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Drug treatment

Ophthalmology. 2016 Jan 21. [Epub ahead of print]

Interventions for Age-Related Macular Degeneration: Are Practice Guidelines Based on Systematic Reviews?

Lindsley K, Li T, Ssemanda E, Virgili G, Dickersin K.

PURPOSE: Are existing systematic reviews of interventions for age-related macular degeneration incorporated into clinical practice guidelines?

DESIGN: High-quality systematic reviews should be used to underpin evidence-based clinical practice guidelines and clinical care. We examined the reliability of systematic reviews of interventions for age-related macular degeneration (AMD) and described the main findings of reliable reviews in relation to clinical practice guidelines.

METHODS: Eligible publications were systematic reviews of the effectiveness of treatment interventions for AMD. We searched a database of systematic reviews in eyes and vision without language or date restrictions; the database was up to date as of May 6, 2014. Two authors independently screened records for eligibility and abstracted and assessed the characteristics and methods of each review. We classified reviews as reliable when they reported eligibility criteria, comprehensive searches, methodologic quality of included studies, appropriate statistical methods for meta-analysis, and conclusions based on results. We mapped treatment recommendations from the American Academy of Ophthalmology (AAO) Preferred Practice Patterns (PPPs) for AMD to systematic reviews and citations of reliable systematic reviews to support each treatment recommendation.

RESULTS: Of 1570 systematic reviews in our database, 47 met inclusion criteria; most targeted neovascular AMD and investigated anti-vascular endothelial growth factor (VEGF) interventions, dietary supplements, or photodynamic therapy. We classified 33 (70%) reviews as reliable. The quality of reporting varied, with criteria for reliable reporting met more often by Cochrane reviews and reviews whose authors disclosed conflicts of interest. Anti-VEGF agents and photodynamic therapy were the only interventions identified as effective by reliable reviews. Of 35 treatment recommendations extracted from the PPPs, 15 could have been supported with reliable systematic reviews; however, only 1 recommendation cited a reliable intervention systematic review. No reliable systematic review was identified for 20 treatment recommendations, highlighting areas of evidence gaps.

CONCLUSIONS: For AMD, reliable systematic reviews exist for many treatment recommendations in the AAO PPPs and should be cited to support these recommendations. We also identified areas where no high-level evidence exists. Mapping clinical practice guidelines to existing systematic reviews is one way to highlight areas where evidence generation or evidence synthesis is either available or needed.

PMID: 26804762 [PubMed - as supplied by publisher]

Cutan Ocul Toxicol. 2016 Jan 28;1-5. [Epub ahead of print]

Long-term intraocular pressure changes after intravitreal injection of bevacizumab.

Baek SU, Park IW, Suh W.

PURPOSE: To assess the long-term intraocular pressure (IOP) changes after the intravitreal injection of bevacizumab (Avastin; Genentech, Inc., South San Francisco, CA) for treatment of age-related macular degeneration (AMD) and diabetic macular edema (DME) patients and evaluate the correlation factors.

MATERIAL AND METHODS: Patients with neovascular AMD or DME underwent treat-and-extended anti-VEGF regimen in one eye and followed more than 12 months were enrolled in this study. We set three criteria of IOP elevation: (1) the IOP of the treated eye increased above the contralateral eye for at least two consecutive visits; (2) the IOP of the treated eye increased above the pre-injection IOP for at least two consecutive visits; (3) and the IOP of the treated eye increased more than 5 mmHg above the baseline IOP for at least two consecutive visits. We used mixed model univariate and multivariate analysis to assess the association between IOP elevation and independent parameters including age, sex, lens status, the number of injections, and underlying disease.

RESULTS: In total 152 patients, 83 patients with AMD and 69 patients with DME, were included in this study. Mean follow-up time was 18.7 months, with a maximum of 50 months. In IOP elevation, 54 eyes (35.6%) showed an IOP increase above that of the contralateral eye (criteria 1), 50 eyes (33.4%) showed an IOP increase above the baseline IOP (criteria 2), and an IOP increase greater than 5 mmHg above the baseline IOP observed in nine eyes (5.9%) (criteria 3). In the univariate analysis, lens status and total number of injections were statistically significant for criteria 2 and 3 (all $p < 0.05$). However, in the multivariable analysis, only the number of intravitreal injections was statistically correlated with sustained IOP elevation for criteria 2 and 3 ($p < 0.001$ and $p = 0.039$, respectively).

CONCLUSIONS: Our results suggest that under long-term monitoring, with a treat-and-extended regimen, intravitreal bevacizumab injections were associated with sustained IOP elevation. In particular, multiple intravitreal injections could be associated with sustained IOP elevation.

PMID: 26820610 [PubMed - as supplied by publisher]

Nippon Ganka Gakkai Zasshi. 2015 Dec;119(12):839-45.

[Comparison of 12 Months Outcome of As-needed Intravitreal Aflibercept or Ranibizumab for the Treatment of Naïve Patients with Age-related Macular Degeneration]. [Article in Japanese]

Umeda N, Hokao K, Tsukahara T, Okamura K, Uchio E.

PURPOSE: To compare pro re nata (PRN) intravitreal injections of aflibercept (IVA) and ranibizumab (IVR) in patients with treatment naïve age-related macular degeneration (AMD).

MATERIAL AND METHODS: We analyzed 42 eyes that receive 3 times monthly IVA as introduction phase and subsequently received PRN retreatment at the recurrence. As the control, 56 eyes received the same IVR treatments as the IVA criteria. We statistically analyzed chronological changes of VA and the first recurrence following introduction phase by comparing the findings of the 2 groups.

RESULTS: There was no difference in the IVA and the IVR in baseline visual acuity (VA) and the mean number of injections during 12 months. Compared to the IVR, the IVA showed better improved VA from baseline at each time point, especially, there was a statistically significant difference in 6 months after introduction ($p = 0.041$). The IVA proved to have a shorter period until the first recurrence and a lower remission maintenance rate following introduction phase than the IVR. The improvement of VA above 0.2 logMAR was significantly related to cases involving polypoidal choroidal vasculopathy, greatest linear dimension and baseline VA.

CONCLUSIONS: The improvement of VA in anti-VEGF therapy for AMD was influenced by the disease

type or pathology rather than the choice of therapeutic agents.

PMID: 26817131 [PubMed - in process]

Acta Ophthalmol. 2016 Jan 29. [Epub ahead of print]

Impact of serous retinal detachment on the efficacy of ranibizumab in diabetic macular oedema.

Qu-Knafo LM, Fajnkuchen F, Sarda V, Boubaya M, Levy V, Chaine G, Giocanti-Auregan A.

PMID: 26823130 [PubMed - as supplied by publisher]

Other treatment & diagnosis

Invest Ophthalmol Vis Sci. 2016 Jan 1;57(1):265-75.

Functionally Guided Retinal Protective Therapy for Dry Age-Related Macular and Inherited Retinal Degenerations: A Pilot Study.

Luttrull JK, Margolis BW.

PURPOSE: To review the results of retinal function testing in eyes undergoing panmacular subthreshold diode micropulse laser (SDM) prophylaxis for chronic progressive retinal disease.

METHODS: The records of all patients undergoing prophylactic panmacular SDM for high-risk age-related macular degeneration (AMD) and inherited photoreceptor degenerations (IRDs) examined by pattern electroretinography (PERG), automated microperimetry (AMP), and Central Vision Analyzer (CVA) testing before and after treatment were reviewed.

RESULTS: A total of 158 consecutive eyes of 108 patients with AMD and 10 consecutive eyes of 8 patients with IRDs, evaluated both before and after SDM by PERG, were eligible for study. The IRD diagnoses included rod-cone degeneration (four eyes), cone-rod degeneration (three eyes), and Stargardt's disease (three eyes). In AMD, AMP was performed in 40 consecutive eyes, and CVA in the subsequent 73 consecutive eyes concurrent with PERG. The SDM treatment consisted of 1800 to 3000 confluent spots throughout the retina circumscribed by the major vascular arcades, including the fovea ("panmacular"). Testing was performed 1 week before and by 1 month after treatment. Results indicated that 149/168 eyes were improved by primary PERG measures: 139/158 eyes with AMD by PERG low-contrast scan Magnitude D (MagD)(μ V)/Magnitude (Mag)(μ V) ratios ($P = 0.0001$) and 10/10 eyes with IRDs by 240 concentric ring scan MagD(μ V)/Mag(μ V) ratios ($P = 0.002$). Snellen visual acuity (VA) was unchanged, but macular sensitivity by AMP ($P = 0.0439$) and mesopic contrast VA by CVA ($P = 0.006$) were improved. There were no adverse treatment effects.

CONCLUSIONS: Our findings suggest a role for SDM as retinal protective therapy in chronic progressive retinal diseases. Pattern electroretinography enables (early, preventive) functionally guided, rather than (late, therapeutic) image-guided, disease management.

PMID: 26818793 [PubMed - in process]

Retina. 2016 Jan 20. [Epub ahead of print]

INTRAVITREAL VERSUS SUBRETINAL ADMINISTRATION OF RECOMBINANT TISSUE PLASMINOGEN ACTIVATOR COMBINED WITH GAS FOR ACUTE SUBMACULAR HEMORRHAGES DUE TO AGE-RELATED MACULAR DEGENERATION: An Exploratory Prospective Study.

de Jong JH, van Zeeburg EJ, Cereda MG, van Velthoven ME, Faridpooya K, Vermeer KA, van Meurs JC.

PURPOSE: Current management of submacular hemorrhage (SMH) favors vitrectomy and gas with subretinal administration of recombinant tissue plasminogen activator (rtPA) over mere intravitreal rtPA injections and gas. In this study, we aimed to compare the effectiveness of both treatment modalities to displace submacular blood.

METHODS: Twenty-four patients with SMH secondary to age-related macular degeneration were included. The SMH had to exist ≤ 14 days at time of surgery and SMH thickness had to be between 250 μm and 1,250 μm . Patients were randomized to either intravitreal injections of rtPA, perfluoropropane (C3F8) gas, and bevacizumab ($n = 12$) or vitrectomy with subretinal rtPA administration, intravitreal C3F8 gas, and bevacizumab ($n = 12$). The SMH volume change was measured on spectral domain optical coherence tomography postoperatively within a 2.5-mm cylinder centered at the fovea.

RESULTS: Median relative volume reduction of subretinal blood at 6 weeks postoperatively was 97% (95% confidence interval: 91-99%) in the intravitreal rtPA group and 100% (95-100%) in the subretinal rtPA group and did not differ significantly between groups ($P = 0.56$).

CONCLUSION: Both treatment modalities effectively displaced SMH in this exploratory clinical trial. To more definitely study the noninferiority of intravitreal rtPA with gas to subretinal rtPA, vitrectomy with gas, a larger clinical trial would be necessary.

PMID: 26807631 [PubMed - as supplied by publisher]

Retina. 2016 Jan 19. [Epub ahead of print]

RETINAL VASCULAR PLEXUSES' CHANGES IN DRY AGE-RELATED MACULAR DEGENERATION, EVALUATED BY MEANS OF OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY.

Toto L, Borrelli E, Di Antonio L, Carpineto P, Mastropasqua R.

PURPOSE: To investigate alteration in superficial and deep retinal vascular densities and choroidal thickness, in patients affected by early and intermediate age-related macular degeneration (AMD).

METHODS: All patients had undergone optical coherence tomography angiography (OCTA). All eyes were grouped into two stages: "early AMD" and "intermediate AMD." Outcome measures were superficial vessel density, deep vessel density, and choroidal thickness. A control group of healthy subjects was selected for the statistical comparisons.

RESULTS: A total of 37 eyes of 37 dry AMD patients were enrolled for the study. Fourteen of 37 eyes were classified as having early AMD, the remaining 23 of 37 eyes were classified as being affected by intermediate AMD. Superficial and deep vessel densities were $39.21\% \pm 10.67\%$ and $43.84\% \pm 11.57\%$, respectively, in the control group and $28.30\% \pm 10.73\%$ and $36.41\% \pm 12.30\%$, respectively, in AMD patients ($P = 0.001$ and $P = 0.017$, respectively). Choroidal thickness was significantly reduced in AMD patients.

CONCLUSION: In the last years, several studies have reported vascular factors playing an important role in AMD pathogenesis. We demonstrated that both superficial and deep retinal plexuses are altered among patients affected by AMD. Interestingly, this alteration starts immediately at the intermediate AMD stage and also the choroidal thickness reduction.

PMID: 26807629 [PubMed - as supplied by publisher]

Ophthalmology. 2016 Jan 26. [Epub ahead of print]

Ophthalmic Manifestations and Long-Term Visual Outcomes in Patients with Cobalamin C Deficiency.

Brooks BP, Thompson AH, Sloan JL, Manoli I, Carrillo-Carrasco N, Zein WM, Venditti CP.

PURPOSE: To explore the ocular manifestations of cobalamin C (cblC) deficiency, an inborn error of intracellular vitamin B12 metabolism.

DESIGN: Retrospective, observational case series.

PARTICIPANTS: Twenty-five cblC patients underwent clinical and ophthalmic examination at the National Institutes of Health between August 2004 and September 2012. Patient ages ranged from 2 to 27 years at last ophthalmic visit, and follow-up ranged from 0 to 83 months (median, 37 months; range, 13-83 months) over a total of 69 visits.

METHODS: Best-corrected visual acuity, slit-lamp biomicroscopy, dilated fundus examination, wide-field photography, fundus autofluorescence imaging, sedated electroretinography, optical coherence tomography, genetics and metabolite assessment.

MAIN OUTCOME MEASURES: Visual acuity and presence and degree of retinal degeneration and optic nerve pallor.

RESULTS: Nystagmus (64%), strabismus (52%), macular degeneration (72%), optic nerve pallor (68%), and vascular changes (64%) were present. c.271dupA (p.R91KfsX14) homozygous patients (n = 14) showed early and extensive macular degeneration. Electroretinography showed that scotopic and photopic responses were reduced and delayed, but were preserved remarkably in some patients despite severe degeneration. Optical coherence tomography images through the central macular lesion of a patient with severe retinal degeneration showed extreme thinning, some preservation of retinal lamination, and nearly complete loss of the outer nuclear layer. Despite hyperhomocysteinemia, no patients exhibited lens dislocation.

CONCLUSIONS: This longitudinal study reports ocular outcomes in the largest group of patients with cblC deficiency systematically examined at a single center over an extended period. Differences in progression and severity of macular degeneration, optic nerve pallor, and vascular attenuation between homozygous c.271dupA (p.R91KfsX14) patients and compound heterozygotes were noted. The pace and chronicity of ophthalmic manifestations lacked strict correlation to metabolic status as measured during visits. Prenatal or early treatment, or both, may have mitigated ocular disease, leading to better functional acuity, but patients still progressed to severe macular degeneration. The effects of prenatal or early treatment, or both, in siblings; the manifestation of severe disease in infancy; the presence of comorbid developmental abnormalities; and the possible laminar structural defect noted in many patients are findings showing that cblC deficiency displays a developmental as well as a degenerative ocular phenotype.

PMID: 26825575 [PubMed - as supplied by publisher]

Epidemiology

Eye (Lond). 2016 Jan 29. [Epub ahead of print]

Leading causes of certifiable visual loss in England and Wales during the year ending 31 March 2013.

Quartilho A, Simkiss P, Zekite A, Xing W, Wormald R, Bunce C.

Purpose: The last article on causes of sight impairment (SI) in England and Wales was for April 2007-March 2008. This report updates these figures for April 2012-March 2013.

Methods: In England and Wales, registration for SI is initiated by completion of a certificate of vision impairment (CVI). The main cause of visual impairment was ascertained for certificates completed April 2012-March 2013. A proportional comparison against April 2007-March 2008 was made.

Results: We received 24 009 CVIs of which 10 410 were for severe sight impairment (SSI) and 13 129 were

for SI. These numbers were slightly higher than those observed in April 2007-March 2008 (9823 SSI; 12 607 SI). The ratio SI:SSI has remained static with 55% of all certifications being SI. The proportion of certificates without a single main cause has fallen slightly (16.6 to 14%). The proportion of certificates with a main cause of degeneration of the macula and posterior pole (mostly age-related macular degeneration (AMD)) decreased from 58.6 to 50% SSI and from 57.2 to 52.5% SI. Glaucoma remains the second most common cause (11% SSI; 7.6% SI) but hereditary retinal disorders overtook diabetes as third leading cause of SSI.

Conclusion: AMD is still by far the leading cause of certifications for sight impairment in England and Wales (both SI and SSI). Proportionate changes have been observed since 2008, but it is important to note that a proportionate increase in one condition will impact on others.

PMID: 26821759 [PubMed - as supplied by publisher]

Ophthalmic Epidemiol. 2016 Jan 29:1-10. [Epub ahead of print]

Danish Rural Eye Study: Epidemiology of Adult Visual Impairment.

Høeg TB, Ellervik C, Buch H, La Cour M, Klemp K, Kvetny J, Erngaard D, Moldow B.

PURPOSE: To examine the frequency and causes of visual impairment (VI) in a select population of Danish adults.

METHODS: A total of 3843 adults aged 20-94 years from the Danish General Suburban Population Study (GESUS) were included in the population-based, cross-sectional ophthalmological study, Danish Rural Eye Study (DRES). All DRES participants received a comprehensive general health examination preceding their eye examination, including measurement of best-corrected visual acuity (BCVA) for each eye, bilateral 45° retinal fundus photographs and further ophthalmological examination where indicated.

RESULTS: Overall, 3826 of 3843 participants (99.6%) had bilateral visual acuity measurements. The overall frequency of VI (BCVA <20/40 in the better-seeing eye) was 0.4% (95% confidence interval, CI, 0.2-0.7%; n = 15) among all DRES participants, 0.6% (95% CI 0.3-1.0%; n = 15) among participants >50 years and 3.7% (95% CI 2.1-6.5%; n = 11) in participants >80 years. The primary causes of VI in the better-seeing eye were age-related macular degeneration (AMD) in 46.7% (7/15) and cataract in 26.7% (4/15). A total of 43.3% (n = 115) of participants >80 years were pseudophakic in one or both eyes. The frequency of diabetes (HbA1c ≥48 mmol/mol or self-reported diagnosis) was 5.9% (n = 227), including 1.3% (n = 51) newly diagnosed in the GESUS. Of participants determined to have VI due to exudative AMD, 50% had received anti-vascular endothelial growth factor (VEGF) treatment.

CONCLUSION: We report a relatively low frequency of VI among Danish adults over 59 years of age compared with that observed 10-15 years ago, which is both consistent with other recent Scandinavian studies and reflective of our relatively healthy and mobile population sample.

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Acta Ophthalmol. 2016 Jan 25. [Epub ahead of print]

Age-related macular degeneration in Portugal: prevalence and risk factors in a coastal and an inland town. The Coimbra Eye Study - Report 2.

Cachulo MD, Laíns I, Lobo C, Figueira J, Ribeiro L, Marques JP, Costa J, Vieira A, Rodrigues J, Alves D, Nunes S, Costa M, Rodrigues V, Cunha-Vaz J, Delcourt C, Silva R.

PURPOSE: To determine the age- and sex-specific prevalence of early and late age-related macular degeneration (AMD) in two Portuguese population-based samples and to identify its risk factors.

POPULATION: A population of 6023 adults aged ≥ 55 years was recruited from two Portuguese primary healthcare units in the central region of Portugal - one from a coastal ($n = 3000$) and another from an inland town ($n = 3023$).

METHODS: Cross-sectional population-based study. Participants were enrolled in the two locations between August 2009 and October 2013. Responders underwent standardized interviews and ophthalmologic examination, including digital fundus imaging. All fundus photographs were graded according to an International Classification and Grading System. The main outcome measures consisted of age- and sex-adjusted prevalence of early and late AMD. Potential epidemiologic risk factors were also evaluated using logistic regression analysis.

RESULTS: Of the 6023 subjects enrolled, 5996 had gradable fundus images and were included in the analysis. The crude prevalence of early and late AMD was 6.99 and 0.67%, respectively, for the coastal town and 15.39 and 1.29% for the inland town. Age- and sex-adjusted prevalence of any AMD for the Portuguese population was 12.48% (95% CI: 11.61-13.33) with late AMD accounting for 1.16% (95% CI: 0.85-1.46). Neovascular AMD (NV-AMD) and geographic atrophy (GA) accounted for 0.55% (95% CI: 0.36-0.75) and 0.61% (95% CI: 0.37-0.84) of individuals, respectively. After adjusting for possible confounding factors, prevalence of early and late AMD increased with increasing age (OR = 1.35; 95% CI: 1.23-1.49 for early and OR = 3.01; 95% CI: 2.22-4.08 for late AMD, per each decade of age increase, $p < 0.001$). After adjustment for age, sex, family history, smoking history, hypertension, diabetes and BMI, subjects from the inland town presented a significantly higher OR of early and late AMD than subjects from the coastal town (OR = 2.57, 95% CI: 2.12-3.12, $p < 0.001$ for early and OR = 2.06, 95% CI: 1.07-3.95, $p = 0.029$ for late AMD).

CONCLUSIONS: The prevalence of early and late AMD in this Portuguese population was similar to other large-scale population-based cohorts. After controlling for confounders, age and study site of inclusion were significant independent predictors for both early and late forms of the disease. Further analysis will be needed to completely unravel the underlying reasons for this difference regarding geographic location.

PMID: 26806024 [PubMed - as supplied by publisher]

Genetics

Int J Clin Exp Pathol. 2015 Nov 1;8(11):13928-44. eCollection 2015.

Evidence of a novel gene HERPUD1 in polypoidal choroidal vasculopathy.

Jin E, Bai Y, Huang L, Zhao M, Zhang C, Zhao M, Li X.

Abstract: Polypoidal choroidal vasculopathy (PCV) is an exudative maculopathy, with clinical features distinct from neovascular age-related macular degeneration (nAMD) which is the leading cause of irreversible blindness in the elderly. Our studies focused on the genetic background and function of a novel gene HERPUD1 in PCV. HERPUD1 has been reported to increase the level of amyloid β ($A\beta$), which is a component of drusen deposits underlying the retinal pigment epithelium (RPE) layer. To verify the genetic functional associations of HERPUD1 with PCV, exome sequencing of HERPUD1 was performed in unrelated Chinese individuals, including nAMD patients, PCV patients and control subjects. Immunohistochemistry assays for HERPUD1 were performed in the subretinal membranes of PCV patients. The relationship between HERPUD1 and amyloid beta precursor was determined using real-time PCR in HERPUD1-overexpressing RPE cells. The gene expression patterns of angiogenesis cytokines and chemokines in both $A\beta$ -treated RPE cells and in Brown Norway rats that received $A\beta$ subretinal injections were determined. We showed that HERPUD1 rs2217332 is significant associated with Chinese PCV, and HERPUD1 was expressed in PCV subretinal membranes. Besides, Plasma $A\beta_{42}$ protein was significantly higher in PCV patients compared to nAMD and control subjects. $A\beta$ could upregulate angiogenic factors, chemokines and matrix metalloproteinases both in RPE cells and in a rat model of subretinal $A\beta$ injection. The imbalance of the cytokines may be one of the mechanisms for the formation and development of PCV. Our results strongly suggest that HERPUD1 is highly associated with PCV patients.

PMID: 26823705 [PubMed - in process]

Sci Rep. 2016 Jan 29;6:20118.

X-Linked Retinoschisis: Phenotypic Variability in a Chinese Family.

Xiao Y, Liu X, Tang L, Wang X, Coursy T, Guo X, Li Z.

Abstract: X-linked juvenile retinoschisis (XLRS), a leading cause of juvenile macular degeneration, is characterized by a spoke-wheel pattern in the macular region of the retina and splitting of the neurosensory retina. Our study is to describe the clinical characteristics of a four generations of this family (a total of 18 members) with X-linked retinoschisis (XLRS) and detected a novel mutations of c.3G > A (p.M1?) in the initiation codon of the RS1 gene. by direct sequencing. Identification of this mutation in this family provides evidence about potential genetic or environmental factors on its phenotypic variance, as patients presented with different phenotypes regardless of having the same mutation. Importantly, OCT has proven vital for XLRS diagnosis in children.

PMID: 26823236 [PubMed - in process]

Stem cells

Genes Dis. 2015 Dec;2(4):293-294. Epub 2015 Jul 30.

For your eyes only: Harnessing human embryonic stem cell-derived retinal pigment epithelial cells to improve impaired vision.

Hu J, He TC, Li F.

Abstract: Vision loss or impairment resulting from the degeneration of the retinal pigment epithelium and photoreceptor death affects millions worldwide. Recent exciting results from clinical studies of small numbers of patients treated with human embryonic stem cell-derived retinal pigment epithelial cells may provide hope for affected individuals.

PMID: 26819964 [PubMed]

Diet, lifestyle and low vision

J Ophthalmol. 2015;2015:865179. Epub 2015 Dec 24.

Lutein, Zeaxanthin, and meso-Zeaxanthin in the Clinical Management of Eye Disease.

Scripsema NK, Hu DN, Rosen RB.

Abstract: Lutein, zeaxanthin, and meso-zeaxanthin are xanthophyll carotenoids found within the retina and throughout the visual system. The retina is one of the most metabolically active tissues in the body. The highest concentration of xanthophylls is found within the retina, and this selective presence has generated many theories regarding their role in supporting retinal function. Subsequently, the effect of xanthophylls in the prevention and treatment of various eye diseases has been examined through epidemiological studies, animal studies, and clinical trials. This paper attempts to review the epidemiological studies and clinical trials investigating the effects of xanthophylls on the incidence and progression of various eye diseases. Observational studies have reported that increased dietary intake and higher serum levels of lutein and zeaxanthin are associated with lower risk of age-related macular degeneration (AMD), especially late AMD. Randomized, placebo-controlled clinical trials have demonstrated that xanthophyll supplementation increases macular pigment levels, improves visual function, and decreases the risk of progression to late AMD, especially neovascular AMD. Current publications on the preventive and therapeutic effects of lutein and zeaxanthin on cataracts, diabetic retinopathy, and retinopathy of prematurity have reported

encouraging results.

PMID: 26819755 [PubMed]

Clin Rehabil. 2016 Jan 27. [Epub ahead of print]

A population study of correlates of social participation in older adults with age-related vision loss.

Cimarolli VR, Boerner K, Reinhardt JP, Horowitz A, Wahl HW, Schilling O, Brennan-Ing M.

OBJECTIVE: To examine personal characteristics, disease-related impairment variables, activity limitations, and environmental factors as correlates of social participation in older adults with vision loss guided by the World Health Organization's International Classification of Functioning, Disability and Health Model.

DESIGN: Baseline data of a larger longitudinal study.

SETTING: Community-based vision rehabilitation agency.

SUBJECTS: A total of 364 older adults with significant vision impairment due to age-related macular degeneration.

MAIN MEASURES: In-person interviews assessing social participation (i.e. frequency of social support contacts, social/leisure challenges faced due to vision loss, and of social support provided to others) and hypothesized correlates (e.g. visual acuity test, Functional Vision Screening Questionnaire, ratings of attachment to house and neighborhood, environmental modifications in home).

RESULTS: Regression analyses showed that indicators of physical, social, and mental functioning (e.g. better visual function, fewer difficulties with instrumental activities of daily living, fewer depressive symptoms) were positively related to social participation indicators (greater social contacts, less challenges in social/leisure domains, and providing more support to others). Environmental factors also emerged as independent correlates of social participation indicators when functional variables were controlled. That is, participants reporting higher attachment to their neighborhood and better income adequacy reported having more social contacts; and those implementing more environmental strategies were more likely to report greater challenges in social and leisure domains. Better income adequacy and living with more people were related to providing more social support to others.

CONCLUSION:

Environmental variables may play a role in the social participation of older adults with age-related macular degeneration.

PMID: 26817810 [PubMed - as supplied by publisher]

Retina. 2016 Feb;36(2):255-8.

INCREASING SLEEP DURATION IS ASSOCIATED WITH GEOGRAPHIC ATROPHY AND AGE-RELATED MACULAR DEGENERATION.

Khurana RN, Porco TC, Claman DM, Boldrey EE, Palmer JD, Wieland MR.

PURPOSE: Sleeping too much or too little has been associated with adverse health outcomes including total mortality, cardiovascular disease, Type 2 diabetes, and hypertension. This study explored the relationship between sleep patterns and age-related macular degeneration (AMD).

METHODS: One thousand and three consecutive patients in a retina practice were prospectively surveyed regarding sleep histories. Each patient then had a masked ophthalmic examination and was graded on the

modified Wisconsin Age-Related Maculopathy System. The relationship between AMD grade and sleep hours was analyzed in a logistic regression model. Multivariable analysis was performed after adjustment for age, gender, and smoking history.

RESULTS: In multivariable analysis, controlling for age, gender, and smoking history, sleep hours are not associated with neovascular AMD ($P = 0.97$) but are associated with geographic atrophy ($P = 0.02$). Sleeping >8 hours is associated with geographic atrophy (age-adjusted odds ratio, 7.09; 95% confidence interval, 1.59-31.6) compared with patients without AMD.

CONCLUSION: Longer sleep duration is associated with geographic atrophy secondary to AMD. These altered sleep patterns may be another morbidity of AMD, but further study is necessary.

PMID: 26815930 [PubMed - in process]

J Am Geriatr Soc. 2016 Jan 30. [Epub ahead of print]

Care of Older Adults: Role of Primary Care Physicians in the Treatment of Cataracts and Macular Degeneration.

Marra KV, Wagley S, Kuperwaser MC, Campo R, Arroyo JG.

Abstract: This article aims to facilitate optimal management of cataracts and age-related macular degeneration (AMD) by providing information on indications, risk factors, referral guidelines, and treatments and to describe techniques to maximize quality of life (QOL) for people with irreversible vision loss. A review of PubMed and other online databases was performed for peer-reviewed English-language articles from 1980 through August 2012 on visual impairment in elderly adults. Search terms included vision loss, visual impairment, blind, low vision, QOL combined with age-related, elderly, and aging. Articles were selected that discussed vision loss in elderly adults, effects of vision impairment on QOL, and care strategies to manage vision loss in older adults. The ability of primary care physicians (PCPs) to identify early signs of cataracts and AMD in individuals at risk of vision loss is critical to early diagnosis and management of these common age-related eye diseases. PCPs can help preserve vision by issuing aptly timed referrals and encouraging behavioral modifications that reduce risk factors. With knowledge of referral guidelines for soliciting low-vision rehabilitation services, visual aids, and community support resources, PCPs can considerably increase the QOL of individuals with uncorrectable vision loss. By offering appropriately timed referrals, promoting behavioral modifications, and allocating low-vision care resources, PCPs may play a critical role in preserving visual health and enhancing the QOL for the elderly population.

PMID: 26825587 [PubMed - as supplied by publisher]

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