ECONOMICAL EVALUATION OF DIFFERENT FORMS OF BETAHISTINE IN PATIENTS WITH VERTIGO

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OBJECTIVES: to perform economic evaluation of three forms of betahistine in patients with vertigo.

METHODS: an open-labeled prospective multicenter randomized study was performed in 14 out-patient clinics of Russia. The duration of a study was 30 days. Patients with vertigo were treated with three forms of betahistine (Betaver, Betaserc, Vestibo) in combination with any other medications with the director of investigator. The effectiveness criteria were proportion of patients with absence of moderate and severe functional disorders (according to International Classification of Functioning, Disability and Health) and increase of patients’ quality of life rate compared to the initial one. Statistical analysis was performed using the QL-D questionnaire. Cost-effectiveness and cost-utility ratios were calculated. RESULTS: Betaver group included 70 (33.2%) patients, Betaserc group—71 (33.6%) patients, and Vestibo group—70 (33.2%) patients with moderate vertigo. All patients initially had moderate and severe functional disorders. The proportion of patients without absence of moderate and severe functional disorders up to the end of a study was 54% in Betaver group, 57% in Vestibo group and 69% in Betaserc group. The average difference between initial quality of life rate and the quality of life after the treatment was 19.53, 19.62 and 22.79 (Betaver, Betaserc and Vestibo groups accordingly). Cost of treatment was measured. The cost-effectiveness ratio according to the criteria “the proportion of patients with absence of moderate and severe functional disorders” was minimal in Betaserc group (8,088.57) compared to Betaver (10,358.17) and Vestibo (8,955.49) groups. The cost-utility ratio according to the criteria ‘the increase of patients’ quality of life rate compared to the initial one” was also minimal in Betaserc group (244.89) compared to Betaver (286.4) and Vestibo (260.17) groups. CONCLUSIONS: Betaserc seems to be more clinically and economically effective betahistine compared to another two medications in treatment of patients with vertigo.

PND16
COST SAVING OPPORTUNITY OF POTENTIAL PHARMACIST-INITIATED IV-TO-PO LEVETIRACETAM SWITCHES: A PREDICTION MODEL BASED ON REAL-WORLD DATA

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OBJECTIVES: Opportunity exists for certain hospitalized patients to appropriately receive levetiracetam given its bioavailability of 100%. Use of bioequivavent (IV) levetiracetam at our institution had increased and was associated with significant annual cost. This study aimed to evaluate the use of IV levetiracetam, to identify a cost saving opportunity and to project cost savings of potential pharmacist-initiated IV-to-PO levetiracetam switches. The goal was to provide information regarding medication utilization and cost saving opportunities for hospital administration to make informed formulary decisions.

METHODS: A retrospective medical chart review on 100 randomly selected adult patients receiving at least two doses of IV levetiracetam during hospital stays between July 1, 2008 and November 30, 2008 was conducted. Pre-defined eligibility of IV-to-PO levetiracetam switches, costs, doses and frequencies were obtained for each patient-day. Only levetiracetam costs were considered and presented as 2008 average wholesale prices without further adjustments. Monte Carlo simulation models were created to predict cost savings, and inputs, parameters and plausable ranges were determined based on real-world data.

Three scenarios were hypothesized where switches could have been made with “no delay,” “12-hour delay” or “24-hour delay” of pharmacist interventions upon identification of eligibility. Probabilistic sensitivity analysis was performed (2,500 trials) for each scenario. RESULTS: Among 729 patient-days (from 99 subjects with one subject excluded as an outlier), 6.6% made IV-to-PO levetiracetam switches and additional 6% were eligible for such switch. With a conservative scenario of 24-hour delay, potential cost savings were estimated as follows: mean $1,112 (SD $772) per patient; or $469.6 (SD $50.4) per patient-day; median $802 (95% CI $20-$1,661) per patient. Of 2,500 estimates, 19.6% could have potential savings of $100–200 per patient, followed by $0-$100 (15.5%), $200-$300 (14.6%) and $300-$400 (9.6%). CONCLUSIONS: Pharmacists have potential cost saving opportunities by identification of eligible IV-to-PO levetiracetam switches.

PND17
ECONOMIC EVALUATION OF THE IMPACT OF MEMANTINE ON TIME TO NURSING HOME ADMISSION IN THE TREATMENT OF ALZHEIMER’S DISEASE

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OBJECTIVES: An observational study recently showed that combining memantine with a cholinesterase inhibitor (ChEI) treatment significantly delayed admission to a nursing home in patients with Alzheimer’s disease. The objective of this analysis was to evaluate the economic impact of the concomitant use of memantine and ChEI in time to institutionalization in a Canadian population.

METHODS: A cost-utility analysis using a Markov model over a 7 years time horizon was performed according to a public third party perspective and a societal perspective. The Markov model included the following states: non-institutionalized, institutionalized, and deceased. Transition probabilities for institutionalisation were taken from the study by Lopez et al., while transition probabilities for death were taken from Canadian survival tables and adjusted for mortality rates specific to Alzheimer’s disease. For the publicly funded health care system perspective, costs 6 months before (baseline) and 24 months after (study period) their index date (first DMD claim). Adherence was measured using the medication possession ratio (MPR) over the 24-month study period. Patients with MPR ≥80% were classified as adherent (n = 448) and those with MPR < 80% were classified as nonadherent (n = 208). Multivariate analyses adjusting for differences in baseline characteristics were used to compare severe relapse rates (inpatient or emergency visit with MS diagnosis) and costs in 2007 dollars between DMD adherent and nonadherent patients. Direct medical costs were calculated as reimbursements for MS related medications and non-Medicare covered MS related services and indirect costs included disability and medically-related absenteeism costs. RESULTS: DMD adherent patients were on average older (43.5 vs. 41.8 years, P = 0.015) and more likely to be male (38.6% vs. 26.0%, P = 0.002) compared with nonadherent

NEUROLOGICAL DISORDERS – Patient-Reported Outcomes Studies

PND18
HEALTH STATUS, RESOURCE UTILIZATION, AND WORK PRODUCTIVITY FOR CAREGIVERS OF ADULTS WITH EPILEPSY: A PROPENSITY SCORE ANALYSIS OF NATIONAL SURVEY DATA

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OBJECTIVES: Compare health status, resource utilization, and work productivity for caregivers for an adult with epilepsy and a control group of non-caregivers.

METHODS: Respondents to the 2009 U.S. National Health and Wellness Survey (NHWS), a self-administered, internet-based questionnaire of adults, who reported providing care for an adult relative with epilepsy, were included in the caregiver group. Propensity score methods were used to construct a 1:5 matched control group from the general NHWS population, excluding caregivers for any other condition, matched on demographics and health characteristics. The caregiver and control groups were compared on health status (SF-12v2 Physical Component Summary, Mental Component Summary (MCS) score) and resource use (number of self-reported hospitalizations, ER visits, and physician visits in the past 6 months). Employed caregivers were similarly matched to employed controls from the general NHWS respondents and compared on work productivity using the Work Productivity and Activity Impairment (WPAI) questionnaire. Statistical analyses included chi-square tests, t-tests, and generalized linear models.

RESULTS: Of the 75,000 NHWS respondents, 222 self-reported caregivers were matched to 1,110 controls (p > 0.25 for all included covariates). The caregiver group was 51.8% female with mean (standard deviation) age of 45.2. (15.4) years. Caregivers had lower mean SF-12v2 PCS scores than controls (43.0 vs. 46.3, respectively, p < 0.0001) and showed no difference on mean MCS scores (44.8 vs. 46.3, respectively, p = 0.090). Caregivers reported significantly (p < 0.0001) more ER visits (rate ratio (RR) = 5.64, 95% CI 1.65-20.64), and provider visits (RR = 1.59) than controls. Employed caregivers (n = 124) reported significantly (p < 0.018) higher rates of absenteeism (RR = 2.66, p < 0.002), more ER visits (rate ratio (RR) = 5.64, 95% CI 1.65-20.64), and provider visits (RR = 1.59) than controls. Employed caregivers (n = 124) reported significantly (p < 0.018) higher rates of absenteeism (RR = 2.66, p < 0.002), more ER visits (rate ratio (RR) = 5.64, 95% CI 1.65-20.64), and provider visits (RR = 1.59) than controls. CAREGIVERS of adults with epilepsy reported utilizing more health care resources, and had lower work productivity, worse physical health status yet no difference in mental health status versus non-caregivers.
Abstracts

patients. Adherent patients had lower rate of depression (4.7% vs. 9.5%, P = 0.019), higher rate of previous DMD use (49.1% vs. 40.0%, P = 0.032), and higher baseline MS-related costs ($4757 vs. $4037, P = 0.001). After adjusting for differences in baseline characteristics, DMD adherent patients had lower occurrence of severe relapse (12.0% vs. 9.9%, P = 0.013) and long-term total direct and indirect costs ($14,095 vs. $16,638, P = 0.048). CONCLUSIONS: Over the two-year study period, DMD adherence was associated with significantly fewer severe relapses and lower total medical costs.

PND20
PERCEIVED CAREGIVER BURDEN AND HEALTH RELATED QUALITY OF LIFE IN ALZHEIMER'S CAREGIVERS

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OBJECTIVES: To assess the contribution of the Zarit score, a measure of perceived caregiver burden in Alzheimer's disease, to health related quality of life (HRQoL) as measured using the physical and mental component scores of the SF-12 instrument and SF-6D health utilities. METHODS: A survey of Alzheimer caregivers was undertaken in the US in 2009 (n = 1,079). This survey captured both the characteristics of caregivers and the characteristics of the patient to whom the caregiver gave most attention. At the same time, caregivers were asked to complete the Zarit burden of care questionnaire and the SF-12 HRQoL instrument. To assess the impact of Zarit scores on HRQoL, linear regression (ordinary least squares) models were specified and estimated for the physical and mental component summary scores of the SF-12 and the health utility scores from the SF-6D. Independent variables included: caregiver and patient characteristics. RESULTS: Average PCS and MCS scores were 47.7 (STD 11.17) and 42.5 (STD 11.93) respectively; utility score was 0.68 (STD 0.13). Zarit scores were distributed with 20.4% of respondents reporting a minimal or no burden, 37.7% a mild to moderate burden, 33.1% moderate to severe burden and 8.8% a severe burden. Overall 16.3% were judged to have mild AD, 53.7% moderate and 30.0% severe AD. Zarit scores played the key role with their greatest impact on the MCS rather than the PCS dimensions of the SF-12. In the severe AD category the PCS deficit is -5.65 (t = 4.23) compared to a deficit of -17.94 (t = -14.09) for MCS. The corresponding health utility deficit is 0.19 (t = -13.15). Other key variables are caregiver age and gender, patient age and gender and living situation. CONCLUSIONS: Perceived caregiver burden is associated primarily with deficits on the mental component scores of the SF-12 and on SF-6D health utilities.

PND21
INTERIM ANALYSIS OF A LARGE ONGOING PHASE IV PROSPECTIVE OBSERVATIONAL COHORT STUDY (MDS ON BOXTXI UTILIZATION, MOBILITY) OF BOTULINUM TOXIN TYPE A ON HEALTH UTILITY IN PATIENTS RECEIVING TREATMENT FOR APPROVED THERAPEUTIC INDICATIONS IN CANADA

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OBJECTIVES: Botulinum Toxin Type A (BoNT-A) is approved for many therapeutic indications in Canada, including blepharospasm, 7th cranial nerve disorders, cervical dystonia, focal spasticity, cerebral palsy, and hyperhidrosis. Unfortunately, little is known about the impact of treatment on health utility. The objective of the ongoing national MOBILITY study is to measure the impact of BoNT-A on health utility. METHODS: Phase IV prospective observational cohort study in patients receiving BoNTA for approved therapeutic indications in Canada. Physical component scores (PCS), and mental component scores (MCS) are derived from self-reported SF-12c2 at baseline, week 4 and subsequent clinic visits. Health utility is then measured using the SF-6D scoring programme. In this interim analysis continuous data were analyzed by student’s t-test and dichotomous data by Chi-square test. RESULTS: To date 917 patients have been enrolled at 40 clinical sites with a 94.5% retention rate. 69.7% of patients returned the week 4 survey and data from 608 individuals were included in the analysis (526 were receiving ongoing BOXTX0A treatment at baseline; 82 were BoNTA-naive). Significant differences were detected in self-reported SF-6D scores between baseline and week 4 in the analysis of continuous (p = 0.05) and dichotomized data (p = 0.0001); and between baseline and week 4 in the analysis of continuous MCS data (p = 0.03). Among BoNTA-naive patients, there was a statistically significant difference in SF-6D scores between baseline and week 4 (p = 0.03 for continuous data; p = 0.018 for dichotomized data). There were no statistical significant changes in the SF-6D scores for patients receiving on-going treatment. CONCLUSIONS: This interim analysis from a large ongoing national study shows that significant improvements in health utility are obtained in patients receiving BoNTA for therapeutic indications. Health utility benefit was most pronounced in BoNTA-naive patients as evidenced by week 4 MCS scores (the expected peak effect window). Further recruitment and long-term follow-up and analyses are ongoing.

PND22
Mapping from Disease-Specific Measures to Health-State Utility Values in Chronic Migraineurs

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OBJECTIVES: To develop algorithms that convert disease-specific quality-of-life scores for the Headache Impact Test (HIT-6) and the Migraine Specific Quality of Life, v. 2.1 (MSQ) Questionnaire to health-state utility values derived from the EuroQol-5D (EQ-5D) in chronic migraineurs. METHODS: Data from a cross-sectional multi-country study was used. Chronic migraineurs (ICHD-2 diagnosis of migraine and ≥21 headache days/month) completed a series of questions including the HIT-6 and EQ-5D. Subjects were randomly assigned to training and validation samples of equal size. Correlations between paired EQ-5D index scores and both HIT-6 scores and MSQ domain scores (Role-Restrictive [RR], Role-Preventive [RP], and Emotional-Function [EF]) were examined using Spearman correlation coefficients. Regression models were constructed to predict EQ-5D utility values from the HIT-6 scores or the MSQ domain scores. Preferred algorithms were validated using the validation samples. RESULTS: Correlations between the EQ-5D index score and the HIT-6 and MSQ dimension scores were statistically significant (p < 0.001) with correlation coefficients of 0.33 (HIT-6), 0.44 (MSQ-RR), 0.46 (MSQ-RP), and 0.30 (MSQ-EF). The preferred HIT-6 algorithm was a non-linear model which contained a quadratic term for HIT-6, and explained 34% of the variance in the training sample. The preferred MSQ algorithm was a linear model with covariates representing each domain, and explained 43% of the variance in the training sample. Both models also included covariates for age, gender, employment status, headache medication use, and comorbidities. In the validation analyses, no statistically significant difference was observed between the mean observed EQ-5D score and the mean EQ-5D score estimated using the preferred algorithms. CONCLUSIONS: The relationship is specific to each of the two disease-specific instruments and the EQ-5D are sufficiently robust to use regression equations to estimate EQ-5D utility values. These preferred models may be useful in estimating health-state utilities in trials of CM patients where no preference-based measure is present.

PND23
Concordance of Self-Report Measures of Dsm-Iv-Tr, Icd-10, and Rdc Insomnia with Standardized Clinical Assessments in the America Insomnia Survey (AIS)

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OBJECTIVES: To evaluate the reliability and validity of the Brief Insomnia Questionnaire (BIQ), a fully-structured measure to assess insomnia based on DSM-IV-TR, ICD-10, and RDC criteria. METHODS: The AIS is a large (n = 10,094) epidemiological survey of the prevalence and correlates of insomnia in a nationally representative sample of managed health care plan subscribers. Probability sub-samples of AIS respondents over-sampling BIQ cases completed either short-term test-retest interviews (n = 59) or clinical reappraisal interviews (n = 203) to assess BIQ reliability and validity. RESULTS: Test-retest correlations were .72–.95 for reports of frequency and .47–.94 for reports of severity of sleep problems (initiation, maintenance, non-restorative sleep), .66–.88 for reports of daytime impairment/distress, and .62 for reported duration. Good individual-level concordance was found between diagnoses based on the BIQ and clinical interviews for meeting criteria in any of the three diagnostic systems, with area under the receiver operating characteristic curve (.AUC) above .75 for the receiver operating characteristic curve (.AUC) above .75 for the receiver operating characteristic curve (.AUC). AUC increased to .94 when symptom-level data were added to generate a continuous measure of predicted probability of diagnoses (.92–.95). CONCLUSIONS: The results demonstrate that the BIQ can be used to obtain accurate estimates of prevalence and correlates of insomnia in the American Insomnia Survey.

PND24
Evaluating the Impact of Restless Legs Syndrome (RLS) on Next Day Functioning

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OBJECTIVES: Symptoms of Restless Legs Syndrome (RLS) typically worsen in the early evening and nighttime affecting patients’ quality and duration of sleep which can have next day sequelae detrimental to daytime performance. Current qualitative research aimed to support the content validity of a new self-reported outcome measure to document the impact of disturbed sleep due to RLS on next day functioning. METHODS: An initial conceptual framework was developed based upon a review of the literature. The development of the Restless Legs Symptoms Scale (RLS-NDS) questionnaire included: concept elicitation interviews with 20 clinician-confirmed idiopathic RLS patients in the US (aged 35–64); grounded theory data collection and analysis methods; achievement of saturation; and review by clinical and