CONCLUSIONS: GMMs have the potential to increase understanding of treatment effects and identify patients more likely to benefit from treatment. The ability of baseline characteristics to predict responders/non responders needs to be tested prospectively.

Sensory Systems Disorders – Clinical Outcomes Studies

PSS1
OCULAR DISCOMFORT, COMPLIANCE AND INTRA-OCULAR PRESSURE (IOP) CONTROL IN PATIENTS TREATED FOR GLAUCOMA
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OBJECTIVES: To investigate the associations between ocular discomfort, compliance and efficacy of IOP lowering drugs. METHODS: This was a prospective observational survey. Centres were selected at random from the CEGEDIM list. Consecutive patients attending the following eye care centres (EDSQ, TSQM and TEO) and self-reported ocular discomfort (13 items with a focus on instillation and during the day) based on a questionnaire developed according to international patient reported outcome recommendations were collected at the last visit. Patients were classified into 3 groups of compliance (good, minor and major issues) using the TEO published algorithm. Comparisons between compliance groups were made by ANOVA and chi-square tests. Adjustments were made for confounding variable unbalances. RESULTS: 410 patients (66 years old, 23% females, 101 ocular hypertensions) were included. 32.9% reported good compliance, 55.9% minor and 11.2% major compliance issues. Patients reporting either red eyes (P = 0.02), stinging (P = 0.007), feeling of sand in the eyes (P = 0.0009), dry eye (P = 0.03) or blurring vision (P = 0.002) were more likely to report compliance issues. Patients in the good compliance group reported 3.2 dolor ocular symptoms, 4.5 in the minor and 5.2 in the major compliance issue group (P = 0.0002). The probabilities to report no concern were 32.4%, 12.7% and 11.9% (P = 0.02), respectively. An association between IOP control and compliance was reported in the group of patients that did not have a change in treatment at the first visit: patients in the good compliance group had an IOP decrease of 0.9 mmHg, 0.3 mmHg in the minor and a 0.2 mmHg increase in the major compliance issue group. CONCLUSIONS: Ocular discomfort issues reported by patients might impact compliance leading to poor IOP control.

PSS2
PREVALENCE, DEMOGRAPHICS AND TREATMENT CHARACTERISTICS OF VISUAL IMPAIRMENT DUE TO DIABETIC MACULAR EDEMA IN A REPRESENTATIVE CANADIAN COHORT
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OBJECTIVES: To determine the prevalence, demographics and treatment characteristics of visual impairment due to diabetic macular edema (DME) in a real-world Canadian setting. METHODS: Records from a longitudinal population-based database of more than 170,000 patients in 53 family practice clinics in southwestern Ontario, Canada were analyzed between January 1, 2008 and December 31, 2009. These records contained chart-abstracted information such as visit diagnosis, medications and consultation notes. Initial extractions of control, diabetic and DME patients, prevalence of DME was 15.7%. Average duration of diabetes among patients with DME was 19 years. More patients with DME had hypertension (66%), or vascular disease (28%) than the control cohort (p<0.05). The prevalence of DME due to DME was 2.56%. Mean age was 64±17. In patients with DVE due to DME, 53% had focal and 47% had diffuse edema. For both focal and diffuse edema, the most common treatment was laser monotherapy, used in 62% and 53% of cases, respectively. CONCLUSIONS: In a real-world setting, among patients with diabetes, we observed the prevalence of DVE due to DME at 2.56%. Laser monotherapy was the most common treatment.

PSS3
INCIDENCE AND CHARACTERISTICS OF PATIENTS WITH MACULAR EDEMA SECONDARY TO RETINAL VEIN OCCLUSION IN A REPRESENTATIVE CANADIAN COHORT
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OBJECTIVES: Retinal vein occlusion (RVO) has an abrupt onset and is an important cause of visual morbidity. Macular edema (ME) is the most common cause of visual impairment (VI) in patients with RVO. The Canadian incidence of VI due to ME secondary to branch RVO is unknown. This study aimed to determine the annual incidence and characteristics of patients with ME secondary to branch RVO (BRVO) and central RVO (CRVO) in a real-world Canadian setting. METHODS: Records from a longitudinal population-based database of more than 170,000 patients in 53 family practice clinics in southwestern Ontario, Canada were analyzed between January 1, 2008 and December 31, 2009. These records contained chart-abstracted information such as visit diagnosis, medications and consultation notes. Initial extractions of control and RVO patients with ME and VI (defined as best corrected visual acuity <20/40 in the RVO eye), were accomplished utilizing International Classification of Disease codes (ICD9/ICD10); reviewing patient chart, demographic and characteristics of patients that supported a diagnosis of RVO and concomitant comorbidity; and reviewing patient treatment records unique to RVO including consultation notes and hospital discharge summaries. Demographic characteristics and comorbidities were reported. RESULTS: Twenty-three (3) with BRVO and 20 with CRVO of 47,166 patients over 40 years (mean age 61±17 years) with new diagnosis of RVO and a control cohort of 76,077 patients were extracted for this analysis. The annual incidence of VI due to ME secondary to BRVO and CRVO was 0.056% and 0.021%, respectively. More RVO patients had hypertension (68 vs. 18%) or dyslipidemia (16 vs. 10%) than control cohort (p<0.05). One-quarter of RVO patients had a history of vascular disease, primarily MI and stroke. CONCLUSIONS: In a real-world setting, the annual incidence of VI due to ME secondary to BRVO and CRVO was 0.056% and 0.021%, respectively. RVO is associated with several vascular comorbidities.

PSS4
LONG TERM PATIENT BENEFITS OF POLYQUAD® PRESERVATIVE INSTEAD OF BENZALKONIUM CHLORIDE IN PROSTAGLANDIN EYE DROPS: A MICROSIMULATION MODEL IN OCULAR HYPERTENSION AND OPEN-ANGLE GLAUCOMA
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OBJECTIVES: The presence of the preservative benzalkonium chloride (BAC) at 0.005% concentration in prostaglandin eye drops is known to increase the risk of ocular surface disease (OSD), which worsens with the extent of exposure to BAK. We aimed to estimate longer term clinical outcomes with travoprost preserved with Polyquad® 0.001% instead of BAK. METHODS: A Markov microsimulation model was developed. Transition probabilities of OSD and disease progression (Mean Defect, MD) in db) over 10 years, in patients initiating travoprost with Polyquad® followed by travoprost/beta-blocker fixed combination vs. the same sequence using BAK-preserved drops. Initial patient’s characteristics came from distributions on age (normal), sex, OSD, disease stage (uniform) and anticipated progression rates (triangular). The risk of developing OSD in aging population was derived from a US incidence study, multiplied by independent risk factors (age, sex, duration and amount of BAK-containing drops received). Rates of disease progression (db/year) came from landmark studies in OHT/glaucoma, multiplied by independent accelerating factors (disease stage, treatment line, OSD severity, non-compliance). Compliance was expected by experts to be 20% (absolute) better with Polyquad® vs. BAK-preserved drops. RESULTS: Using 3000 trials (mean age 57 years, 57% female, 14% with initial OSD, mean MD -4db), 47.6% [41.5-53.6]% of patients receiving in first and second line BAK-preserved travoprost treatments are expected to have OSD at 10 years versus 31.7% [28.5-35.1]% with Polyquad®. In OHT/early glaucoma patients, the model predicted the progression to advanced glaucoma (MD< -12db) of 13.2% [12.0-14.4%] with BAK versus 7.5% [6.7-8.7]% with BAK. For patients with moderate glaucoma, 1.9% [1.4-2.4]% versus 5.6% [4.8-6.4]% progressed to blindness (MD< -24db) respectively. CONCLUSIONS: The model estimated that OSD incidence was reduced by 33% and glaucoma disease progression was significantly less frequent after 10 years of use of Polyquad® versus BAK-containing travoprost eye drops.

PSS5
VISUAL FIELD EVOLUTION IN GLAUCOMA PATIENTS PRESENTING WITH DIFFERENT DISEASE STAGES: RESULTS FROM AN OBSERVATIONAL STUDY
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OBJECTIVES: The progression of glaucoma is measured by a Mean Defect (MD) of the perimeter in decibels (db), from an early disease stage (-6db loss), until moderate (-6-12db loss), advanced stages (12-24db loss) and eventually blindness (>24db loss). The rate of disease progression is highly variable between individuals and hard to predict. The objective of this study was to analyze the change in MD of glaucoma patients in a real-life setting in Germany. METHODS: We analyzed patient-level data from a German observational study in ocular hypertension (OHT) and glaucoma, with retrospective collection of MD measures (db). Descriptive statistics were derived on the rate of disease progression (db loss/year, obtained by dividing the change in MD by the duration of observation). The change in MD in best eye between the time of first treatment until last MD measure was included in a generalized linear regression model for age, sex, presence of cataract, time since first treatment, initial MD and initial glaucoma stage (OHT, early/moderate or advanced). RESULTS: MD data was available for 53 patients (53 females, mean age 67±12 years). The mean (SD) time from first treatment until last MD measure was 3.7±2.5 years. The mean (SD) MD was -5.6db (4.7) at first treatment and -0.60db (6.8) at last assessment (i.e. average rate of progression of -0.21db/year, all stages). In 12 OHT patients, 50% had no MD worsening, while 50% lost on average -0.26db/year. Based on the adjusted analysis, the initial diagnosis was significantly associated with the amount of db loss over time (early/moderate glaucoma -0.19db/year vs -0.13, advanced -0.66db/year vs -0.22, p=0.038). CONCLUSIONS: The rates of disease progression measured over more than 7 years in glaucoma patients was...
significantly increasing with their initial disease severity. Amount of db loss per year were in line with previously published prospective studies.

PSS6 EPIDEMIOLOGY, DISEASE BURDEN, SYMPTOMATOLOGY, TREATMENT PATTERN, AND QUALITY OF LIFE IN MACULAR DEGENERATION IN KOREA: SYSTEMATIC LITERATURE REVIEW BASED ON KOREAN EVIDENCE

OBJECTIVES: The objective of this study was to summarize epidemiology, disease burden, symptomatology, treatment pattern, and quality of life in macular degeneration (MD) in the Korean population through a systematic literature review.

METHODS: Literature searches were conducted through Korean databases (KISS, KMIR), Google Scholar, National Assembly Library, national statistics, and ophthalmology journals for the period to April 2011, using ‘macular degener-ation’ as a keyword. Publications were selected according to pre-defined selection criteria.

RESULTS: Forty-three studies were included and included in the review. Most (40) described clinical characteristics and treatment pattern. 4 described ep-idiology and 2 focused on quality of life. No study estimated economic burden.

In summary, 1) MD characterizes exudative form, subretinal neovascularization or retinal pigment epithelial detachment, and equal distribution of circular and geo-graphic atrophy; 2) MD is a major reason of low vision/visual impairment; 3) Drug treatment (VI) in diabetic patients. The prevalence of DME is estimated to be 5.4% in Europe, but there is no observational evidence currently available. The objective of this study was to assess the burden of AMD patients in the The Netherlands in terms of health care costs and QoL from a societal perspective.

METHODS: AMD cost parameters were identified and the ‘AMD cost and impact questionnaire’ was developed. Members of the Dutch Macular Degen-eration Patient Organization with a disease severity ranging from normal vision to legal blindness were invited to estimate the study during regional consultation. The EuroQoL 5D was used for measuring QoL. Data on resource use and QoL were collected through telephone interviews.

RESULTS: Seventy-five patients completed the questionnaire. The average total annual cost for AMD was €6651 per person (95% CI: 4252 - 7050). Some help was needed for the major cost component (€2507 p. p.). Total costs were significantly higher for individuals with more severe AMD and the QoL signifi-cantly lower for individuals with more severe AMD (p<0.05). The average utility of AMD was 0.792 (95% CI: 0.771-0.812) significantly lower than the average 0.50 Dutch population (0.850). The respondents reported ‘usual activities’ as the area with the most problems.

CONCLUSIONS: Increased visual impairment leads to significantly higher annual costs and lower overall QoL.

PSS10 ECONOMIC OUTCOMES OF GLAUCOMA TREATMENT WITH PROSTAGLANDIN EYE DROPS PRESERVED WITH POLYQUAD® INSTEAD OF BENZALKONIUM CHLORIDE IN GERMANY

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OBJECTIVES: In glaucoma patients, the long term use of prostaglandin eye drops containing benzalkonium chloride (BAK) increases the risk of developing an ocular surface disease (OSD). Polyquad® preserved prostaglandins are now available, among which travoprost proved similar in efficacy and safety compared to BAK-preserved prostaglandins. We aimed to estimate the impact of Polyquad® instead of BAK on glaucoma management cost. METHODS: A Markov microsimulation model was developed in TreeAge, including 5 health states corresponding to 4 treatment lines plus death, in representative, treatment-naive patients at different OHT/glau-conoma severity levels. The sequence of treatment line (travoprost- travoprost + timolol, fixed combination preserved with Polyquad®) was compared to BAK-preserved (BIM) or latanoprost-latanoprost + timolol (LAT) or bimatoprost-bimatoprost + timolol (BIM). The model events were: onset of OSD (risk factors: age, sex, BAK exposure, sources: persistence studies in UK GPRD [Lafuma 2007] and US claims database [Schmier 2010]), and disease progression (risk factors: treatment line, OHT severity, non-compliance; sources: large prospective studies in OHT/glaucoma). Costs data came from a German observational study in OHT/glaucoma with 5-year retrospective collection of medical resources used (Statutory Health Insurance perspective + patient co-payments; 2011 drug costs, other costs 2010). The 95% confidence inter vals were determined from a probabilistic sensitivity analysis. RESULTS: 10 years, the total management cost in the travoprost with Polyquad® arm was €4677 [4378; 5013] compared to €5196 [4904;5482] with LAT and €5342 [5069;5664] with BIM. More patients required eye surgery/laser procedures with BAK-preserved sequences (LAT = 3.2% [2.4%]; BIM: 6.0% [4.9%]; travoprost = 2.6% [2.0%]; Polyquad® = 1.8% [0.9-2.9%]). CONCLUSIONS: At 10 years, travoprost treatment with Polyquad® is expected to reduce the cost of glaucoma treatment by 10-15% from both individual and societal perspectives, and have lower surgery/laser rates compared to BAK-preserved treatments.

PSS11 BEVACIZUMAB AND RANIBIZUMAB FOR THE TREATMENT OF AGE-RELATED MACULAR DEGENERATION: A SYSTEMATIC REVIEW AND ECONOMIC EVALUATION

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OBJECTIVES: To evaluate and compare the efficacy, safety and cost of the bevacizumab and ranibizumab intravitreal injections for the treatment of age related