Abstracts

PCV22

A CARDIOVASCULAR DISEASE COST-EFFECTIVENESS MODEL BASED ON CTT META-ANALYSIS

Lundy 1, Davies GM 2, Cook JR 2

1 University of Arizona, Tucson, AZ, USA, 2 Merck and Co. Inc, North Wales, PA, USA

OBJECTIVES: To evaluate the cost-effectiveness of lipid-lowering therapy for cardiovascular disease based upon the event risk and LDL-C reduction relationship observed in the Clinical Treatment Trialists (CTT) meta-analysis. METHODS: A simple Markov model comparing the incremental cost-effectiveness for two lipid-lowering therapies was developed using TreeAge® software. The addition of ezetimibe to simvastatin 40 mg was compared to doubling the simvastatin 40 mg dose from the UK health plan perspective. Patients enter the model as a primary or secondary CHD prevention patient. Patients experience a fatal or non-fatal CHD event, die from another cause, or remain event-free in each annual cycle. Transition probabilities were determined by a patient’s baseline risk, age and LDL-C reduction. Lipid therapy was assumed to provide a 23% reduction in major coronary events for 1 mmol/L reduction in LDL-C. Costs and utilities for health states were adapted from the NICE report on statin therapies and were discounted at 3.5%. Base case analyses were performed for a 55 year old individual, with or without a history of CHD, annual CHD risk of 3%, and a baseline LDL-C value of 4 mmol/L. Probabilistic sensitivity analysis (PSA) was performed and acceptability curves were generated. RESULTS: The incremental cost per QALY gained of simvastatin/ezetimibe co-administration was estimated at $14,618 and $18,549 for those with and without a history of CHD, respectively. PSA based upon 10,000 iterations suggest that the ezetimibe co-administration was below a threshold of ≤30,000/QALY gained in over 95% of the simulations. Additional analyses suggest that cost effectiveness of the addition of ezetimibe improves relative to doubling of statin dose with increasing baseline CHD risk and/or LDL-C levels. CONCLUSION: The model developed provides a simple method to compare two treatments based on their effects on LDL-C. Although the model has several simplifying assumptions it provided results consistent with other CHD models.

PCV23

EVALUATION OF DYSLIPIDEMIA THERAPIES FOR TREATMENT OF LOW HDL AND HIGH LDL: A COST-EFFECTIVENESS ANALYSIS BASED ON NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY III

Malone DC 1, Charland SL 2

1 University of Arizona, Tucson, AZ, USA, 2 Kos Pharmaceuticals, Inc, Cranbury, NJ, USA

OBJECTIVES: Cholesterol management guidelines recommend management of elevated low-density cholesterol (LDL-C) followed by management of low high-density cholesterol (HDL-C) and elevated triglycerides in patients with dyslipidemia. The objective of this study was to conduct a population-based cost-efﬁcacy analysis of dyslipidemic agents using data from the National Health and Nutrition Examination Survey III (NHANES III). METHODS: A 6-month, cost-effectiveness analysis, from a MCO perspective, incorporating dose escalation and adverse drug effects (ADEs) associated with pravastatin, simvasatin, ezetimibe/simvastatin, and extended release (ER) niacin/lovastatin was conducted. Patients with high LDL-C and low HDL-C from NHANES III were included to estimate population values for lipids, while product labeling was used for lipid changes. Goals for LDL-C were ≤100 mg/dL and ≤130 mg/dL based on cardiovascular risk; and, HDL-C > 40 or 50 mg/dL (males and females, respectively). Medication (WAC), physician ofﬁce visits, and laboratory costs (Medicare’s allowance fees) were included. Monte Carlo simulations were conducted for probabilistic sensitivity analyses testing key assumptions of drug efficacy, ADEs, and costs. RESULTS: Rates of lipid goal achievement was a function of sex, age and treatment. Accounting for dosing and ADEs, the lowest cost for 180 days of treatment was ezetimibe/simvastatin ($561), followed by ER niacin/lovastatin ($655), pravastatin ($698), and simvastatin ($742). Attainment of LDL-C and HDL-C goals was highest for ER niacin/lovastatin (77.8%), followed by for ezetimibe/simvastatin (50.1%), simvastatin (44.2%) and pravastatin (29.5%). Cost/patient achieving combined goals was $842 for ER niacin/lovastatin, $1120 for ezetimibe/simvastatin, $1677 for simvastatin, and $2364 for pravastatin. Both pravastatin and simvastatin were dominated by ezetimibe/simvastatin, while the incremental cost-effectiveness for ER niacin/lovastatin at $341 per additional patient reaching goal was on the cost-effective frontier. CONCLUSION: This analysis suggests among patients with high LDL-C and low HDL-C treatment with ezetimibe/simvastatin and ER niacin/lovastatin are cost-effective strategies compared to either pravastatin or simvastatin.

PCV24

USE OF A DECISION ANALYTIC MODEL TO EVALUATE COST PER PATIENT TREATED TO GOAL WITH HIGH POTENCY ANTILIPIDEMICS

Moore E, Tiller KW, Allerman AA, Mistry HH, Trice S, Devine JW

Department of Defense Pharmacoeconomic Center, Fort Sam Houston, TX, USA

OBJECTIVES: To estimate the cost per patient successfully treated to NCEP ATP-III goal with high-potency statins or statin/combos. METHODS: We constructed a decision analytic model (from the payer perspective) comparing four statins or statin combinations: atorvastatin (40–80 mg), rosuvastatin (10–40 mg), simvastatin/ezetimibe (Vytorin; 10/10–40 mg), and simvastatin 80 mg. Costs were based on best available Military Health System (MHS) prices, and only included drug acquisition costs. Monte Carlo methods were used to generate a distribution of starting LDL values for a hypothetical cohort of 1000 patients. The mean starting LDL was 189.1 (SD = 18.6), with individual patient LDLs normally distributed. The percentage of patients in each NCEP ATP-III risk group was: low risk 41% (LDL goal <160 mg/dL), moderate risk 30% (LDL goal <130 mg/dL), high risk 29% (LDL goal <100 mg/dL). Distributions of efficacy values (% LDL reduction) based on clinical literature were generated for each treatment arm. The primary outcome was the percentage of patients successfully treated to individual NCEP ATP-III goals based on starting LDL levels.

PCV25

ANALYSIS BASED ON NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY III

EVALUATION SURVEY III

EXAMINATION SURVEY III

ANALYSIS BASED ON NATIONAL HEALTH AND NUTRITION EVALUATION OF DYSLIPIDEMIA THERAPIES FOR TREATMENT OF LOW HDL AND HIGH LDL: A COST-EFFECTIVENESS ANALYSIS BASED ON NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY III

Malone DC 1, Charland SL 2

1 University of Arizona, Tucson, AZ, USA, 2 Kos Pharmaceuticals, Inc, Cranbury, NJ, USA

OBJECTIVES: Cholesterol management guidelines recommend management of elevated low-density cholesterol (LDL-C) followed by management of low high-density cholesterol (HDL-C) and elevated triglycerides in patients with dyslipidemia. The objective of this study was to conduct a population-based cost-efﬁcacy analysis of dyslipidemic agents using data from the National Health and Nutrition Examination Survey III (NHANES III). METHODS: A 6-month, cost-effectiveness analysis, from a MCO perspective, incorporating dose escalation and adverse drug effects (ADEs) associated with pravastatin, simvasatin, ezetimibe/simvastatin, and extended release (ER) niacin/lovastatin was conducted. Patients with high LDL-C and low HDL-C from NHANES III were included to estimate population values for lipids, while product labeling was used for lipid changes. Goals for LDL-C were ≤100 mg/dL and ≤130 mg/dL based on cardiovascular risk; and, HDL-C > 40 or 50 mg/dL (males and females, respectively). Medication (WAC), physician ofﬁce visits, and laboratory costs (Medicare’s allowance fees) were included. Monte Carlo simulations were conducted for probabilistic sensitivity analyses testing key assumptions of drug efficacy, ADEs, and costs. RESULTS: Rates of lipid goal achievement was a function of sex, age and treatment. Accounting for dosing and ADEs, the lowest cost for 180 days of treatment was ezetimibe/simvastatin ($561), followed by ER niacin/lovastatin ($655), pravastatin ($698), and simvastatin ($742). Attainment of LDL-C and HDL-C goals was highest for ER niacin/lovastatin (77.8%), followed by for ezetimibe/simvastatin (50.1%), simvastatin (44.2%) and pravastatin (29.5%). Cost/patient achieving combined goals was $842 for ER niacin/lovastatin, $1120 for ezetimibe/simvastatin, $1677 for simvastatin, and $2364 for pravastatin. Both pravastatin and simvastatin were dominated by ezetimibe/simvastatin, while the incremental cost-effectiveness for ER niacin/lovastatin at $341 per additional patient reaching goal was on the cost-effective frontier. CONCLUSION: This analysis suggests among patients with high LDL-C and low HDL-C treatment with ezetimibe/simvastatin and ER niacin/lovastatin are cost-effective strategies compared to either pravastatin or simvastatin.

PCV24

USE OF A DECISION ANALYTIC MODEL TO EVALUATE COST PER PATIENT TREATED TO GOAL WITH HIGH POTENCY ANTILIPIDEMICS

Moore E, Tiller KW, Allerman AA, Mistry HH, Trice S, Devine JW

Department of Defense Pharmacoeconomic Center, Fort Sam Houston, TX, USA

OBJECTIVES: To estimate the cost per patient successfully treated to NCEP ATP-III goal with high-potency statins or statin/combos. METHODS: We constructed a decision analytic model (from the payer perspective) comparing four statins or statin combinations: atorvastatin (40–80 mg), rosuvastatin (10–40 mg), simvastatin/ezetimibe (Vytorin; 10/10–40 mg), and simvastatin 80 mg. Costs were based on best available Military Health System (MHS) prices, and only included drug acquisition costs. Monte Carlo methods were used to generate a distribution of starting LDL values for a hypothetical cohort of 1000 patients. The mean starting LDL was 189.1 (SD = 18.6), with individual patient LDLs normally distributed. The percentage of patients in each NCEP ATP-III risk group was: low risk 41% (LDL goal <160 mg/dL), moderate risk 30% (LDL goal <130 mg/dL), high risk 29% (LDL goal <100 mg/dL). Distributions of efficacy values (% LDL reduction) based on clinical literature were generated for each treatment arm. The primary outcome was the percentage of patients successfully treated to individual NCEP ATP-III goals based on starting LDL
and risk group. The time horizon was one year, without discounting. Sensitivity analysis was performed to account for uncertainty. RESULTS: Vytorin was found to be most effective with 90% of patients successfully treated to goal compared to 78.2%, 82.1%, and 82.2% for simvastatin, atorvastatin, and rosuvastatin, respectively. Vytorin was the preferred strategy, dominating other treatments at a cost of $431 annually per patient successfully treated to goal. CONCLUSION: Using literature-derived estimates for % LDL lowering efficacy, we compared high-potency antilipidemics based on the percentage of patients successfully treated to goal. Estimates were similar to outcomes reported in clinical trials. At DoD drug acquisition costs, Vytorin appeared to be the most cost effective.

THE ECONOMIC AND HEALTH CONSEQUENCES IN MEXICO OF MANAGING HYPERTENSION AND HYPERCHOLESTEROLEMIA WITH A SINGLE PILL THERAPY
Mould-Quevedo J, Salomon-Molina A, Davila-Loaiza G
Pfizer Mexico, Mexico City, Mexico

OBJECTIVES: In Mexico, hypertension and hypercholesterolemia are the main causes of cardiovascular risk and death in adult population. Prevalence of hypertension and hypercholesterolemia are estimated in 30% and 43%, respectively. The purpose of this study was to evaluate the cost—effectiveness of amiodipine/atorvastatin in a single pill therapy compared to other local therapeutics for patients with both diseases from the Mexican health care payer's perspective. METHODS: We used a five-year Markov analysis model to estimate costs and effectiveness. Effectiveness measures were the % of patients with full compliance and % of patients with fatal or non-fatal cardiovascular events. Transition probabilities were obtained from international published literature. Comparators used in the model were: amiodipine 5 mg, felodipine 5 mg, nifedipine 30 mg, captoptil 75 mg, enalapril 20 mg, losartan 50 mg all in combination with pravastatin 10 mg (separate pills) vs. the comparator amiodipine 5 mg + atorvastatin 10 mg (single-pill therapy). Estimation of resource use was performed employing hospital records from five hospitals of the Social Security Mexican Institute-IMSS in Mexico City (n = 75). They included hospitalization, ICU, emergency, outpatient services and drugs. Costs and effectiveness measures were discounted 3% annually. One-way and probabilistic sensitivity analyses were performed and acceptability curves were constructed. RESULTS: The single-pill therapy showed better compliance with 12.5% vs. 9.6% shown in average by the other combinations considered (p < 0.01). This higher compliance of the single-pill therapy yielded a significant reduction in the number of cardiovascular events, deaths and expected costs (cost saving strategy). Alongside the time horizon used, the model estimated that the single-pill therapy could save US$2.8 per patient with both diseases. Sensitivity analyses showed the same results. CONCLUSION: In Mexico, amiodipine/atorvastatin within a single-pill showed better clinical and economic outcomes in comparison to other combinations of antihypertensive and statins inside an institutional setting. These results should be considered by Mexican decision-makers in future cost-containment policies.