NEUROLOGICAL DISORDERS/MIGRAINES

ESTIMATING COST-EFFECTIVENESS OF DRUGS THAT DELAY DISABILITY PROGRESSION IN MULTIPLE SCLEROSIS USING NET BENEFIT REGRESSION MODEL METHODS

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OBJECTIVE: To demonstrate the feasibility of using Net Benefit Regression Model (NBRM) methods to measure cost-effectiveness (CE) of new drugs that delay disability progression in multiple sclerosis (MS). Using the net-benefit compared to placebo, t statistic to estimate cost-effectiveness within a regression framework, the NBRM simplifies statistical work involved in economic evaluation (e.g., avoiding problems associated with ratio statistics) and also offers useful insights (e.g., exploring the importance of covariates on the marginal cost-effectiveness of a treatment).

METHODS: A single-period-single-observation-per-person ordinary least squares (OLS) NBRM was generalized to a multi-period-multi-observation-per-person mixed-effects (ME) NBRM. Phase I regressions estimate marginal treatment effects, costs and net benefits. Phase II methods use marginal results to estimate area-under-the-curve total health outcome, cost, incremental cost effectiveness ratio (ICER) and net benefit (NB) for each person-with-MS (PwMS) treated and for the treatment program. DATA: Feasibility was tested using MS Research Unit person-level clinic-visit observational data, 1980–October 2003: 2296 unique PwMS; 15,389 clinic-visit records; 646 PwMS treated with new drugs from 1998–2003. Disability progression is measured by Extended Disability Status Scale (EDSS). Health outcomes are measured by EDSS-weighted Disability Adjusted Life Years (DALY) avoided. Clinical data were linked to health services utilization and cost data, 1989–2003. RESULTS: Feasibility of NBRM methods was demonstrated using Nova Scotia data. The CE for a treatment program and for selected subgroups of PwMS treated can be estimated using NBRM methods, complement CE estimates derived from group-level observational data, using simulation model methods.

ND2

COST-EFFECTIVENESS OF MIGRAINE PREVENTION: RESULTS FROM A MODEL OF TOPIRAMATE TREATMENT

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OBJECTIVES: Patients whose migraines are frequent, severe, and/or unresponsive to acute treatment are candidates for migraine prophylaxis. We developed a cost-effectiveness model to assess the clinical and economic impact of topiramate treatment versus no prophylaxis for migraine headache. METHODS: Model inputs included: baseline migraine frequency (6 per month for the base-case), treatment discontinuation, treatment response category (>75% reduction in frequency, 50%–75% reduction in frequency, and <50% reduction in frequency), cost of prophylaxis (including cost of physician visits for titration), cost of acute treatment per attack (including pharmacy and medical service costs), hours of work loss per attack, and hourly wage. Model outcomes were expressed monthly and included the number of migraines averted, disability hours, the total cost of acute and prophylactic treatment, and lost wages. Costs are expressed in 2002 $US. Data for the model were gathered from published literature and three randomized, double-blinded, placebo-controlled studies of topiramate in migraine prevention. We also conducted sensitivity analyses. RESULTS: Topiramate treatment (dose titrated to a maximum of 100 mg/day) was associated with a mean reduction in migraine frequency of 1.68 per month and almost 5 fewer hours of disability. The monthly cost of prophylaxis was $113. Monthly acute treatment cost was $25 lower for treated patients ($60 versus $85) and work loss was $46 lower ($118 versus $164). Consequently, in the base-case assessment, the incremental cost per migraine averted was $26. The results are sensitive to the baseline migraine rate; as the baseline migraine rate increases, the total cost of care decreases, with a break-even point between 9 and 10 migraines per month. CONCLUSION: Economic savings associated with lower migraine frequency offset approximately 63% of the cost of prophylaxis. The ultimate cost-effectiveness of topiramate will depend on the gains in utility associated with fewer migraine episodes, the subject of ongoing research.

ND3

MEDICAL SERVICES UTILIZATION FOR PATIENTS WITH PARKINSON’S DISEASE IN A STATE MEDICAID PROGRAM

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Parkinson’s disease (PD), a neurological syndrome characterized by resting tremors, muscle rigidity, postural instability and bradykinesia, affects nearly 1 million people in the United States. Few studies have investigated the costs for health care services related to this disease. OBJECTIVE: To report the utilization and costs for medical services and prescription medications for PD in a state Medicaid population. METHODS: Medicaid administrative claims dated from January 1, 2002 through December 31, 2002 for medical services (hospitalizations, emergency department visits, outpatient visits, and nursing home admissions) with a primary or secondary ICD-9 diagnosis code for PD were extracted. Unique and anonymous recipient codes from these claims were used to extract prescription claims for drugs used for palliative treatment of PD. Costs reported were from the perspective of Medicaid. RESULTS: There were 11,919 recipients identified with PD. Of these, a total of 11,785 (99%) recipients had claims for nursing home care. The average length of stay in the nursing home was 222 days with an average cost of $27,950 per stay. Only 618 recipients (5%) had claims for an outpatient visit related to PD, and there were very few ED and hospital visits for PD. Outpatient prescription costs for drugs related to PD totaled $501,941, with an average cost of $63 per prescription. Carbidopa/levodopa (62.5%), pramipexole (8%), and ropinirole (4%) accounted for the majority of prescriptions dispensed. The costs for these drugs were $269,020 for carbidopa/levodopa, $91,359 for pramipexole, and $33,920 for ropinirole. CONCLUSION: Among recipients covered by Medicaid, a majority of health care services utilized for the treatment of PD were for nursing home care followed by prescription medications. The results indicated that long-term care and palliative drug treatment were the major contributors of total dollars spent by Medicaid for care of its recipients with PD.