model was constructed with four health states regarding survival and irreversible adverse events. Health care costs and effects of SBRT, proton therapy and carbon-ion therapy were compared over a five-year time horizon. Transition probabilities were derived from single-armed observational studies, as no comparative studies were available. Utilities were collected in a cross-sectional survey. Probabilistic sensitivity analysis was performed to reflect parameter uncertainty. RESULTS: Preliminary results showed that the expected total health care costs per patient for SBRT were €18,366, for protons €24,267 and for carbon-ions €26,720. The expected quality adjusted life-years (QALYs) were 2.24, 2.40 and 2.45 respectively. This resulted in an incremental cost-effectiveness ratio (ICER) of €36,651 per QALY for protons as opposed to SBRT, and an ICER of €44,668 per QALY for carbon-ions as opposed to protons. For a ceiling ratio of €40,000 protons had the highest probability of being cost-effective (41%), followed by carbon-ions (35%) and SBRT (24%). For a ceiling ratio of €80,000 these probabilities were 42%, 52% and 6% respectively. CONCLUSIONS: These preliminary results indicate that PT is a potentially cost-effective treatment modality for inoperable stage I NSCLC. However, caution is warranted, as the differences are small and surrounded by considerable uncertainty. More analyses will be performed of which the results are presented at the conference. First, more advanced statistical techniques are applied to synthesize the available evidence. Second, for operable patients PT is compared to surgery. Third, the cost-effectiveness of PT is assessed for stage III NSCLC. Finally, expected value of perfect information analyses are presented to support research decisions.

AN ECONOMIC EVALUATION OF DASATINIB (SPRycEL®) IN CHRONIC PHASE CHRONIC MYELOID LEUKEMIA (CP-CML) IN CENTRAL AND EASTERN EUROPE

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Achieving complete cytogenetic response (CCyR) is associated with superior progression-free survival in patients with CML [1]. How this endpoint affects cost has not been evaluated. OBJECTIVES: To assess the cost needed to achieve one CCyR with dasatinib 140 mg vs. imatinib 600 and 800 mg in imatinib-resistant CP-CML, from the perspective of national health insurance in the Czech Republic, Hungary and Romania. METHODS: An economic analysis was conducted using the number of patients needed to be treated (NNT) to achieve one CCyR. The incremental cost for achieving CCyR in 15 months was determined. CCyR rates for dasatinib 140 and imatinib 800 mg were based on a randomized phase 2 trial START-R [2]. Given no published data on imatinib 600 mg, its CCyR rate was assumed to be the same as for imatinib 800 mg; an assumption in favor of imatinib. Costs were based on reimbursed drug-prices from national lists. In Hungary, reimbursed amounts for 600 or 800 mg of imatinib are the same. RESULTS: To achieve one CCyR, NNT is 6.25 for imatinib and 2.5 for dasatinib. The costs to achieve one CCyR during 15 months of therapy are CZK9.1 million (€363,172), HUF52.8 million (€218,492) and RON1.2 million (€334,146) lower for dasatinib compared to imatinib 800 mg. The economic advantage of dasatinib remains when compared to imatinib 600 mg. The incremental costs to achieve one CCyR between imatinib 600 mg and dasatinib are CZK5.7 million (€228,664), HUF52.8 million (€218,492) and RON0.7 million (€205,316). CONCLUSIONS: In imatinib-resistant CP-CML patients, therapy with dasatinib provides better efficacy and lower cost compared to imatinib 600 and 800 mg in Central and Eastern Europe to achieve one CCyR. The magnitude of the advantage varies due to different pricing and financing systems. [1] Hughes et al. NEJM 2003;349:1423–32; [2] Kantarjian et al. Blood 2007;109:5143–50.
non-institutionalized population, was used. A total of 7396 adult diabetic patients were identified based on ICD-9-CM code of 250 after excluding pregnant women and cancer patients. These patients were classified as normal (body mass index (BMI): 18.5 – < 25), overweight (BMI: 25 – < 30), or obese (BMI: ≥ 30). TCS included all costs except for treatment of dental problems or injuries. The impact of overweight/obesity on TCS at various points of the cost distribution was estimated using the weighted quantile regression model after adjusting for age, gender, and other study variables. The effects of the study variables on the median TCS were investigated using the weighted median regression. All costs were converted to 2005 U.S. dollars using price indices. Data were analyzed using SAS and SUDAAN.

RESULTS: Compared with normal-weight patients, the incremental TC attributable to overweight were significantly higher from $2,38, $268, $409, and $442 at the 10th, 25th, 50th, and 75th percentile respectively. But incremental costs were diminished to $760 at the 90th percentile because of high costs in normal weight patients with severe comorbidities such as nephropathy. Similar trends were found in obese-patients compared with normal-patients, and attributable costs are bigger. Median TCS were increased in women vs. men and Caucasian vs. African-American, and as patients became older. CONCLUSIONS: The impact of overweight or obesity on TCS in diabetic patients was substantial especially in the lower tail of the TC distribution. The study findings suggest that controlling of weight to reduce TC is very important in most diabetic patients, but less important in the upper tail of the TC distribution. The quantile regression method is useful for estimating TCS at the different percentiles of the skewed TC distribution.

DB3

HEALTH CARE RESOURCE UTILIZATION AND COSTS IN INSULIN-DEPENDENT PATIENTS WITH TYPE 2 DIABETES UNDER REAL WORLD CONDITIONS IN GERMANY: LIVE-SPP STUDY

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OBJECTIVES: To evaluate and compare the total costs relevant to diabetes care in patients with type 2 diabetes mellitus (T2D) treated with either Insulin glargine- or conventional basal insulin (NPH)-based therapies from the perspective of the German statutory health insurance (SHI). METHODS: LIVE-SPP (Long acting Insulin glargine Versus NPH Cost Evaluation in SPecialised Practices) Study is a naturalistic, retrospective, multicenter study of adult patients with T2D. Costs were evaluated from the German SHI perspective in 2005. Average total costs per patient for Insulin glargine-based vs. NPH-based therapies were compared over the 20-month period using multivariate general linear modelling (GLM). Potential confounders tested were age, gender, BMI, HbA1c, FBG, duration of diabetes, duration of insulin pre-treatment, and number of diabetic complications at baseline. Sensitivity analyses were performed by varying the main cost factors by ±25%. RESULTS: Patients (n = 1024, 512 patients per cohort) were on average 62 years old, with an average BMI of 30.5 kg/m². Average duration of diabetes at study start was eight years with an average duration of insulin pre-treatment of seven months. The average unadjusted total costs per patient from the SHI perspective per 20-month period were €3,114.02 [95% CI 2907.12–3320.93] for Insulin glargine-based vs. €3,439.54 [95% CI 3204.85–3674.23] for NPH-based therapies. The major cost drivers for both cohorts were insulin utilization, physician visits and blood glucose monitoring. Average adjusted total costs per patient were statistically different between Insulin glargine-based (€2,068.55) and NPH-based therapies (€2,679.77), 20-month period, p = 0.0004, resulting in adjusted savings of €611.22 in favor of Insulin glargine based therapies. The economic advantage for Insulin glargine-based therapies remained stable in sensitivity analyses. CONCLUSIONS: LIVE-SPP cost analyses indicate that Insulin glargine-based therapies offer an economic advantage over NPH-based therapies, resulting in potential cost savings.

COST OF MANAGING SEVERE HYPOGLYCAEMIA IN INSULIN-TREATED DIABETES IN THREE EUROPEAN COUNTRIES

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OBJECTIVES: To assess the costs incurred in management and follow-up of severe hypoglycaemic events (SHEs; requiring external help for recovery) in Germany, Spain and the UK. METHODS: In 639 people aged ≥16 years and receiving insulin for type 1 (n = 319) or type 2 diabetes (n = 320) who experienced ≥1 SHE in the previous 12 months, health care resource use was measured for the most recent event via patient surveys. Patients were grouped by where the SHE was treated: Group 1, community (lay person); Group 2, community (health care professional, HCP); Group 3, hospital. Costs were calculated by applying unit costs from published sources to estimated resource use; costs per SHE were calculated by dividing by the number of patients per subgroup. Weighted average costs across all treatment groups were derived using prevalence data from the Roper Starch database. RESULTS: Hospital treatment is a major cost driver for SHEs in all countries, despite most patients being treated in the community. Costs per SHE were similar for type 1 and type 2 patients in all three countries, e.g. in Germany (Groups 1–3 respectively), €52, €482 and €3671 for type 1 diabetes and €30, €354 and €3366 for type 2 diabetes. The average cost per SHE (all patients) for Germany, Spain and UK respectively was €522, €466 and UK£164 (£242) in type 1 patients and €595, €572 and UK£358 (£527) in type 2 patients (€1.00 = UK£0.679; average rate, 2/06–3/07). More patients with Type 2 than Type 1 diabetes are treated by HCPs in the UK, resulting in higher costs. Calls and visits to family doctors, additional glucose testing and education about diabetes management contribute substantially to total costs in non-hospitalised patients. CONCLUSIONS: SHEs add significantly to health care costs. SHE treatment costs were similar in all three countries, despite differences in management approach.

PODium session IV: Health policy issues and implications


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OBJECTIVES: The United States (U.S.) Orphan Drug Act (1983) and the European Union (EU) orphan drug legislation (2000) established several incentives to encourage the development of