. 2015 Apr 16;60(8):337-40.

[Charles Bonnet syndrome. A 45-case series]. [Article in Spanish]

Santos-Bueso E, Serrador-Garcia M, Porta-Etessam J, Rodriguez-Gomez O, Martinez-de-la-Casa JM, Garcia-Feijoo J, Garcia-Sanchez J.

INTRODUCTION: Charles Bonnet Syndrome (CBS) is a condition characterised by the presence of visual hallucinations, mainly complex, in patients with significant vision loss and without cognitive impairment. The rise in CBS cases is due to an increased life expectancy and to the development of age-related pathologies such as age-related macular degeneration (AMD).

PATIENTS AND METHODS: We herein analyse the main characteristics present in 45 patients diagnosed with CBS at the Neuro-ophthalmology Unit in Hospital Clinico San Carlos. The patients were referred from the macular pathology, glaucoma and ocular surface units, as well as from AE, where they were diagnosed with CBS and later confirmed at the Multidisciplinary Unit formed by the ophthalmology, neurology and psychiatry services of the hospital.

RESULTS: Women (66.66%) over 80 constituted 68.88% of the patients and mainly had AMD (37.77%).

The most prevalent hallucinations described by the patients were of people and faces (35.55%), in colour (66.66%), in movement (80%), had developed over a period of 6 to 12 months (26.66%), had a frequency of 3 episodes per day (35.55%) and lasted between 3 to 5 minutes (35.55%).

CONCLUSIONS: CBS is a complex disorder that requires a multidisciplinary approach from neurologists, psychiatrists, general practitioners and ophthalmologists. New studies are needed in order to understand its clinical presentation and behaviour, and thus improve its management.

PMID: 25857856 [PubMed - in process]