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## Contents

### Diabetes
1. Contact lens wear and the diabetic corneal epithelium: A happy or disastrous marriage?

2. Novel epigenetic-sensitive clinical challenges both in type 1 and type 2 diabetes

3. Early predictors of diabetic retinopathy in type 1 diabetes: The Retinopathy Champagne Ardenne Diabète (ReCAD) study

4. Continuous positive airway pressure effect on visual acuity in patients with type 2 diabetes and obstructive sleep apnoea: a multicentre randomised controlled trial.


6. Diabetes Quality of Care and Maintenance in New England: Can Cross-State Collaboration Move Us Forward?

7. Comparison of data characterising the clinical effectiveness of the fluocinolone intravitreal implant (ILUVIEN) in patients with diabetic macular edema from the real world, non-interventional ICE-UK study and the FAME randomized controlled trials.


10. United Kingdom Diabetic Retinopathy Electronic Medical Record (UK DR EMR) Users Group: report 4, real-world data on the impact of deprivation on the presentation of diabetic eye disease at hospital services.

### Cataracts

11. EQ-5D-5L is More Responsive than EQ-5D-3L to Treatment Benefit of Cataract Surgery.


13. A discrete event simulation model to evaluate the treatment pathways of patients with cataract in the United Kingdom.
14. 5-year outcomes after primary intraocular lens implantation in children aged 2 years or younger with congenital or infantile cataract: findings from the IoLunder2 prospective inception cohort study.

15. Factors influencing pupil behaviour during femtosecond laser assisted cataract surgery.

16. Migration to aphakia and contact lens treatment is the trend in the management of unilateral congenital cataract in Britain and Ireland.

17. Quantifying the real-world cost saving from using surgical adjuncts to prevent complications during cataract surgery.

18. Refractive outcomes after limbal relaxing incisions or femtosecond laser arcuate keratotomy to manage corneal astigmatism at the time of cataract surgery.

**Glaucoma**

19. The Effect of an Educational Intervention on Adherence to Intraocular Pressure-Lowering Medications in a Large Cohort of Older Adults with Glaucoma.

20. Consensus generation of a minimum set of outcome measures for auditing glaucoma surgery outcomes-a Delphi exercise.


23. Expanding the traditional role of optometry: Current practice patterns and attitudes to enhanced glaucoma services in Ireland.

24. Trabeculectomy bleb needling and antimetabolite administration practices in the UK: a glaucoma specialist national survey.


26. Treatment of Advanced Glaucoma Study: a multicentre randomised controlled trial comparing primary medical treatment with primary trabeculectomy for people with newly diagnosed advanced glaucoma-study protocol.

Innovation

28. Helping across borders

29. Evaluation of a combination digital retinal camera with spectral-domain optical coherence tomography (SD-OCT) that might be used for the screening of diabetic retinopathy with telemedicine: A pilot study


Miscellaneous

31. Arteriovenous malformation of the iris


33. Conjunctival bleb compression sutures: An effective method of addressing hypotony after trabeculectomy or trabeculectomy-related procedures.

34. The feasibility of finger prick autologous blood (FAB) as a novel treatment for severe dry eye disease (DED): protocol for a randomised controlled trial.


36. BLINDNESS RELATED TO PRESUMED RETINAL TOXICITY AFTER USING PERFLUOROCARBON LIQUID DURING VITREORETINAL SURGERY.

37. The relationship between unwarranted variation in optometric referrals and time since qualification.


39. ‘Has she seen me?’: a multiple methods study of the pharmaceutical care needs of older people with sensory impairment in Scotland.

40. Chronic Intraocular Inflammation as a Risk Factor for XEN Gel Stent Occlusion: A Case of Microscopic Examination of a Fibrin-obstructed XEN Stent.
41. Evaluation of rhegmatogenous retinal detachments using Optos ultrawide field fundus fluorescein angiography and comparison with ETDRS 7 field overlay.

42. Five cases of orbital extramedullary plasmacytoma: diagnosis and management of an aggressive malignancy.

1. Contact lens wear and the diabetic corneal epithelium: A happy or disastrous marriage?

Author(s): Bussan, Katherine A; Robertson, Danielle M

Source: Journal of Diabetes and its Complications; Jan 2019; vol. 33 (no. 1); p. 75

Publication Date: Jan 2019

Publication Type(s): Journal Article

Abstract: Diabetes mellitus is an epidemic in the US and abroad. With the advent of new contact lens technology, the use of contact lenses as glucose sensors in lieu of the traditional finger stick is quickly becoming realized. This has the potential to rapidly expand the contact lens market into this growing patient population. The independent cellular and physiological effects of contact lens wear and diabetes on the corneal epithelium have been described. However, little evidence exists to date to support whether there is increased risk associated with contact lens wear in diabetes. The focus of this review is to discuss what is known about the cellular effects of contact lenses on the corneal epithelium, the pathophysiological changes in the corneal epithelium that occur in diabetes, and whether an increased risk for corneal epithelial damage and/or infection may negatively impact safety in diabetic contact lens wearers. Available data indicates that there are inherent risks associated with contact lens wear in diabetics. Importantly, eye care practitioners fitting contact lenses in the diabetic patient need to carefully consider the duration of disease, the level of glycemic control, the presence of retinopathy, and the patient’s overall health.

Database: BNI

2. Novel epigenetic-sensitive clinical challenges both in type 1 and type 2 diabetes

Author(s): Sommese, Linda; Benincasa, Giuditta; Lanza, Michele; Sorriento, Antonio; Schiano, Concetta; Lucchese, Roberta; Alfano, Roberto; Nicoletti, Giovanni Francesco; Napoli, Claudio

Source: Journal of Diabetes and its Complications; Nov 2018; vol. 32 (no. 11); p. 1076

Publication Date: Nov 2018

Publication Type(s): Journal Article

Available at Journal of Diabetes and its Complications - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Background: Epigenetics modulated tissue-specific gene expression during the onset of type 1 and type 2 diabetes and their complications. Methods: We searched the PubMed recent studies about the main epigenetic tags involved in type 1 and type 2 diabetes onset and their clinical complications. PubMed studies about the epigenetic tags involved in type 1 and 2 diabetes onset was searched. Results: The epigenetic methylation maps of cord blood samples highlighted differences in the methylation status of CpG sites within the MHC genes between carriers of diabetes type 1 DR3-DQ2 and DR4-DQ8 risk haplotypes. β cell-derived unmethylated INS DNA showed the decline of β-cell mass preserving insulin secretion. Differentially methylated regions in pancreatic islets from type 2 diabetes covered PDX1, TCF7L2, and ADCY5 promoters during islet dysfunction. The
recruitment of SET7 and SUV39H1 histone methyltransferases and LSD-1 lysine-specific demethylase-1 at NF-kB-p65 promoter in vascular cells was involved in coronary heart disease. Neutrophil extracellular trap, activated by protein arginine deiminase-4, impaired wound healing from diabetic foot ulcers. MiR-199a-3p over-expression induced coagulative cascade, swelling and pain by a down-regulation of SERPIN-E2 in diabetic peripheral neuropathy. A DNA hypo-methylation and histone hyper-acetylation at MIOX promoter led an overexpression of ROS, fibronectin, HIF-1α, and NOX-4 associated with diabetic tubulopathy. A hypo-methylation of H3K4 at SOD2 promoter by LSD-1 increased ROS causing diabetic retinopathy. Conclusions: Epigenetics played a relevant role in prevention, diagnosis, and treatment of diabetes.

Database: BNI

3. Early predictors of diabetic retinopathy in type 1 diabetes: The Retinopathy Champagne Ardenne Diabète (ReCAD) study

Author(s): Diallo, Alpha Mamadou; Novella, Jean-Luc; Lukas, Céline; Pierre-François Souchon; Drame, Moustapha Dramé; Francois, Maud François; Decoudier, Bénédicte; Barraud, Sara; Salmon, Anne-Sophie; Ancelle, Déborah; Arndt, Carl; Delemer, Brigitte

Source: Journal of Diabetes and its Complications; Aug 2018; vol. 32 (no. 8); p. 753

Publication Date: Aug 2018

Publication Type(s): Journal Article

Available at Journal of Diabetes and its Complications - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Aims: To determine the relationship between early markers of diabetes control and diabetic retinopathy (DR) in type 1 diabetes. Methods: A historic cohort study was conducted on 712 patients from the CARéDIAB database. HbA1c and usual metabolic parameters were measured one year after diagnosis of diabetes. First occurrences of severe hypoglycemia and ketoacidosis during follow-up were selected as time-dependent markers of diabetes control. Data were analyzed in a Cox model using SPSS software to predict DR with significance level at p-value <0.05. Results: In multivariate regression, any diabetic retinopathy was predicted by HbA1c (HR = 1.38; CI = 1.25–1.52; p < 0.0001), severe hypoglycemia (HR = 3; CI = 1.99–4.52; p < 0.0001), ketoacidosis (HR = 1.96; CI = 1.17–3.22; p = 0.009), and age at diagnosis (HR = 1.016; CI = 1.002–1.031; p = 0.02). Proliferative DR was predicted by HbA1c (HR = 1.67; CI = 1.51–1.79; p < 0.0001), severe hypoglycemia (HR = 3.67; CI = 2.74–5.25; p < 0.0001), and ketoacidosis (HR = 2.37; CI = 1.56–3.18; p < 0.0001). Conclusion: This study shows that the failure to achieve diabetes control after the first year of diagnosis as well as early episodes of acute diabetes complications may contribute to the occurrence of diabetic retinopathy in type 1 diabetes patients.

Database: BNI

4. Continuous positive airway pressure effect on visual acuity in patients with type 2 diabetes and obstructive sleep apnoea: a multicentre randomised controlled trial.

Author(s): West, Sophie D; Prudon, Benjamin; Hughes, Joan; Gupta, Rajen; Mohammed, Seid B; Gerry, Stephen; Stradling, John R; ROSA trial investigators

Source: The European respiratory journal; Oct 2018; vol. 52 (no. 4)

Publication Date: Oct 2018

Publication Type(s): Journal Article
PubMedID: 30166323

Abstract: We sought to establish whether continuous positive airway pressure (CPAP) for obstructive sleep apnoea (OSA) in people with type 2 diabetes and diabetic macular oedema (DMO) improved visual acuity. We randomly assigned 131 eligible patients aged 30-85 years from 23 UK centres with significant DMO causing visual impairment (LogMAR letters identified ≥39 and ≤78, score 0.92-0.14) plus severe OSA on screening to either usual ophthalmology care (n=67) or usual ophthalmology care plus CPAP (n=64) for 12 months. Mean age of participants was 64 years, 73% male, mean body mass index 35.0 kg·m⁻² Mean 4% oxygen desaturation index was 36 events·h⁻¹ There was no significant difference in the visual acuity at 12 months between the CPAP group and the control group (mean LogMAR 0.33 (95% CI 0.29-0.37) versus 0.31 (95% CI 0.27-0.35); p=0.39), and no significant correlation between change in LogMAR and average CPAP use. The median±sd (range) daily CPAP use was 3.33±2.25 (0-7.93) h at 3 months, 3.19±2.54 (0-8.07) h at 6 months and 3.21±2.70 (0-7.98) h at 12 months. CPAP therapy for OSA did not improve visual acuity in people with type 2 diabetes and DMO compared with usual care alone over 12 months.

Database: Medline


Author(s): Farinha, Cláudia; Martins, Amélia; Neves, Arminda; Soares, Raquel; Ruão, Miguel; Ornelas, Mário; Neves, Pedro; Gomes Rodrigues, Filipa; Coelho, Constança; Silva, Rufino


Publication Date: 2019

Publication Type(s): Journal Article

PubMedID: 29886497

Abstract: PURPOSE: The purpose of this study was to evaluate the 2-year outcome of ranibizumab for diabetic macular oedema (DME) in the real-life clinical practice of five ophthalmology departments of the National Health Service (NHS) in Portugal. METHODS: This is a retrospective multicentre study. The clinical records on consecutive patients with DME from clinical practice treated with 0.5 mg intravitreal ranibizumab and followed up for 24 months were reviewed. Efficacy outcomes comprised the change in best corrected visual acuity (BCVA) and central macular thickness (CMT) evaluated by SD-OCT. Multivariate regression analysis was performed to explore predictors of BCVA. RESULTSA total of 122 eyes of 93 patients were included. The median BCVA change by 24 months was +5.0 letters (IQR 12.0) (p < 0.001) and the CMT change was -89.0 µm (IQR 165.0) (p < 0.001). By 24 months, 21.4% of the eyes had gained ≥15 letters and 8.6% had lost ≥15 letters. The median number of injections given during follow-up was 5.0 (IQR 4.0). A greater baseline CMT and a more disrupted status of the external limiting membrane were predictive of worse BCVA at 24 months (p ≤ 0.015). CONCLUSION: ME treatment with ranibizumab in the Portuguese NHS is associated with anatomic and functional improvement by 2 years; however, our results are below those reported in major clinical trials, and undertreatment is probably the cause.

Database: Medline

6. Diabetes Quality of Care and Maintenance in New England: Can Cross-State Collaboration Move Us Forward?
**Author(s):** Dumont, Dora M; Pizzonia, Caitlin; Poulin, Stephanie; Meddough, Paul  
**Source:** Preventing chronic disease; Dec 2018; vol. 15 ; p. E165  
**Publication Date:** Dec 2018  
**Publication Type(s):** Journal Article  
**PubMedID:** 30589640  

Available at Preventing chronic disease - from Europe PubMed Central - Open Access  
Available at Preventing chronic disease - from EBSCO (MEDLINE Complete)  

**Abstract:** INTRODUCTION: State efforts to identify subpopulations at higher risk for inadequate diabetes maintenance are sometimes hampered by small sample size. We provide a model of a cross-state collaboration that might provide the foundation for identifying political and economic forces underlying inter- and intra-state variability in chronic disease care. METHODS: We collected Behavioral Risk Factor Surveillance System data directly from 5 of 6 New England states and ran multivariate logistic regressions on 5 exposures: race/ethnicity, federal poverty level (FPL) bracket, insurance status (yes or no), insurance type (public or private), and state of residence. Our sample consisted of adults aged 35 or older diagnosed with diabetes. Outcomes included whether respondents with diabetes received complete annual diabetes care (≥2 hemoglobin A1c tests, eye examination, foot examination), had ever taken a diabetes self-management class, or reported diabetes-related retinopathy. RESULTS: Half (50.4%) of our sample had incomplete annual diabetes care. In multivariate logistic regressions, race/ethnicity and FPL bracket were not major drivers of outcomes, although Hispanic/Latino adults had significantly higher risk than non-Hispanic white adults of not knowing how many hemoglobin A1c tests they had had in the past year or what such a test is (adjusted odds ratio = 2.74 [95% confidence interval, 1.15-6.56]) and of diabetes-related retinopathy (adjusted odds ratio = 3.13 [95% confidence interval, 1.61-6.10]). With few exceptions, higher FPL bracket, insurance status, insurance type, and state of residence were not associated with diabetes maintenance. CONCLUSION: Inadequate annual diabetes care among adults with diagnosed diabetes was endemic even in this relatively advantaged US census division, and traditional disparities (eg, race/ethnicity, FPL bracket) only partially explained patterns in diabetes maintenance activities. Interstate analyses can create the foundation for active partnerships to identify and address the causes of lapses in care.  

**Database:** Medline  

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7. Comparison of data characterising the clinical effectiveness of the fluocinolone intravitreal implant (ILUVIEN) in patients with diabetic macular edema from the real world, non-interventional ICE-UK study and the FAME randomized controlled trials.  

**Author(s):** Holden, Sarah E; Kapik, Barry; Beiderbeck, Annette B; Currie, Craig J  
**Source:** Current medical research and opinion; Dec 2018 ; p. 1  
**Publication Date:** Dec 2018  
**Publication Type(s):** Journal Article  
**PubMedID:** 30569759  

**Abstract:** OBJECTIVE: To compare the effectiveness and safety of the fluocinolone acetonide (FAc) intravitreal implant between the observational Iluvien Clinical Evidence study in the United Kingdom (ICE-UK) and the Fluocinolone Acetonide in Diabetic Macular Edema (FAME) randomized controlled trials (RCTs) in people with diabetic macular edema (DME). CLINICAL TRIALS
REGISTRATION: NCT00344968. METHODS: We selected patients randomized to receive 0.2 µg/day FAc insert (FAc treated eyes) or sham injection (control eyes) from the FAME RCTs, and patients' first FAc treated eye and non-FAc treated fellow (control) eye from the ICE-UK study. Outcomes included change in visual acuity (VA), central foveal thickness (CFT) and intraocular pressure (IOP).

RESULTS: After 12 months follow-up, mean change in VA was 5.0 letters improvement (p < 0.001) and 1.6 letters improvement (p = 0.003) in FAME FAc treated and control eyes, and 3.8 letters (p = 0.012) and -2.1 letters (p = 0.056) in ICE-UK treated and control eyes. Mean change in CFT was -144 µm (p < 0.001) versus -72 µm (p < 0.001) in FAME FAc treated and control eyes and -113 µm (p < 0.001) versus -13 µm (p < 0.001) in ICE-UK treated and control eyes. For eyes with a follow-up of 12 months, 77 (22.3%) and 15 (8.6%) FAME FAc treated and control eyes and 25 (18.7%) and 6 (4.3%) ICE-UK treated and control eyes required emergent IOP-lowering therapy.

CONCLUSIONS: Statistically significant improvements in VA 12 months after FAc implantation were observed in both the real-world study as well as in the RCTs. The improvement in VA and CFT in the RCTs was greater than in the real-world study; however, recruits in the real-world study had more severe visual morbidity at baseline. Whilst there were many changes in the care of people with DME over this time, these data all support the value of treatment with FAc intravitreal implant.

Database: Medline


Author(s): Meng, Weihua; Shah, Kaanan P; Pollack, Samuela; Toppila, Iiro; Hebert, Harry L; McCarthy, Mark I; Groop, Leif; Ahlqvist, Emma; Lyssenko, Valerinya; Agardh, Elisabet; Daniell, Mark; Kaidonis, Georgia; Craig, Jamie E; Mitchell, Paul; Liew, Gerald; Kifley, Annette; Wang, Jie Jin; Christiansen, Mark W; Jensen, Richard A; Penman, Alan; Hancock, Heather A; Chen, Ching J; Correa, Adolfo; Kuo, Jane Z; Li, Xiaohui; Chen, Yii-der I; Rotter, Jerome J; Klein, Ronald; Klein, Barbara; Wong, Tien Y; Morris, Andrew D; Doney, Alexander S F; Colhoun, Helen M; Price, Alkes L; Burdon, Kathryn P; Groop, Per-Henrik; Sandholm, Niina; Grassi, Michael A; Sobrin, Lucia; Palmer, Colin N A; Wellcome Trust Case Control Consortium 2 (WTCCC2), Surrogate markers for Micro- and Macro-vascular hard endpoints for Innovative diabetes Tools (SUMMIT) study group

Source: Acta ophthalmologica; Nov 2018; vol. 96 (no. 7); p. e811

Publication Date: Nov 2018

Publication Type(s): Journal Article

PubMedID: 30178632

Available at Acta ophthalmologica - from Wiley

Abstract: PURPOSE: Diabetic retinopathy is the most common eye complication in patients with diabetes. The purpose of this study is to identify genetic factors contributing to severe diabetic retinopathy. METHODS: A genome-wide association approach was applied. In the Genetics of Diabetes Audit and Research in Tayside Scotland (GoDARTS) datasets, cases of severe diabetic retinopathy were defined as type 2 diabetic patients who were ever graded as having severe background retinopathy (Level R3) or proliferative retinopathy (Level R4) in at least one eye according to the Scottish Diabetic Retinopathy Grading Scheme or who were once treated by laser photocoagulation. Controls were diabetic individuals whose longitudinal retinopathy screening records were either normal (Level R0) or only with mild background retinopathy (Level R1) in both eyes. Significant Single Nucleotide Polymorphisms (SNPs) were taken forward for meta-analysis using multiple Caucasian cohorts. RESULTS: Five hundred and sixty cases of type 2 diabetes with severe diabetic retinopathy and 4,106 controls were identified in the GoDARTS cohort. We revealed
that rs3913535 in the NADPH Oxidase 4 (NOX4) gene reached a p value of $4.05 \times 10^{-9}$. Two nearby SNPs, rs10765219 and rs11018670 also showed promising p values ($p = 7.41 \times 10^{-8}$ and $1.23 \times 10^{-7}$, respectively). In the meta-analysis using multiple Caucasian cohorts (excluding GoDARTS), rs10765219 and rs11018670 showed associations for diabetic retinopathy ($p = 0.003$ and $0.007$, respectively), while the p value of rs3913535 was not significant ($p = 0.429$). **CONCLUSION:** This genome-wide association study of severe diabetic retinopathy suggests new evidence for the involvement of the NOX4 gene.

**Database:** Medline


**Author(s):** Szeto, Simon K H; Wong, Raymond; Lok, Jerry; Tang, Fangyao; Sun, Zihan; Tso, Tiffany; Lam, Thomas C H; Tham, Clement C; Ng, Danny S; Cheung, Carol Y

**Source:** The British journal of ophthalmology; Oct 2018

**Publication Date:** Oct 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30381391

**Abstract:** AIMS: To evaluate the performance of ultrawide field scanning laser ophthalmoscopy (UWF-SLO) for assessing diabetic retinopathy (DR) and diabetic macular oedema (DME) in a Chinese population, compared with clinical examination. METHODS: This is a retrospective cohort study. A series of 322 eyes from 164 patients with DM were included. Each patient underwent both dilated fundal examination with DR and DME grading by retina specialist and non-mydriatic 200° UWF-SLO (Daytona, Optos, Dunfermline, UK). The severity of DR and DME from UWF-SLO images was further graded by ophthalmologists, according to both international clinical DR and DME disease severity scales and the standard 7-field Early Treatment Diabetic Retinopathy Study (ETDRS) scale. Any DR, DME and vision-threatening DR (VTDR) were treated as endpoints for this study. RESULTS: 23 out of 322 images (7.14%), including all four cases with proliferative DR on clinical examinations, were determined as ungradable. When the international scale was used for grading UWF-SLO images, the sensitivity of any DR, DME and VTDR was 67.7%, 67.4% and 72.6%, respectively; the specificity of any DR, DME and VTDR was 97.8%, 97.3% and 97.8%, respectively. The agreement with clinical grading in picking up any DR, DME and VTDR was substantial, with $\kappa$-values of 0.634, 0.694 and 0.707, respectively. The performance of UWF-SLO was shown to be lower when ETDRS scale was used for grading the images. CONCLUSION: The performance of non-mydriatic UWF-SLO is comparable in identifying DR with that of clinical examination in a Chinese cohort. However, whether UWF-SLO can be considered as tool for screening DR is still undetermined.

**Database:** Medline

10. United Kingdom Diabetic Retinopathy Electronic Medical Record (UK DR EMR) Users Group: report 4, real-world data on the impact of deprivation on the presentation of diabetic eye disease at hospital services.

**Author(s):** Denniston, Alastair K; Lee, Aaron Y; Lee, Cecilia S; Crabb, David P; Bailey, Clare; Lip, Peck-Lin; Taylor, Paul; Pikoula, Maria; Cook, Esther; Akerele, Toks; Antcliff, Richard; Brand, Christopher;
AIM: To assess the impact of deprivation on diabetic retinopathy presentation and related treatment interventions, as observed within the UK hospital eye service.

METHODS: This is a multicentre, national diabetic retinopathy database study with anonymised data extraction across 22 centres from an electronic medical record system. The following were the inclusion criteria: all patients with diabetes and a recorded, structured diabetic retinopathy grade. The minimum data set included, for baseline, age and Index of Multiple Deprivation, based on residential postcode; and for all time points, visual acuity, ETDRS grading of retinopathy and maculopathy, and interventions (laser, intravitreal therapies and surgery). The main outcome measures were (1) visual acuity and binocular visual state, and (2) presence of sight-threatening complications and need for early treatment.

RESULTS: 79,775 patients met the inclusion criteria. Deprivation was associated with later presentation in patients with diabetic eye disease: the OR of being sight-impaired at entry into the hospital eye service (defined as 6/18 to better than 3/60 in the better seeing eye) was 1.29 (95% CI 1.20 to 1.39) for the most deprived decile vs 0.77 (95% CI 0.70 to 0.86) for the least deprived decile; the OR for being severely sight-impaired (3/60 or worse in the better seeing eye) was 1.17 (95% CI 0.90 to 1.55) for the most deprived decile vs 0.88 (95% CI 0.61 to 1.27) for the least deprived decile (reference=fifth decile in all cases). There is also variation in sight-threatening complications at presentation and treatment undertaken: the least deprived deciles had lower chance of having a tractional retinal detachment (OR=0.48 and 0.58 for deciles 9 and 10, 95% CI 0.24 to 0.90 and 0.29 to 1.09, respectively); in terms of accessing treatment, the rate of having a vitrectomy was lowest in the most deprived cohort (OR=0.34, 95% CI 0.19 to 0.58). CONCLUSIONS: This large real-world study suggests that first presentation at a hospital eye clinic with visual loss or sight-threatening diabetic eye disease is associated with deprivation. These initial hospital visits represent the first opportunities to receive treatment and to formally engage with support services. Such patients are more likely to be sight-impaired or severely sight-impaired at presentation, and may need additional resources to engage with the hospital eye services over complex treatment schedules.

Database: Medline
Abstract: BACKGROUND: It is not clear whether 5-level EQ-5D (EQ-5D-5L) utilities based on recently developed value sets are more responsive than 3-level EQ-5D (EQ-5D-3L) utilities. OBJECTIVES: The study aims were to compare (1) the responsiveness of EQ-5D-5L and EQ-5D-3L utilities and (2) the responsiveness of these utilities with the Short Form-6 Dimension (SF-6D) and Health Utilities Index Mark 3 (HUI3) utilities to the treatment benefit of cataract surgery. METHODS: A total of 148 patients were interviewed before and after their cataract surgery using EQ-5D-3L, EQ-5D-5L, SF-6D, and HUI3. Responsiveness was assessed for all measures using the mean change (post-treatment-pre-treatment), standardized effect size (SES), standardized response mean (SRM), and F-statistic. RESULTS: Using the Singapore value sets, mean change for EQ-5D-3L and EQ-5D-5L utilities was 0.016 and 0.028, SES was 0.097 and 0.199; SRM was 0.091 and 0.196; and F-statistic was 1.2 and 5.7, respectively. Similar trends were observed using the UK/England EQ-5D value sets, although the magnitude was slightly smaller. The mean change, SES, SRM and F-statistics for SF-6D (UK value set) were 0.020, 0.234, 0.249, and 9.2, respectively. CONCLUSIONS: The EQ-5D-5L utilities tend to be more responsive than the EQ-5D-3L utilities to treatment benefits of cataract surgery. The HUI3 utilities are more responsive than both the EQ-5D-5L and SF-6D, and SF-6D utilities may be slightly more responsive than the EQ-5D-5L for assessing patients undergoing cataract surgery.

Database: Medline
15 ± 25 μm, respectively (P = .5); and the endothelial cell loss was 9.7 ± 13.7 % and 10.2% ± 13.7, respectively (P = .76). The manifest refraction spherical equivalent error was -0.14 ± 0.60 diopters (D) after CPS and -0.12 ± 0.60 D after femtosecond laser-assisted surgery (P = .74); the mean change in CFT was 9 ± 35 μm and 6 ± 35 μm, respectively (P = .55); and the rate of posterior capsule rupture was 3% and 0%, respectively (P = .03). CONCLUSIONS: This study confirms the nonsignificant differences between 2 treatment modalities, notwithstanding a significant reduction in posterior capsule ruptures in the femtosecond laser-assisted surgery group.

Database: Medline

13. A discrete event simulation model to evaluate the treatment pathways of patients with cataract in the United Kingdom.
Author(s): Demir, Eren; Southern, David; Rashid, Syed; Lebcir, Reda
Source: BMC health services research; Dec 2018; vol. 18 (no. 1); p. 933
Publication Date: Dec 2018
Publication Type(s): Journal Article
PubMedID: 30514277
Available at BMC Health Services Research - from ProQuest (Hospital Premium Collection) - NHS Version
Available at BMC Health Services Research - from BioMed Central
Available at BMC Health Services Research - from Europe PubMed Central - Open Access
Available at BMC Health Services Research - from EBSCO (MEDLINE Complete)
Abstract: BACKGROUND: The number of people affected by cataract in the United Kingdom (UK) is growing rapidly due to ageing population. As the only way to treat cataract is through surgery, there is a high demand for this type of surgery and figures indicate that it is the most performed type of surgery in the UK. The National Health Service (NHS), which provides free of charge care in the UK, is under huge financial pressure due to budget austerity in the last decade. As the number of people affected by the disease is expected to grow significantly in coming years, the aim of this study is to evaluate whether the introduction of new processes and medical technologies will enable cataract services to cope with the demand within the NHS funding constraints. METHODS: We developed a Discrete Event Simulation model representing the cataract services pathways at Leicester Royal Infirmary Hospital. The model was inputted with data from national and local sources as well as from a surgery demand forecasting model developed in the study. The model was verified and validated with the participation of the cataract services clinical and management teams. RESULTS: Four scenarios involving increased number of surgeries per half-day surgery theatre slot were simulated. Results indicate that the total number of surgeries per year could be increased by 40% at no extra cost. However, the rate of improvement decreases for increased number of surgeries per half-day surgery theatre slot due to a higher number of cancelled surgeries. Productivity is expected to improve as the total number of doctors and nurses hours will increase by 5 and 12% respectively. However, non-human resources such as pre-surgery rooms and post-surgery recovery chairs are under-utilized across all scenarios. CONCLUSIONS: Using new processes and medical technologies for cataract surgery is a promising way to deal with the expected higher demand especially as this could be achieved with limited impact on costs. Non-human resources capacity need to be evenly levelled across the surgery pathway to improve their utilisation. The performance of cataract services could be improved by better communication with and proactive management of patients.
14. 5-year outcomes after primary intraocular lens implantation in children aged 2 years or younger with congenital or infantile cataract: findings from the IoLunder2 prospective inception cohort study.

**Author(s):** Solebo, Ameenat Lola; Cumberland, Phillippa; Rahi, Jugnoo S; British Isles Congenital Cataract Interest Group

**Source:** The Lancet. Child & adolescent health; Dec 2018; vol. 2 (no. 12); p. 863-871

**Publication Date:** Dec 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30389448

**Abstract:** BACKGROUND: International initiatives to prevent childhood blindness have highlighted the importance of early, effective intervention for congenital and infantile cataract. In the UK, intraocular lens implantation has been widely adopted by surgeons to treat these conditions. However, evidence about the benefits and risks of this technique in different age groups is limited. The IoLunder2 study assessed outcomes following primary intraocular lens implantation in children aged 2 years and younger with congenital or infantile cataract. METHODS: The IoLunder2 study was a prospective observational cohort study done at 31 sites in the UK and Ireland. Eligible children were aged 2 years or younger who had cataract surgery concurrently with intraocular lens implantation or conventional treatment (aphakic correction with contact lenses or glasses) after cataract surgery between Jan 1, 2009, and Dec 31, 2010. Children with significant ocular comorbidity precluding lens implantation, defined by the presence of complex persistent fetal vasculature, other ocular structural anomalies, severe microcornea (horizontal corneal diameter <9·5 mm), or severe microphthalmos (axial length <16 mm), were excluded from the analysis of the key outcomes. Postoperative visual rehabilitation was assessed at 1, 3, and 5 years after surgery with a 4m logarithm of the minimum angle of resolution (logMAR) notation test. Best corrected visual outcome (acuity) overall was assessed 5 years after surgery for children with bilateral and unilateral cataract. We also used multivariable logistic and linear regression to model the association between intraocular lens implantation and outcomes of interest (vision, glaucoma, and visual axis opacity). FINDINGS: A total of 256 eligible children were recruited; two had incomplete data and were excluded. 158 of the 254 included children (102 [65%] with bilateral cataract and 56 [35%] with unilateral cataract) had no significant ocular morbidity and were analysed for the key outcomes. Primary intraocular lens implantation was done in 88 (56%) of 158 children (50 children with bilateral cataract and 38 children with unilateral cataract). 70 (44%) of 158 children had conventional treatment (52 with bilateral cataract and 18 with unilateral cataract). Overall median visual acuity at 5 years was 0·34 logMAR (IQR 0·20-0·54) for children with bilateral cataract and 0·70 logMAR (IQR 0·3-1·3) in the operated eye for children with unilateral cataract. Primary intraocular lens implantation was not associated with better visual outcome than conventional treatment in children with bilateral cataract (adjusted coefficient -0·1, 95% CI -0·5 to 0·3, p=0.48) or unilateral cataract (adjusted coefficient -0·3, -0·6 to 0·2, p=0.36), or reduced incidence of postoperative glaucoma in children with bilateral cataract (adjusted odds ratio [OR] 0·5, 0·1-1·80, p=0·28), but was associated with a five times higher risk of reoperation for visual axis opacity requiring general anaesthesia in children with bilateral cataract (adjusted OR 5·94, 95% CI 2·14-16·47, p=0·001) and a 20 times higher risk in children with unilateral cataract (20·15, 3·01-134·00, p=0·001).

**Interpretation:** The findings of this cohort study indicate that intraocular lens implantation does not confer better vision or protection against postoperative glaucoma, and conversely increases the risk of reoperation.
risk of requiring early reoperation in children younger than 2 years with bilateral or unilateral cataract. The routine use of intraocular lens implantation in this age group cannot be recommended.

**FUNDING:** National Institute for Health Research, Ulverscroft Foundation, and the Academy of Medical Sciences.

**Database:** Medline

15. **Factors influencing pupil behaviour during femtosecond laser assisted cataract surgery.**

**Author(s):** Popiela, Magdalena Z; Young-Zvandasara, Tafadzwa; Nidamanuri, Priya; Moore, Tara; Leccisotti, Antonio; Kumar, Vinod

**Source:** Contact lens & anterior eye : the journal of the British Contact Lens Association; Nov 2018

**Publication Date:** Nov 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30448179

**Abstract:** **AIM:** Femtosecond laser assisted cataract surgery is associated with pupillary constriction. This study aims to look at patient and surgical factors predisposing to abnormal pupil behaviour during FLACS. **METHODS:** This prospective observational study included all patients undergoing FLACS in the Princess of Wales Hospital, Bridgend, UK between February and June 2017. Pupils were measured at three time points; immediately before and after laser pre-treatment, and at the start of surgery. Pupil behaviour during surgery was noted in descriptive terms, patient demographic, comorbidities, eye measurements, suction on time, shifting time and laser energy levels were recorded. **RESULTS:** Seventy-three eyes were included. Average patient age was 74.84 ± 9.1 years. Mean horizontal pupil sizes immediately before and after femto pre-treatment were 7.87 ± 0.87 mm and 7.7 ± 0.89 mm respectively (P < 0.0005). Mean horizontal pupil size at the start of surgery was 6.83 ± 1.43 mm (P < 0.0005). Short capsulotomy-pupil distance (P = 0.01), shallower anterior chamber (P = 0.0012), smaller pre-operative pupil size (P = 0.045) and longer suction on time (P = 0.0019) were significantly associated with intra-operative miosis during FLACS. Sustained mydriasis was observed in eyes in whom topical diclofenac was used within 2 h of surgery. **CONCLUSIONS:** FLACS can result in significant pupil miosis. Eyes particularly at risk are ones with smaller pre-operative pupils and shallower anterior chambers and those subjected to longer suction on time. Well-timed NSAIDs application could be protective against this phenomenon.

**Database:** Medline

16. **Migration to aphakia and contact lens treatment is the trend in the management of unilateral congenital cataract in Britain and Ireland.**

**Author(s):** McAnena, Lisa; McCreery, Kathryn; Brosnahan, Donal

**Source:** Irish journal of medical science; Sep 2018

**Publication Date:** Sep 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30269187

**Abstract:** **BACKGROUND:** The Infant Aphakia Treatment Study (IATS) compared the treatment of unilateral cataract in infants aged 1-6 months with primary intraocular lens (IOL) implantation vs aphakia with contact lens (CL) correction. **AIMS:** This study aims to assess the current trends in the treatment of unilateral congenital cataract in infants less than 6 months at surgery in the UK and
Methods: An anonymous survey was emailed to the 200 members of the BIPOSA mailing list with 14 questions to assess treatment choice (primary intraocular lens (IOL) vs aphakia with contact lens (CL)), reasons for this choice, and assessment of local CL services. Results: There were 56 respondents, 39 of whom completed the entire survey. Aphakia with CL was the treatment choice for 74.4% of respondents. A quarter (25.6%) of respondents said they were performing primary IOL implantation prior to the publication of the Infant Aphakia Treatment Study (IATS), but now choose aphakia with CL. Amongst the 20.5% (n = 8) of respondents who chose primary IOL implantation, 5 attributed their choice to "inadequate CL service". The majority (84.6%) of respondents rated their infant CL service as either "good" or "very good". Conclusion: Aphakia with CL rehabilitation was the most common approach to the treatment of unilateral congenital cataract in infants less than 6 months in this study. The results of the IATS appear to have influenced a change in practice from primary IOL implantation to aphakia and CL visual rehabilitation in approximately one quarter of those surveyed.

Database: Medline

17. Quantifying the real-world cost saving from using surgical adjuncts to prevent complications during cataract surgery.

Author(s): Jamison, Aaron; Benjamin, Larry; Lockington, David

Source: Eye (London, England); Sep 2018; vol. 32 (no. 9); p. 1530-1536

Publication Date: Sep 2018

Publication Type(s): Journal Article

PubMedID: 29875386

Abstract: INTRODUCTION: Surgical adjuncts in cataract surgery are often perceived as sometimes necessary, always expensive, particularly in the "lean" cost-saving era. However, prevention of a surgical complication, rather than subsequent management, should always be the preferred strategy. We wished to model real-world costs associated with surgical adjuncts use and test the maxim for cataract surgery-"if you think of it, use it". METHODS: We compared UK list prices for equipment and related costs of preventing vitreous loss (VL) via use of surgical adjuncts vs its subsequent management in a hypothetical cataract surgery scenario of a white swollen cataract with a moderately dilated pupil. RESULTS: The original surgery costs for the "cautious with adjuncts, no complications" approach was £943.54, including adjuncts costing £137.47. In the "minimalist, no adjunct" scenario, management of VL using the Anterior Vitrectomy Kit cost £142.45, and additional management and follow-up costs resulted in total cost of £1178.20 (£234.66 (25%) more expensive). If left aphakic, an additional operation for secondary iris clip IOL insertion and further follow-up to address the impact of the complication ultimately cost £2124.67 overall. An additional initial spend on surgical adjuncts of £137.47 could potentially prevent £1293.60 (9x increase) in direct costs in this scenario. CONCLUSIONS: Through simple scenario modelling, we have demonstrated the cost benefits provided by the use of precautionary surgical adjuncts during cataract surgery. VL costs significantly more in terms of complication management and follow-up. This supports the cataract surgeon’s maxim-"if you think of it, use it".

Database: Medline

18. Refractive outcomes after limbal relaxing incisions or femtosecond laser arcuate keratotomy to manage corneal astigmatism at the time of cataract surgery.
PURPOSE: To compare the results of manual limbal relaxing incisions (LRIs) performed during conventional phacoemulsification surgery with those of nonpenetrating femtosecond laser arcuate keratotomies performed during femtosecond laser-assisted cataract surgery to manage corneal astigmatism.

SETTING: Guy's and St. Thomas' NHS Foundation Trust, London, United Kingdom.

DESIGN: Randomized case-controlled trial.

METHODS: This was a secondary outcome of a randomized controlled trial comparing 400 patients treated with conventional phacoemulsification surgery or femtosecond laser-assisted cataract surgery. All patients with corneal astigmatism greater than 0.9 diopter (D) were offered LRIs or femtosecond laser arcuate keratotomy based on the original randomization. Visual acuity, postoperative refraction, and corneal topography were recorded 4 weeks postoperatively. Vector analysis was performed using the Alpins method.

RESULTS: Fifty-one eyes of 51 patients received LRIs, and 53 eyes of 53 patients received femtosecond arcuate keratotomies. The mean target induced astigmatism was 1.50 D and 1.38 D, respectively, with 1.02 D and 1.23 D surgically induced astigmatism (P = .21), resulting in the femtosecond arcuate keratotomy group having a smaller difference vector (1.17 D versus 0.89 D; P = .02) and a greater correction index (0.48 versus 0.73; P = .02). Forty-four percent of patients in the femtosecond arcuate keratotomy group and 20% in the LRI group attained a postoperative cylinder of less than 0.50 D (P = .01).

CONCLUSIONS: The femtosecond arcuate keratotomy group achieved a higher correction index and a smaller difference vector. The femtosecond arcuate keratotomy patients showed less postoperative cylinder than LRI patients.

Abstract: BACKGROUND: Glaucoma is a progressive, irreversible disease that can lead to vision loss and lower quality of life if treatment is not optimized. Effective glaucoma therapies are available to lower intraocular pressure (IOP) and minimize or delay disease progression. Nonetheless, adherence to treatment remains suboptimal for many patients. OBJECTIVE: To identify potentially nonadherent patients and evaluate the effect of patient- and physician-centric educational interventions on adherence by using a validated predictive model of nonadherence to glaucoma medication. METHODS: This prospective, randomized, controlled, and interventional study included Humana Medicare Advantage Prescription Drug plan patients with a glaucoma diagnosis between May and October 2014, ≥ 1 pharmacy claim for glaucoma medication, and ≥ 50% likelihood of nonadherence. Patients and physicians were randomized to cohorts A (no interventions), B (physician intervention),
or C (patient and physician interventions). Physicians in cohorts B and C received information on the model, adherence, and patient profiles at baseline and months 3, 6, and 9. Patients in cohort C received educational materials on glaucoma and adherence (same schedule). The primary outcome was the proportion of days covered (PDC) with medication over 12 months. Adherence was defined as PDC ≥ 0.80. RESULTS: Overall, 23,306 patients and 2,955 physicians were eligible. After excluding physicians with < 3 nonadherent patients, each cohort included 200 physicians and 600 patients. Mean PDC was 0.54-0.56 across cohorts. At 12 months, ≥ 90.5% of physicians and ≥ 75.5% of patients remained in the study; mean PDC was 0.53-0.54 across cohorts. No statistically significant between-cohort differences in PDC and adherence were observed. CONCLUSIONS: Intensive educational mailings to patients and their physicians did not improve PDC or adherence in this large population of potentially nonadherent patients with glaucoma. Findings highlight the difficulty of improving adherence in a disease that requires lifelong therapy despite being largely asymptomatic and can inform development of future interventions aimed at improving adherence to glaucoma therapy. DISCLOSURES: This study was sponsored by Allergan plc (Dublin, Ireland). Fiscella and Chandwani are employees of Allergan plc. Caplan, Kamble, Bunniran, and Uribe are employees of Comprehensive Health Insights, a Humana company. The authors did not receive honoraria or other payments for authorship.

Database: Medline

20. Consensus generation of a minimum set of outcome measures for auditing glaucoma surgery outcomes-a Delphi exercise.

Author(s): Somner, J E A; Ismail, R; Froud, R; Azuara-Blanco, A; King, A J

Source: Graefe's archive for clinical and experimental ophtalmology = Albrecht von Graefes Archiv fur klinische und experimentelle Ophthalmologie; Dec 2018; vol. 256 (no. 12); p. 2407-2411

Publication Date: Dec 2018

Publication Type(s): Multicenter Study Journal Article

PubMedID: 30251199

Abstract: PURPOSE: To identify the key set of glaucoma surgery outcome measures considered most important and practical to collect by glaucoma specialists. METHODS: One hundred two glaucoma specialists (57 members of the UK and Eire Glaucoma Society (UKEGS) and 45 members of the European Glaucoma society (EGS)) took part in an Online Delphi exercise. The RAND/UCLA appropriateness method was used analyse data from each round and generate a disagreement index. RESULTS: Participants agreed on 13 baseline data points and 12 outcomes that were considered important and practical to collect. For intraocular pressure (IOP) percentage reduction in IOP from baseline (last three IOP readings pre-op) and reduction below a specified target were considered important. For visual fields, change in a global visual field index, e.g. MD, and development of progression as assessed by linear regression were considered important. From a safety perspective, any visual loss resulting in a doubling of the minimal angle of resolution, loss of 5 dB or more of visual field or development of advanced field loss (Hodapp Parrish Anderson Stage 4) was considered important. The importance of routinely using patient reported outcome measures (PROMs) was highlighted. Consensus suggested that outcomes of glaucoma treatments should be reported at 1, 5 and 10 years. CONCLUSIONS: There was broad consensus on a minimum dataset for reporting the outcomes of glaucoma surgery and outcome measurement intervals.

Database: Medline

**Author(s):** Bruce, Gillian; Tatham, Andrew J

**Source:** Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists); Nov 2018; vol. 38 (no. 6); p. 629-639

**Publication Date:** Nov 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30575069

**Abstract:**

PURPOSE: Over the next 10 years, the prevalence of glaucoma in the United Kingdom (UK) is predicted to rise by 22%,(The Way Forward: Glaucoma, The Royal College of Ophthalmologists, London, 2017) posing a considerable challenge to already overstretched hospital eye services. To help address this problem, services traditionally offered in hospital such as managing stable glaucoma patients, could be transferred to community optometrists. The aim of this study was to identify whether optometrists in Scotland have an interest in managing primary open angle glaucoma (POAG) in primary care and to assess perceived barriers.

**METHODS:** All optometrists on the NHS Education Scotland (NES) database were invited to participate in an online survey over a 7-week period. Optometrists were asked if they had an interest in being accredited to manage POAG in the community and a free text question was used to elicit perceived barriers. Responders with an interest in managing POAG were invited to take part in two further rounds of electronic surveying, using a modified Delphi approach, with the aim of reaching a consensus on perceived barriers.

**RESULTS:** Two hundred and ninety-nine of 1566 optometrists (19%) responded to the survey. 229 (79%) expressed an interest in managing patients with POAG in primary care. The most commonly perceived barriers after two rounds of Delphi surveying were remuneration (29%), communication with secondary care (18%), perceived ophthalmology resistance (13%), training (11%) and capacity (10%). Multivariate regression revealed fewer years in practice and comfort using and interpreting results of pachymetry were associated with higher odds of interest in managing glaucoma in the community.

**CONCLUSIONS:** Among survey responders, there was significant interest from community optometrists to being accredited to manage POAG in primary care. A collaborative approach between primary and secondary care will be required to address the concerns of community optometrists in any future expansion of their role in glaucoma management.

**Database:** Medline

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**Author(s):** Gunn, Patrick J G; Marks, Joanne R; Konstantakopoulou, Evgenia; Edgar, David F; Lawrenson, John G; Roberts, Stephen A; Spencer, Anne F; Fenerty, Cecilia H; Harper, Robert A

**Source:** The British journal of ophthalmology; Oct 2018

**Publication Date:** Oct 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30309913

**Abstract:**

BACKGROUND: Glaucoma referral filtering schemes have operated in the UK for many years. However, there is a paucity of data on the false-negative (FN) rate. This study evaluated the clinical effectiveness of the Manchester Glaucoma Enhanced Referral Scheme (GERS), estimating
both the false-positive (FP) and FN rates. METHOD: Outcome data were collected for patients newly referred through GERS and assessed in 'usual-care' clinics to determine the FP rate (referred patients subsequently discharged at their first visit). For the FN rate, glaucoma suspects deemed not requiring referral following GERS assessment were invited to attend for a 'reference standard' examination including all elements of assessment recommended by National Institute for Health and Care Excellence (NICE) by a glaucoma specialist optometrist. A separate 33 cases comprising randomly selected referred and non-referred cases were reviewed independently by two glaucoma specialist consultant ophthalmologists to validate the reference standard assessment. RESULTS: 1404 patients were evaluated in GERS during the study period; 651 (46.3%) were referred to the Hospital Eye Service (HES) and 753 (53.6%) were discharged. The FP rate in 307 assessable patients referred to the HES was 15.5%. This study reviewed 131 (17.4%) of those patients not referred to the HES through the GERS scheme; 117 (89.3%) were confirmed as not requiring hospital follow-up; 14 (10.7%) required follow-up, including 5 (3.8%) offered treatment. Only one patient (0.8%) in this sample met the GERS referral criteria and was not referred (true FN). There were no cases of missed glaucoma or non-glaucmatous pathology identified within our sample. CONCLUSION: The Manchester GERS is an effective glaucoma filtering scheme with a low FP and FN rate.

Database: Medline

23. Expanding the traditional role of optometry: Current practice patterns and attitudes to enhanced glaucoma services in Ireland.

Author(s): Barrett, Catriona; Loughman, James

Source: Journal of optometry; 2018; vol. 11 (no. 4); p. 252-261

Publication Date: 2018

Publication Type(s): Journal Article

PubMedID: 29650469

Available at Journal of Optometry - from Europe PubMed Central - Open Access

Available at Journal of Optometry - from Unpaywall

Abstract: PURPOSE: To investigate current diagnostic equipment availability and usage for glaucoma case-finding within community optometric practice, and to explore optometrists’ attitudes towards an enhanced scope of clinical practice. METHODS: An anonymous survey was developed, validated, and distributed to all optometrists in Ireland. RESULTS: 199 optometrists (27% of registrants) responded to the survey. 87% had access to the traditional triad of tests necessary to conduct adequate glaucoma case finding. Standard automated perimetry was the most commonly absent (13%) of the three essential screening tests. 64% of respondents indicated that monocular direct ophthalmoscopy was their first choice technique for fundus examination. 47% of respondents had access to contact applanation tonometry, though just 14% used it as first choice during routine eye examinations. Among the 73 participants with access to both contact and non-contact tonometry (NCT), 80.8%, used NCT preferentially. The significant majority (98%) indicated an interest in enhanced glaucoma services with 57% agreeing that postgraduate training was an essential prerequisite to any increase in scope of practice. CONCLUSION: Irish optometrists are well equipped with the traditional tests used in glaucoma detection. However, implementation of enhanced referral schemes or glaucoma monitoring or management services would require equipment upgrades and associated training in at least half of the surveyed practices. There is strong interest in
furthering optometric professional development and expanding the traditional role boundaries of optometrists, incorporating further education as an essential prerequisite to an enhanced scope of practice.

**Database:** Medline

24. Trabeculectomy bleb needling and antimetabolite administration practices in the UK: a glaucoma specialist national survey.

**Author(s):** Mercieca, Karl; Drury, Brett; Bhargava, Archana; Fenerty, Cecilia

**Source:** The British journal of ophthalmology; Sep 2018; vol. 102 (no. 9); p. 1244-1247

**Publication Date:** Sep 2018

**Publication Type(s):** Journal Article

**PubMedID:** 29212821

Available at [British Journal of Ophthalmology](https://bmjn.bmj.com) - from BMJ

**Abstract:** AIM: To evaluate, describe and quantify the diversity in postoperative antimetabolite administration and bleb needling practices among glaucoma specialists performing trabeculectomy surgery within the UK and Ireland. METHODS: A cross-sectional online survey was distributed to all consultant glaucoma specialists who are on the United Kingdom and Eire Glaucoma Society (UKEGS) contact list. Participants were asked specific questions about their current practices for post-trabeculectomy antimetabolite administration followed by questions directly related to bleb needling procedures. RESULTS: 60 (83%) of UKEGS glaucoma subspecialty consultants completed the survey. 70% of respondents administered 5-fluorouracil (5-FU) in their clinic room while 30% used a separate treatment room. Doses of 5-FU varied considerably but 70% used 5 mg as standard. Techniques used to reduce corneal toxicity included precipitation with amethocaine (44%) or benoxinate (14%), saline wash (14%) and modified injection technique (8%). Topical antibiotics and/or betadine were used to prevent infection following 5-FU injection in just over 50%. Bleb needling was exclusively performed in operating theatre by 56% of respondents and solely at the slit lamp in the clinic room by 12%. A further 30% used a combination of both theatre and outpatient clinic rooms. Anti-metabolites used were 5-FU (72%) and mitomycin C (22%) with 12% using either of the two substances. CONCLUSIONS: There is a significantly wide variety of current practices for antimetabolite administration and bleb needling within the UK and Ireland. This may be influenced by a glaucoma surgeon’s specific experience and audit results as well as particular clinical set-up, availability of antimetabolite and clinic room space.

**Database:** Medline


**Author(s):** Lancina, Michael G; Wang, Juan; Williamson, Geoffrey S; Yang, Hu

**Source:** Molecular pharmaceutics; Jul 2018; vol. 15 (no. 7); p. 2883-2889

**Publication Date:** Jul 2018

**Publication Type(s):** Journal Article

**PubMedID:** 29767982

**Abstract:** In this work, we report the synthesis and characterization of DenTimol, a dendrimer-based polymeric timolol analog, as a glaucoma medication. A timolol precursor (S)-4-[4-(oxiranylmethoxy)-
1,2,5-thiadiazol-3-yl)morpholine (OTM) was reacted with the heterobifunctional amine polyethylene glycol acetic acid (amine-PEG-acetic acid, Mn = 2000 g/mol) via a ring opening reaction of an epoxide by an amine to form the OTM-PEG conjugate. OTM-PEG was then coupled to an ethylenediamine (EDA) core polyamidoamine (PAMAM) dendrimer G3 to generate DenTimol using the N-(3-(dimethylamino)propyl)-N'-ethylcarbodiimide hydrochloride (EDC)/N-hydroxysuccinimide (NHS) coupling reaction. MALDI mass spectrometry, 1H NMR spectroscopy, and HPLC were applied to characterize the intermediate and final products. Ex vivo corneal permeation of DenTimol was assessed using the Franz diffusion cell system mounted with freshly extracted rabbit cornea. The cytotoxicity of DenTimol was assessed using the WST-1 assay. Our results show that DenTimol is nontoxic up to an OTM equivalent concentration of 100 μM. DenTimol is efficient at crossing the cornea. About 8% of the dendrimeric drug permeated through the cornea in 4 h. Its IOP-lowering effect was observed in normotensive adult Brown Norway male rats. Compared to the undosed eye, an IOP reduction by an average of 7.3 mmHg (~30% reduction from baseline) was observed in the eye topically treated with DenTimol (2 × 5 μL, 0.5% w/v timolol equivalent) in less than 30 min. Daily dosing of DenTimol for a week did not cause any irritation or toxicity as confirmed by the histological examination of ocular tissues, including the cornea, ciliary body, and retina.

Database: Medline

26. Treatment of Advanced Glaucoma Study: a multicentre randomised controlled trial comparing primary medical treatment with primary trabeculectomy for people with newly diagnosed advanced glaucoma-study protocol.

Author(s): King, Anthony J; Fernie, Gordon; Azuara-Blanco, Augusto; Burr, Jennifer M; Garway-Heath, Ted; Sparrow, John M; Vale, Luke; Hudson, Jemma; MacLennan, Graeme; McDonald, Alison; Barton, Keith; Norrie, John

Source: The British journal of ophthalmology; Jul 2018; vol. 102 (no. 7); p. 922-928

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 29074496

Available at The British journal of ophthalmology - from BMJ

Available at The British journal of ophthalmology - from Unpaywall

Abstract: BACKGROUND: Presentation with advanced glaucoma is the major risk factor for lifetime blindness. Effective intervention at diagnosis is expected to minimise risk of further visual loss in this group of patients. AIM: To compare clinical and cost-effectiveness of primary medical management compared with primary surgery for people presenting with advanced open-angle glaucoma (OAG). METHODS: Design: A prospective, pragmatic multicentre randomised controlled trial (RCT). SETTING: Twenty-seven UK hospital eye services. PARTICIPANTS: Four hundred and forty patients presenting with advanced OAG, according to the Hodapp-Parish-Anderson classification of visual field loss. INTERVENTION: Participants will be randomised to medical treatment or augmented trabeculectomy (1:1 allocation minimised by centre and presence of advanced disease in both eyes). MAIN OUTCOME MEASURES: The primary outcome is vision-related quality of life measured by the National Eye Institute-Visual Function Questionnaire-25 at 24 months. Secondary outcomes include generic EQ-5D-5L, Health Utility Index-3 and glaucoma-related health status (Glaucoma Utility Index), patient experience, visual field measured by mean deviation value, logarithm of the mean angle of resolution visual acuity, intraocular pressure, adverse events, standards for driving and eligibility for blind certification. Incremental cost per quality-adjusted life-year (QALY) based on
EQ-5D-5L and glaucoma profile instrument will be estimated. RESULTS: The study will report the comparative effectiveness and cost-effectiveness of medical treatment against augmented trabeculectomy in patients presenting with advanced glaucoma in terms of patient-reported health and visual function, clinical outcomes and incremental cost per QALY at 2 years. CONCLUSIONS: Treatment of Advanced Glaucoma Study will be the first RCT reporting outcomes from the perspective of those with advanced glaucoma. TRIAL REGISTRATION NUMBERISRCTN56878850, Pre-results.

Database: Medline


Author(s): Barrett, Catriona; O'Brien, Colm; Loughman, James

Source: Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists); Jul 2018; vol. 38 (no. 4); p. 400-410

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 29492992

Available at Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists) - from Wiley

Available at Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists) - from Unpaywall

Abstract: PURPOSE: Glaucoma referral refinement (GRR) has proven a successful demand management strategy for glaucoma suspect cases in the United Kingdom (UK). A GRR clinic was established in Dublin, Ireland to investigate the clinical viability of this pathway outside the UK's National Health Service (NHS) structures, and away from the influence of National Institute for Clinical Excellence (NICE) guidance. METHODS: Glaucoma suspect patients were recruited into the scheme following referral from community optometrists in the greater Dublin area. The GRR exam protocol was designed in consultation with the participating ophthalmology department. The refinement scheme optometrist, trained through apprenticeship style experience at a hospital outpatient clinic, made a tentative management decision after carrying out the GRR exam. The final management decision was made in a ‘virtual clinic’ by a glaucoma specialist consultant ophthalmologist. RESULTS: Two hundred and twenty-five glaucoma suspect patients were seen in the scheme. After their first GRR visit, 28% were discharged back to their own optometrist, 42% were monitored in the GRR clinic, and 30% were referred to ophthalmology. After this monitoring cohort were further assessed, a total of 38% of the patients seen within the scheme required referral to ophthalmology. Sixteen percent of the total participant group (n = 225) were lost to follow up. Cohen’s κ was used to determine the level of agreement between the scheme optometrist and ophthalmologist. There was substantial agreement, with κ = 0.63 for the first visit management decisions (n = 225). Agreement increased for subsequent monitoring visits with κ = 0.85 for second visits (n = 65), and κ = 0.69 for all management decisions within the scheme (n = 301). We received management outcomes for 44 of the 86 patients referred to ophthalmology. Of these 44, 57% received medical treatment for glaucoma, 34% were monitored without treatment, 2% were discharged, and 7% had comorbidities that were assessed and managed. CONCLUSION: Of the patients seen within the scheme, 62% did not require referral onward to ophthalmology, thus releasing the significant majority of hospital clinic slots that would previously have been required to
examine such patients. The high level of inter-professional decision agreement likely reflects the benefits of pre-scheme apprenticeship style training and ongoing hospital clinic participation by the scheme optometrist. The rate of loss to follow up compares favourably with ophthalmology led, hospital based, glaucoma clinics. Nevertheless, the losses indicate that patient education remains a key priority for future planning.

**Database:** Medline

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### 28. Helping across borders

**Author(s):** Anonymous

**Source:** Kai Tiaki : Nursing New Zealand; Nov 2018; vol. 24 (no. 10); p. 11

**Publication Date:** Nov 2018

**Publication Type(s):** News

Available at [Kai Tiaki : Nursing New Zealand](#) - from EBSCO (CINAHL Plus with Full Text)

Available at [Kai Tiaki : Nursing New Zealand](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** New Zealand's and Australia's multifaceted role in the Pacific was showcased in a number of presentations. Since 2015, a mobile eye clinic, provided by the Fred Hollows Foundation, has delivered services to more than 23,000 people in Fiji, from nurse-led screening clinics to free spectacles, to cataract surgery and diabetic retinopathy laser treatment. In the Kingdom of Tonga, support from Waitematâ District Health Board (DHB) has enabled nurse leaders to develop and implement a culturally appropriate clinical governance framework. Presentations on nurse-led NCD clinics in the northern group of the Cook Islands (where there are no airfields and ships may visit once every four months), and in Tonga's Vava'u group set the gold standard for universal health coverage and "leaving no-one behind", no matter how remote.

**Database:** BNI

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### 29. Evaluation of a combination digital retinal camera with spectral-domain optical coherence tomography (SD-OCT) that might be used for the screening of diabetic retinopathy with telemedicine: A pilot study

**Author(s):** Sanborn, George E; Wroblewski, John J

**Source:** Journal of Diabetes and its Complications; Nov 2018; vol. 32 (no. 11); p. 1046

**Publication Date:** Nov 2018

**Publication Type(s):** Journal Article

Available at [Journal of Diabetes and its Complications](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** Aims: Pilot study to determine whether an instrument combining a non-mydriatic retinal camera and spectral domain optical coherence tomography (SD-OCT) is effective for screening patients with diabetic retinopathy (DR). Methods: Case series conducted between 2012 and 2013. DR imaged with a retinal camera/SD-OCT instrument viewed remotely was compared to a dilated examination by a retina specialist. Results: The combination instrument was better than the retina...
specialist in detecting more severe retinopathy, primarily because of the SD-OCT. For severe retinopathy (grade ≥ 3), the image grader had better sensitivity (87.3% [95% CI: 75.5%, 94.7%]) than the retina examiner (76.4% [95% CI: 63.0%, 86.8%]). Specificities were similar between the instrument grader (96.0% [95% CI: 86.3%, 99.5%]) and retina examiner (100.0% [95% CI: 92.9%, 100.0%]). When identifying diabetic macular edema (ME), the retina examiner only identified 47.6% (20/42) of eyes with ME detected by SD-OCT. The instrument was better than a dilated retinal examination in detecting ME and not as good at detecting mild or proliferative retinopathy.

Conclusions: As used in this study, the instrument was more effective in identifying DR than was the current recommendation of a dilated and comprehensive eye examination. SD-OCT is needed to accurately identify DR in a screening setting.

Database: BNI


Author(s): Kortuem, Karsten; Fasler, Katrin; Charnley, Amanda; Khambati, Hussain; Fasolo, Sandro; Katz, Menachem; Balaskas, Konstantinos; Rajendram, Ranjan; Hamilton, Robin; Keane, Pearse A; Sim, Dawn A

Source: The British journal of ophthalmology; Oct 2018; vol. 102 (no. 10); p. 1391-1395

Publication Date: Oct 2018

Publication Type(s): Journal Article

PubMedID: 29306863

Available at The British journal of ophthalmology - from BMJ

Abstract: BACKGROUND: The increasing incidence of medical retinal diseases has created capacity issues across UK. In this study, we describe the implementation and outcomes of virtual medical retina clinics (VMRCs) at Moorfields Eye Hospital, South Division, London. It represents a promising solution to ensure that patients are seen and treated in a timely fashion. METHODS: First attendances in the VMRC (September 2016-May 2017) were included. It was open to non-urgent external referrals and to existing patients in a face-to-face clinic (F2FC). All patients received visual acuity testing, dilated fundus photography and optical coherence tomography scans. Grading was performed by consultants, fellows and allied healthcare professionals. Outcomes of these virtual consultations and reasons for F2FC referrals were assessed. RESULTS: A total number of 1729 patients were included (1543 were internal and 186 external referrals). The majority were diagnosed with diabetic retinopathy (75.1% of internal and 46.8% of external referrals). Of the internal referrals, 14.6% were discharged, 54.5% continued in VMRC and 30.9% were brought to a F2FC. Of the external referrals, 45.5% were discharged, 37.1% continued in VMRC and 17.4% were brought to a F2FC. The main reason for F2FC referrals was image quality (34.7%), followed by detection of potentially treatable disease (20.2%). CONCLUSION: VMRC can be implemented successfully using existing resources within a hospital eye service. It may also serve as a first-line rapid-access clinic for low-risk referrals. This would enable medical retinal services to cope with increasing demand and efficiently allocate resources to those who require treatment.

Database: Medline

31. Arteriovenous malformation of the iris

Author(s): Tang, Bobby; Dey, Moloy
A 73 year old man was referred by an optician for an abnormal vascular lesion of his right iris (fig 1). An important differential diagnosis is neovascularisation of the iris, also known as "rubeosis iridis," resulting from retinal ischaemia caused by conditions such as proliferative diabetic retinopathy and retinal vein occlusion. Other possible causes for a vascular lesion of the iris include a dilated vessel resulting from an underlying malignancy, or benign vascular tumours.

**Database:** BNI

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**Source:** BMJ : British Medical Journal (Online); Sep 2018; vol. 362
**Publication Date:** Sep 2018
**Publication Type(s):** Case Study Image/Photograph Journal Article

**Abstract:**
A 73 year old man was referred by an optician for an abnormal vascular lesion of his right iris (fig 1). An important differential diagnosis is neovascularisation of the iris, also known as "rubeosis iridis," resulting from retinal ischaemia caused by conditions such as proliferative diabetic retinopathy and retinal vein occlusion. Other possible causes for a vascular lesion of the iris include a dilated vessel resulting from an underlying malignancy, or benign vascular tumours.

**Database:** BNI

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**Author(s):** Wilde, Craig; Poostchi, Ali; Narendran, Rajesh; MacNab, Hamish K; Hillman, Jonathan G; Alexander, Phillip; Amoaku, Winfried M; Vernon, Stephen A
**Source:** Eye (London, England); Nov 2018
**Publication Date:** Nov 2018
**Publication Type(s):** Journal Article
**PubMedID:** 30385878

**Abstract:**
AIMS: To determine disc haemorrhage (DH) prevalence in an elderly UK population-the Bridlington Eye Assessment Project (BEAP). METHODS: Thirty-degree fundus photographs (3549 participants ≥65 years) were graded for DH/macula changes. Glaucoma evaluation included Goldmann tonometry, 26-point suprathreshold visual-fields and mydriatic slit-lamp assessment for glaucomatous optic neuropathy. RESULTS: In all, 3548 participants with photographs in at least one eye. DHs were present in 53 subjects (1.49%), increasing from 1.17% (65- to 69-year age group) to 2.19% (80- to 84-year age group), p = 0.06. DH was found in 9/96 (9.38%) right eyes (RE) with open-angle glaucoma (OAG). Two of twelve RE (16.67%) with normal-tension glaucoma (NTG) had DH. Prevalence in eyes without glaucoma was lower (32/3452, [0.93%]). Reticular pseudodrusen (RPD) occurred in 170/3212 (5.29%) subjects without DH, and 8/131 subjects (6.11%) with OAG. Twenty eyes had NTG, two of whom had RPD (10%) (p = 0.264). Within a logistic regression model, DH was associated with glaucoma (OR 10.2, 95% CI 5.32-19.72) and increasing age (OR 1.05, 95% CI 1.00-1.10, p = 0.03). DH was associated with RPD (p = 0.05) with univariate analysis but this was not statistically significant in the final adjusted model. There was no significant association with gender, diabetes mellitus (DM), hypertension treatment or Age-related Macular Degeneration (AMD) grade.
CONCLUSION: DH prevalence is 1.5% in those over 65 years old and significantly associated with glaucoma and increasing age. There appears to be increased RPD prevalence in eyes with DH and NTG with age acting as a confounding factor. Larger studies are required to fully assess the relationship and investigate a possible shared aetiology of choroidal ischaemia.

**Database:** Medline

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33. Conjunctival bleb compression sutures: An effective method of addressing hypotony after trabeculectomy or trabeculectomy-related procedures.
Author(s): Yu, Jonathan Ts; Mercieca, Karl; Au, Leon

Source: European journal of ophthalmology; Nov 2018; vol. 28 (no. 6); p. 731-734

Publication Date: Nov 2018

Publication Type(s): Journal Article

PubMedID: 29888614

Abstract: PURPOSE: Over-filtration is a well-known complication of trabeculectomy and related procedures, especially with adjunctive antimetabolites. Secondary hypotony can result in reduced visual acuity and compromise long-term surgical success. Persistent hypotony requires intervention and we describe an effective adaptation of placing conjunctival compression sutures directly over the scleral flap. METHODS: A retrospective consecutive case series of all patients who underwent conjunctival compression suturing from 2012 to 2014 at Manchester Royal Eye Hospital, UK. Under sub-tenon's anaesthesia, two 9/0 nylon figure-of-eight transconjunctival sutures were placed horizontally across the bleb: the first over the anterior flap/ostium and the second over the posterior flap edge to reduce flow through the trabeculectomy flap. RESULTS: A total of 10 patients underwent conjunctival compression suturing, and all patients had successful reversal of hypotony and symptom resolution within 1 week with corresponding clinical improvement. Intraocular pressure control was maintained without topical pressure-lowering agents in seven patients (median = 10 mmHg, range = 7-12 mmHg) with a median follow-up of 35.9 months (range = 11-61 months). Two patients required topical therapy to maintain intraocular pressure ≤ 14 mmHg and one patient's hypotony returned after 10 months but remained untreated due to pre-existing poor vision. No patients required a return to theatre. CONCLUSION: This series demonstrates that conjunctival compression sutures can successfully provide long-term control of trabeculectomy-bleb-related hypotony. This technique offers an effective alternative for glaucoma surgeons in addressing post-trabeculectomy hypotony.

Database: Medline

34. The feasibility of finger prick autologous blood (FAB) as a novel treatment for severe dry eye disease (DED): protocol for a randomised controlled trial.

Author(s): Balal, Shafi; Udoh, Arit; Pappas, Yannis; Cook, Erica; Barton, Garry; Hassan, Ali; Hayden, Karen; Bourne, Rupert Richard Alexander; Ahmad, Sajjad; Pardhan, Shahina; Harrison, Michael; Sharma, Benjamin; Wasil, Mohammad; Sharma, Anant

Source: BMJ open; Oct 2018; vol. 8 (no. 10); p. e026770

Publication Date: Oct 2018

Publication Type(s): Journal Article

PubMedID: 30385451

Available at BMJ Open - from BMJ Journals

Available at BMJ Open - from Europe PubMed Central - Open Access

Available at BMJ Open - from HighWire - Free Full Text

Abstract: INTRODUCTION Patients with severe dry eye disease (DED) often have limited treatment options with standard non-surgical management focused on the use of artificial tears for lubrication and anti-inflammatory drugs. However, artificial tears do not address the extraordinary complexity of human tears. Crudely, human tears with its vast constituents is essentially filtered blood. Blood and several blood-derived products including autologous serum, have been studied as tear
substitutes. This study proposes to test the use of whole, fresh, autologous blood obtained from a finger prick for treatment of severe DED. METHODS AND ANALYSIS: The research team at the two participating sites will approach patients with severe DED for this study. Recruitment will take place over 12 months and we expect to recruit 60 patients in total. The primary outcome of this feasibility study is to estimate the proportion of eligible patients approached who consent to and comply with study procedures including treatment regimen and completion of required questionnaires. The secondary outcome measures, although not powered for in this feasibility, include corneal inflammation (assessed by the Oxford corneal staining guide), patient pain and symptoms scores (assessed by the Ocular Surface Disease Index Score), and objective signs of DED as indicated by visual acuity (assessed by Schirmer’s test, tear break-up time, lower and/or upper tear meniscus height measurement). Other secondary outcomes include patients’ quality of life (assessed using the validated EQ-5D-5L Questionnaire), cost to the National Health Service (NHS) and patient (assessed via use of NHS services and privately purchased over-the-counter treatment related to DED) and safety measure of pressure within the eye (assessed by the Intraocular Pressure (IOP) Score). ETHICS AND DISSEMINATION This protocol and any subsequent amendments, along with any accompanying material provided to the participant in addition to any advertising material used in this trial have been approved by the East of England - Cambridgeshire and Hertfordshire Research Ethics Committee (REC reference: 17/EE/0508). Written approval from the committee was obtained and subsequently submitted to the respective Trust’s Research and Development (R&D) office with final NHS R&D approval obtained. Data obtained from this study will be published in a suitable peer review journal and will also presented at international ophthalmic conferences including the American Academy of Ophthalmology, the Royal College of Ophthalmology Annual Congress, the Association for Research and Vision and Ophthalmology, and the European Society of Cataract and Refractive Surgery. Information will be provided to patient groups and charities such as the Sjogren’s Society and the Royal National Institute of Blind People. This will also be shared with the study participants as well as with relevant patient groups and charities.TRIAL REGISTRATION NUMBERNCT03395431; Pre-results.

Database: Medline


Author(s): Ko, Fang; Muthy, Zaynah A; Gallacher, John; Sudlow, Cathie; Rees, Geraint; Yang, Qi; Keane, Pearse A; Petzold, Axel; Khaw, Peng T; Reisman, Charles; Strouthidis, Nicholas G; Foster, Paul J; Patel, Praveen J; UK Biobank Eye & Vision Consortium

Source: JAMA neurology; Oct 2018; vol. 75 (no. 10); p. 1198-1205

Publication Date: Oct 2018

Publication Type(s): Journal Article

PubMedID: 29946685

Available at JAMA Neurology - from EBSCO (MEDLINE Complete)

Abstract: Importantly, identifying potential screening tests for future cognitive decline is a priority for developing treatments for and the prevention of dementia. Objective: To examine the potential of retinal nerve fiber layer (RNFL) thickness measurement in identifying those at greater risk of cognitive decline in a large community cohort of healthy people. Design, Setting, and Participants: UK Biobank is a prospective, multicenter, community-based study of UK residents aged 40 to 69 years at enrollment who underwent baseline retinal optical coherence tomography imaging, a
physical examination, and a questionnaire. The pilot study phase was conducted from March 2006 to June 2006, and the main cohort underwent examination for baseline measures from April 2007 to October 2010. Four basic cognitive tests were performed at baseline, which were then repeated in a subset of participants approximately 3 years later. We analyzed eyes with high-quality optical coherence tomography images, excluding those with eye disease or vision loss, a history of ocular or neurological disease, or diabetes. We explored associations between RNFL thickness and cognitive function using multivariable logistic regression modeling to control for demographic as well as physiologic and ocular variation. Main Outcomes and Measures: Odds ratios (ORs) for cognitive performance in the lowest fifth percentile in at least 2 of 4 cognitive tests at baseline, or worsening results on at least 1 cognitive test at follow-up. These analyses were adjusted for age, sex, race/ethnicity, height, refraction, intraocular pressure, education, and socioeconomic status.

Results: A total of 32,038 people were included at baseline testing, for whom the mean age was 56.0 years and of whom 17,172 (53.6%) were women. A thinner RNFL was associated with worse cognitive performance on baseline assessment. A multivariable regression controlling for potential confounders showed that those in the thinnest quintile of RNFL were 11% more likely to fail at least 1 cognitive test (95% CI, 2.0%-2.1%; P = .01). Follow-up cognitive tests were performed for 1251 participants (3.9%). Participants with an RNFL thickness in the 2 thinnest quintiles were almost twice as likely to have at least 1 test score be worse at follow-up cognitive testing (quintile 1: OR, 1.92; 95% CI, 1.29-2.85; P < .001; quintile 2: OR, 2.08; 95% CI, 1.40-3.08; P < .001). Conclusions and Relevance: A thinner RNFL is associated with worse cognitive function in individuals without a neurodegenerative disease as well as greater likelihood of future cognitive decline. This preclinical observation has implications for future research, prevention, and treatment of dementia.

Database: Medline

36. BLINDNESS RELATED TO PRESUMED RETINAL TOXICITY AFTER USING PERFLUOROCARBON LIQUID DURING VITREORETINAL SURGERY.

Author(s): Méndez-Martínez, Silvia; Calvo, Pilar; Rodriguez-Marco, Nelson Arturo; Faus, Fernando; Abecla, Emilio; Pablo, Luis

Source: Retina (Philadelphia, Pa.); Sep 2018; vol. 38 (no. 9); p. 1856-1864

Publication Date: Sep 2018

Publication Type(s): Case Reports Journal Article Observational Study

PubMedID: 28723847

Abstract: PURPOSE: To describe the presumed retinal toxicity after using specific batches of perfluorocarbon liquid ALA OCTA (Alamedics, Dornstadt, Germany) in pars plana vitrectomy.

METHODS: This is an observational retrospective consecutive case series analyses of patients operated on pars plana vitrectomy for retinal detachment or intraocular lens subluxation, using the 150141 or 200114 batches of perfluorocarbon liquid ALA OCTA as assistance during the surgery in a single center. Patients were included in this report if they manifested retinal toxicity signs throughout the follow-up, such as retinal and retinal pigment epithelium atrophy, disk paleness, and intensive macular fibrosis. Spectral domain optical coherence tomography (Spectralis; Heidelberg Engineering, Heidelberg, Germany) and Ultra-Wide Field 200° retinal camera (Optos P200Tx; Optos, Scotland, United Kingdom) images, electrophysiological tests, and visual fields were performed to analyze the retinal structure and functionality.

RESULT: Seven of 80 patients showed all the described signs of toxicity, after a mean follow-up of 34.29 days (range: 10-87) since surgery. Four patients needed a second pars plana vitrectomy because of tractional retinal detachment and proliferative
vitreoretinopathy, and two of them underwent a third surgery because of redetachment. All patients experienced amaurosis or central scotoma, with a final best-corrected visual acuity ranging from 20/200 to light perception. CONCLUSION: Presumed toxic batches of perfluorocarbon liquid may cause massive retinal toxicity. A rapid suspicion, a correct traceability of surgical products, and informing health authorities are fundamental to prevent further cases of toxicity.

**Database:** Medline

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**37. The relationship between unwarranted variation in optometric referrals and time since qualification.**

**Author(s):** Parkins, David J; Benwell, Martin J; Edgar, David F; Evans, Bruce J W

**Source:** Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists); Sep 2018; vol. 38 (no. 5); p. 550-561

**Publication Date:** Sep 2018

**Publication Type(s):** Journal Article

**PubMedID:** 30175473

Available at Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists) - from Wiley

**Abstract:** PURPOSE: To investigate variation in optometric referral decision-making and the influence of experience and continuing education and training (CET). METHODS: To gain insight into unwarranted variation in referral activity in the United Kingdom (UK): (1) triage data were audited to investigate source of referral, provisional diagnosis, and outcome; (2) an online system was developed to present two sets of 10 vignettes, designed to avoid prompting answers. Participating optometrists completed 10 pre-CET vignettes, recording their tests and management decisions. The main group of participants chose whatever CET they wished over a 6-month period and then completed another 10 post-CET vignettes. A second group of newly-qualified optometrists completed the vignettes before and after a CET course intervention, followed by a third group of pre-registered optometrists with an intervention of 6-months experience of their pre-registration year. RESULTS: The audit identified 1951 optometric referrals and 158 optometrists (211 referrals were from general medical practitioners), with 122 of the 158 optometrists making fewer than ten referrals. Two newly-qualified optometrists generated 12.5% of the total referrals in the audit (N = 2162). Many suspect glaucoma referrals were based on a single suspect measurement resulting in a high discharge rate after community review, as did referrals for certain fundus-related appearances for which no treatment was indicated. The intervention of gaining CET points appeared to have no significant impact (p = 0.37) on referral decision-making, although this part of the study was underpowered. Self-selection bias was confirmed in the main group. When the main group and newly-qualified practitioners were compared, the number of referrals was negatively associated with time since qualification (p = 0.005). When all 20 referral decisions were compared, all optometrists referring more than 10 vignette patients came from a group of newly-qualified practitioners up to 2 years post-qualification. Pre-registered optometrists generally referred more appropriately than newly-qualified. Upon qualification, there was a significant increase in the number of sight tests undertaken per day (p = <0.0005). CONCLUSIONS: Gaining CET points alone is unlikely to significantly improve referral decision-making. Mentoring and targeted CET for the newly-qualified up to 2 years post-qualification should be considered. Ophthalmology replies to the referring newly-qualified optometrist are vital for moderating future referrals and developing clinical confidence.

**Author(s):** Davies-Kershaw, Hilary R; Hackett, Ruth A; Cadar, Dorina; Herbert, Annie; Orrell, Martin; Steptoe, Andrew

**Source:** Journal of the American Geriatrics Society; Sep 2018; vol. 66 (no. 9); p. 1823-1829

**Publication Date:** Sep 2018

**PubMedID:** 30098017

Available at [Journal of the American Geriatrics Society](https://www.wiley.com) from Wiley

**Abstract:** OBJECTIVES: To determine whether vision impairment is independently associated cross-sectionally and longitudinally with dementia. DESIGN: Retrospective cohort study. SETTING: English Longitudinal Study of Ageing. PARTICIPANTS: Individuals aged 50 and older. MEASUREMENTS: Cross-sectional association between self-rated vision (poor or blind, moderate, normal) and dementia was analyzed, adjusting for potential confounders (sex, wealth, education, cardiovascular risk factors) using multivariable logistic regression. We also modelled the adjusted longitudinal association between vision impairment and dementia over an average of 11 years of follow-up using Cox proportional hazards regression for individuals aged 50 to 69 and those aged 70 and older. RESULTS: After adjustment for confounders, participants who rated their vision as moderate were 2.0 (95% confidence interval (CI)=1.4-3.1) times as likely as those with normal vision to have dementia, and those who rated their vision as poor were 4.0 (95% CI=2.6-6.1) times as likely. Longitudinally, individuals aged 50 to 69 who rated their vision as moderate (1.8, 95% CI=1.0-3.0) or poor (3.6, 95% CI=1.1-11.8) were at greater risk of developing dementia than those who rated their vision as normal. There was no significant difference in risk in those aged 70 and older. CONCLUSION: Our study confirms and extends findings from other countries, demonstrating cross-sectional associations between moderate and poor self-rated vision and dementia in England in all participants aged 50 and older and longitudinally over an 11-year period in those aged 50 to 69. These results help establish vision loss as a risk factor for dementia, although it is unclear why. Research is needed to determine whether screening and treatment for vision loss may slow cognitive decline.

**Database:** Medline

39. 'Has she seen me?': a multiple methods study of the pharmaceutical care needs of older people with sensory impairment in Scotland.

**Author(s):** Alhusein, Nour; Macaden, Leah; Smith, Annetta; Stoddart, Kathleen M; Taylor, Andrea J; Killick, Kirsty; Kroll, Thilo; Watson, Margaret C

**Source:** BMJ open; Aug 2018; vol. 8 (no. 8); p. e023198

**Publication Date:** Aug 2018

**PubMedID:** 30082364

Available at [BMJ Open](https://bmjopen.bmj.com) from BMJ Journals
Abstract: OBJECTIVES: To explore the pharmaceutical care needs of, and service provision to, older people with sensory impairment (visual, hearing and dual impairment) on prescribed polypharmacy (≥4 medicines) in Scotland. DESIGN: Interviews were conducted with older people with sensory impairment and community pharmacy personnel, which informed the content of a subsequent national cross-sectional survey of community pharmacists. SETTING: Scotland, 2015-2016. PARTICIPANTS: Older people with sensory impairment and community pharmacy personnel. RESULTS: Interviews were completed with 23 older people with sensory impairment (dual impairment n=13, visual or hearing impairment n=5 of each) and 30 community pharmacy personnel from eight of 14 Scottish Health Boards. A total of 171 survey responses were received. Older people reported that they did not always disclose their sensory impairment to pharmacy personnel. They also reported that medicines were difficult to identify particularly when their name, shape or colour changed. Pharmacy personnel relied on visible cues such as white canes or guide dogs to identify visual impairment and suggested that hearing loss was less visible and more difficult to identify. Many assistive aids in support of medicine management, such as dosette boxes, seemed inadequate for complex medication regimens. Few community pharmacy personnel reported receiving training in the care of people with sensory impairment. CONCLUSIONS: This is the first comprehensive, multistakeholder, in-depth exploration of the pharmaceutical care needs of older people with sensory impairment. Strategies are needed to enable people with sensory impairment to disclose their impairment to pharmacy personnel (and other healthcare providers). Community pharmacy personnel require training to deliver person-centred pharmaceutical care for older people with sensory impairment particularly regarding communication with individuals in this vulnerable population.

Database: Medline

40. Chronic Intraocular Inflammation as a Risk Factor for XEN Gel Stent Occlusion: A Case of Microscopic Examination of a Fibrin-obstructed XEN Stent.

Author(s): Gillmann, Kevin; Mansouri, Kaweh; Bravetti, Giorgio E; Mermoud, André

Source: Journal of glaucoma; Aug 2018; vol. 27 (no. 8); p. 739-741

Publication Date: Aug 2018

Publication Type(s): Journal Article

PubMedID: 29877971

Abstract: INTRODUCTION: In recent years microinvasive glaucoma surgery has risen in popularity. Among microinvasive glaucoma surgery options is the XEN gel stent (Allergan Plc, Dublin, Ireland), a 45 μm wide ab-interno microstent. It has proven effective in lowering intraocular pressure (IOP) with low complication rates. However, XEN gel stents can become obstructed and cause postoperative rise in IOP. The causes and predicting factors for such obstructions still requires further research. CASE REPORT: We describe the case of a 69-year-old male patient, with traumatic glaucoma and chronic intraocular inflammation showed by laser flare photometry, following childhood trauma and anterior segment surgery. Uncontrollable IOP despite maximal antiglaucomatous therapy was managed with XEN-augmented Baerveldt surgery. Despite good initial filtration and IOP control, the XEN stent became obstructed and was surgically replaced. After a month, the new stent became obstructed and was replaced by a thicker-lumened Baerveldt tube. This restored good filtration, and adequate IOP was maintained postoperatively. Microscopic examination of the obstructed XEN stent
showed a dense fibrin plug. DISCUSSION AND CONCLUSIONS: This case report shows that fibrin formation could be an important factor in XEN gel stent obstruction, even in initially successfully filtering stents. The association of fibrinogenesis and intraocular inflammation could add a note of caution to the use of XEN gel stents in complicated cataract surgery, or advocate for aggressive anti-inflammatory treatments postoperatively. This could lead to a refinement in success predictors and better patient selection for XEN surgery. Finally, this could open the way to new management options for persistent obstructions, including pharmaceutical fibrinolysis.

Database: Medline

Author(s): Reichert, Anika; Jacobs, Rowena
Source: Health economics; Nov 2018; vol. 27 (no. 11); p. 1772-1787
Publication Date: Nov 2018
Publication Type(s): Journal Article
PubMedID: 30014544
Available at Health Economics - from Wiley
Available at Health Economics - from EBSCO (MEDLINE Complete)
Abstract: Recently, new emphasis was put on reducing waiting times in mental health services as there is an ongoing concern that longer waiting time for treatment leads to poorer health outcomes. However, little is known about delays within the mental health service system and its impact on patients. We explore the impact of waiting times on patient outcomes in the context of early intervention in psychosis (EIP) services in England from April 2012 to March 2015. We use the Mental Health Services Data Set and the routine outcome measure the Health of the Nation Outcome Scale. In a generalised linear regression model, we control for baseline outcomes, previous service use, and treatment intensity to account for possible endogeneity in waiting time. We find that longer waiting time is significantly associated with a deterioration in patient outcomes 12 months after acceptance for treatment for patients that are still in EIP care. Effects are strongest for waiting times longer than 3 months, and effect sizes are small to moderate. Patients with shorter treatment periods are not affected. The results suggest that policies should aim to reduce excessively long waits in order to improve outcomes for patients waiting for treatment for psychosis.
Database: Medline

42. Evaluation of rhegmatogenous retinal detachments using Optos ultrawide field fundus fluorescein angiography and comparison with ETDRS 7 field overlay.
Author(s): Tripathy, Koushik; Chawla, Rohan; Wadekar, Bhushan Ratansingh; Venkatesh, Pradeep; Sharma, Yog Raj
Source: Journal of current ophthalmology; Sep 2018; vol. 30 (no. 3); p. 263-267
Publication Date: Sep 2018
Publication Type(s): Journal Article
PubMedID: 30197958
Abstract: PurposeTo evaluate the ultrawide field fundus fluorescein angiography (UW FA) characteristics of rhegmatogenous retinal detachments (RRDs) and compare the findings with an early treatment diabetic retinopathy study (ETDRS) 7 field (ETDRS7F) overlay. Methods: UW FA (Optos, PLC, Dunfermline, UK) was performed in 10 eyes with macula-off RRDs in 9 patients. The findings of UWFA were compared with that of an overlay of standard ETDRS7F. ResultsVascular dilation, tortuosity of vessels, and blockage of choroidal fluorescence were noted in all eyes in both UWFA and ETDRS7F overlay. Other findings in UWFA and ETDRS7F included peripheral perivascular staining (10 versus 4 eyes), peripheral capillary nonperfusion (CNP) (9 eyes compared to none), vascular loop formation (7 eyes versus none), optic disc hyperfluorescence (5 eyes in both), petaloid leak at macula (2 eyes in both), and neovascularization elsewhere (3 eyes versus none). Conclusions: Peripheral perivascular staining and leak, CNP, and vascular tortuosity are common UWFA features of RRDs. Standard ETDRS7F missed peripheral CNP, peripheral vascular loops, and peripheral retinal new vessels in all eyes compared to UWFA in the current study.

Database: Medline

43. Five cases of orbital extramedullary plasmacytoma: diagnosis and management of an aggressive malignancy.

Author(s): Wang, Samuel S Y; Lee, Mitchell B; George, Adarsh; Wang, Sarah B; Blackwell, Jonathan; Moran, Steve; Francis, Ian C

Source: Orbit (Amsterdam, Netherlands); Jul 2018 ; p. 1-8

Publication Date: Jul 2018

Publication Type(s): Journal Article

PubMedID: 29985709

Abstract: PURPOSE Multiple myeloma is an insidious haematological malignancy characterised by monoclonal proliferation of plasma cells in the bone marrow. Extramedullary plasmacytoma is a rare manifestation of multiple myeloma and usually occurs in the upper respiratory tract. Orbital involvement is particularly uncommon, but may be associated with devastating visual impairment and poor clinical outcomes. Therefore, this article aims to highlight the need for multidisciplinary management of orbital extramedullary plasmacytoma. METHODS: This is a retrospective observational case series of five patients. All presented to the authors for management of orbital extramedullary plasmacytomas from 2004 to 2015 at Prince of Wales and Mater Hospitals in Sydney, Australia. Medical records were reviewed for pertinent information including demographics, disease features, management strategy, and clinical progress. The study met Medical Ethics Board standards and is in accordance with the Helsinki Agreements. RESULTS: This case series of five patients underscores the poor prognosis of orbital extramedullary plasmacytoma. Despite aggressive multidisciplinary management, four of these five patients succumbed to their illness during the study period. However, multidisciplinary management did manage to minimise symptoms and preserve quality of life. CONCLUSIONS: On a case-by-case basis, patients may derive palliative benefit from orbital surgery in conjunction with radiotherapy and chemotherapy. Orbital surgeons are encouraged to work within a multidisciplinary framework of medical specialists, including haematologists and radiation oncologists, when determining the optimal management plan in cases of orbital extramedullary plasmacytoma.

Database: Medline
NICE PUBLICATIONS

Nice Guidance and publications
(https://www.nice.org.uk/guidance/conditions-and-diseases/eye-conditions)

Serious eye disorders
Quality standard (in development GID-QS10058)
Expected publication date: 12th February 2019
https://www.nice.org.uk/guidance/indevelopment/gid-qqs10058

In development with publications dates TBC

Fluocinolone acetonide ocular implant for treating recurrent non-infectious uveitis ID1039
Technology appraisal guidance
In development [GID-TA10368]
https://www.nice.org.uk/guidance/indevelopment/gid-ta10368

IMCgp100 for treating metastatic uveal melanoma (ID1441)
Technology appraisal guidance
In development [GID-TA10428]
https://www.nice.org.uk/guidance/indevelopment/gid-ta10428

Lifitegrast for treating dry eye disease [ID1229]
Technology appraisal guidance
In development [GID-TA10196]
https://www.nice.org.uk/guidance/indevelopment/gid-ta10196

Voretigene neparvovec for treating inherited retinal dystrophies caused by RPE65 gene mutations ID1054
Highly specialised technologies guidance
In development [GID-HST10025]
Expected publication date: 24th October 2019
https://www.nice.org.uk/guidance/indevelopment/gid-hst10025
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