OBJECTIVE: beta-blockers have provided evidence of improving survival in chronic heart failure patients. Specifically, the Cardiac Insufficiency Bisoprolol Study II has shown a significant reduction in mortality and morbidity among patients with moderate to severe chronic heart failure treated with bisoprolol. Our aim was to investigate the economic consequence of bisoprolol therapy in chronic heart failure patients in Italy. METHODS: Data were derived from the Cardiac Insufficiency Bisoprolol Study II trial. We conducted a cost-effectiveness analysis, comparing standard care with bisoprolol vs. standard care with placebo in the perspective of the Italian National Health Service. We identified and quantified medical costs: drug costs according to the Italian National Therapeutic Formulary; specialist visits for initiation and up-titration of bisoprolol therapy and hospitalizations were quantified based on the Italian National Health Service tariffs (2005). Effects were measured in terms of mortality and morbidity reduction (number of deaths, life years gained and frequency of hospitalizations). We considered an observational period of 1.3 years, i.e. the average follow-up recorded in the trial. Discounting was not performed because of the relatively short follow-up of patients. We conducted one and multi-way sensitivity analyses on unit cost and effectiveness. We also conducted a threshold analysis. RESULTS: The overall cost of care per 1,000 patients treated for 1.3 years was estimated in €2,075,548 in the bisoprolol group and in €2,396,265 in the placebo group, resulting in a net saving of €320,718. The number of additional patients alive with bisoprolol was 55 per 1000 patients; the number of life years gained was 36 at 1.3 year. CONCLUSIONS: Bisoprolol therapy is dominant since it is both less costly and more effective than standard care. Results of sensitivity analysis showed that bisoprolol therapy remains dominant even to changes in unit cost of drug and hospitalizations.

CASE-BASED-COSTING VS. MARKOV-MODELLING—A COMPARISON OF COST-EFFECTIVENESS ANALYSES FOR CANDESARTAN IN PATIENTS WITH CHRONIC HEART FAILURE

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OBJECTIVES: To compare two different methods in evaluating cost-effectiveness (CE) of candesartan for patients with chronic heart failure (CHF) in Germany based on the CHARM (Candesartan in Heart Failure: Assessment of Reduction in Mortality and Morbidity)-programme. METHODS: For both analyses, CE was measured by calculating incremental cost-per-avoided-event. Two analytical approaches were chosen examining two treatment groups of the CHARM-programme: “Added” (low left ventricular ejection fraction (LVEF <40%) and “Alternative” (LVEF <40% and intolerant of an ACE inhibitor). The first approach calculated average costs per patient based on all cardiovascular events happened (Hospital admissions due to worsening heart failure, cardiovascular deaths, and cardiovascular procedures). Absolute risk reduction (ARR) to avoid/delay an event also was derived from all events occurring in the clinical trial. The second approach simulated the real life situation of patients with CHF in a Markov-analysis over 12 periods (3 years). Risk tables on mortality and morbidity were derived from Kaplan-Meier-Curves of the CHARM-protocols. ARR was determined through a Monte-Carlo-Simulation for a cohort of 1,276 patients. For both approaches, cost calculation was performed from the perspective of the German statutory health insurance (SHI). Base year for costing was 2004. Only direct costs (drug, hospital, general practitioner, specialist, ambulance, rehabilitation) were considered. RESULTS: In the case-based-costing-approach, the incremental costs to prevent/delay a cardiovascular death or a hospital admission were €516 (“Added”) and €1,210 (“Alternative”). The Markov-Analysis presented corresponding ratios of €2,117 (“Added”) and €2,814 (“Alternative”). Sensitivity analysis on costs, discounting rates and effects size showed the robustness of both models’ results. CONCLUSIONS: Both analyses showed the cost-effectiveness of candesartan for patients with chronic heart failure. Conducting a simulation that considers real-life-conditions leads to higher ratios, but gives a more precise estimate of the cost-effectiveness of candesartan in a long-term-perspective.

ECONOMIC EVALUATION OF VALSARTAN IN PATIENTS WITH CHRONIC HEART FAILURE IN THE HUNGARIAN HEALTH CARE SETTING

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OBJECTIVES: To estimate the costs, benefits, and cost-effectiveness of valsartan as a treatment of chronic heart failure (CHF) in Hungary. METHODS: A country-specific economic analysis was undertaken by combining within-trial efficacy and resource data from the Valsartan Heart Failure Trial (Val-HeFT) with Hungarian cost estimates. Unit cost estimates were obtained from official data sources of the National Health Found in Hungary and were adjusted to 2004 Hungarian forints. Total within-costs were estimated for hospitalizations, inpatient and outpatient physician services, ambulance transportation, deaths outside the hospital, and outpatient cardiovascular medications.

We estimated life expectancy using two different methods, by taking the reciprocal of the mortality rate observed in the trial and based on the percentages of patients who had died during the trial. We compared within-trial inpatient days and number of hospitalizations using a negative binomial model adjusting for follow up. T-tests were used to compare within-trial costs. We also estimated the incremental cost per life year saved. Analyses were conducted for subgroups identified in Val-HeFT.

RESULTS: The net incremental cost in the valsartan group was 208,766 Ft over 23 months of follow-up. Over the course of the trial, patients treated with valsartan had on average a net incremental cost of 183,619 Ft. Among patients not treated with an ACE inhibitor at baseline, the incremental cost-effectiveness ratio was 402,438 Ft per life-year saved when we estimated life expectancy by taking the reciprocal of the mortality rate observed in the trial. When we estimated life expectancy using the daily hazard rate, the incremental cost-effectiveness ratio was 450,597 Ft per life-year saved. CONCLUSIONS: Valsartan provided clinical benefits at a mean incremental cost of 108,921 Ft per year during the trial. In patients not taking ACE inhibitors, valsartan was economically attractive, increasing survival for a reasonable cost.
A96

Abstracts

PCV25
THE ADD-ON TREATMENT WITH METOPROLOL SUCCINATE IN PATIENTS WITH CHRONIC HEART FAILURE (CHF) LEADS TO COST SAVINGS IN THE GERMAN HEALTH CARE SYSTEM—A MODEL APPROACH
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OBJECTIVES: The health economic impact of an additional metoprolol succinate treat-ment (METsuc) in patients with chronic heart failure (CHF) was analyzed for “real life” treat-ment patterns on the basis of the MERIT-HF—Trial (Metoprolol CR/XL Randomized Intervention Trial in Congestive Heart Failure). METHODS: Based on the efficacy data of the MERIT-HF, a markov model was created to simulate the effectiveness of METsuc treatment under real-life conditions. The additional direct costs associated with METsuc were examined in relation to the number of fatalities and of hospitalizations avoided. The cost analysis was conducted from the perspective of the German Statutory Health Insurance (SHI). Base year for the cost data was 2004. Probabilities were derived from the MERIT-HF—Trial. Missing data for this approach were assessed with the help of a focus group with eight general practitioners and cardiologists. Further, the number of life-years gained was calculated using the DEALE method (Declining Exponential Approximation of Life Expectancy). RESULTS: For the period observed (18 months), additional METsuc treatment does not lead to additional costs for the Statutory Health Insurance (SHI) in Germany. With the application of METsuc, costs of about 3400 EUR per fatality and almost 1800 EUR per hospitalization could be avoided. The life expectancy of a CHF patient is 1.51 years higher in comparison to standard treatment alone. Univariate sensitivity analyses were conducted to demonstrate the robustness of the results. CONCLUSIONS: The additional costs for METsuc in the outpatient sector are compensated by reduced expenditures in the inpatient sector as well as in the field of ambulance transportation. On the basis of the present analysis the treatment with metoprolol succinate represents an approach for integrated health care under a clinical as well as under an economical perspective.

PCV26
COST-EFFECTIVENESS OF CANDESARTAN IN GERMANY FOR PATIENTS WITH CHRONIC HEART FAILURE
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OBJECTIVES: To evaluate the cost-effectiveness (CE) of candesartan for patients with chronic heart failure (CHF) in Germany based on the CHARM (Candesartan in Heart failure: Assessment of Reduction in Mortality and Morbidity)-programme. METHODS: Two CE-analyses were conducted: incremental cost-per-avoided-event and incremental cost per life-years gained. Effectiveness data were derived from the CHARM-programme which provided data on three treatment groups with CHF-patients: “Added” (low left ventricular ejection fraction (LVEF <40%), “Alternative” (LVEF <40% and patients’ ACE-inhibitor intolerance) and “Preserved” (LVEF >40%). Besides, an “Overall” analysis was processed. All cardiovascular events (Hospital admissions due to worsening heart failure, cardiovascular deaths, and cardiovascular procedures) were extracted. Absolute risk reduction (ARR) or only first events counted) to prevent/delay one event was evaluated. Cost calculation was performed from the perspective of the German statutory health insurance (SHI). Base year for costing was 2004. Only direct costs (drug, hospital, general practitioner, specialist, ambulance, rehabilitation) were considered. Incremental costs between candesartan and placebo were used building a ratio with ARR. Long-term effectiveness was estimated calculating the incremental costs per life-year gained (LYG). LYG were generated using the DEALE (Declining Exponential Approximation of Life Expectancy)-approximation. RESULTS: The incremental costs to prevent/delay a cardiovascular death or a hospital admission were €2279 (“Added”), €2763 (“Alternative”), €31,015 (“Preserved”) and €7717 (“Overall”). The incremental costs per life-year gained were 47 EUR (“Added”), 131 EUR (“Alternative”), €11,054 (“Preserved”) and €231 (“Overall”). Sensitivity analyses were conducted for all treatment groups. The results were robust to variations of costs, discounting rates and effects. CONCLUSIONS: With regard to the results of the treatment groups “Added” and “Alternative”, candesartan is a cost-effective treatment option for patients with low left ventricular ejection fraction in Germany.

PCV27
COSTS AND OUTCOMES AFTER FIRST HEART FAILURE HOSPITAL ADMISSION: A LONGITUDINAL STUDY USING ADMINISTRATIVE DATABASES
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OBJECTIVE: To assess the economic and epidemiologic impact of CHF in Friuli Venezia Giulia (FVG) a region of approximately 1.2 million inhabitants in the north-eastern Italy. METHODS: All residents of FVG are registered in to Regional Health Service (RHS) database, which keeps track of the use of medical care admissions and reimbursement purposes. We selected residents of FVG who had during year 2000 a first CHF hospital admission and we followed them up till death, or December 31, 2004. (we a priory excluded people who during the period 1995–1999 had a previous CVD event). Mortality was investigated by collecting information from Regional Citizen Register file. We obtained information on medical costs from electronic databases