A TRIAL-BASED ASSESSMENT OF THE COST-UTILITY OF BEVACIZUMAB AND CHEMOTHERAPY VERSUS CHEMOTHERAPY ALONE FOR ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC)

OBJECTIVES: Patients with advanced NSCLC have a poor prognosis—with median overall survival of less than one year. A randomized clinical trial (RCT) of bevacizumab plus chemotherapy vs. chemotherapy alone demonstrated a significant (2-month) improvement in median survival. However, a cost-effectiveness analysis of this therapy has not been published. Based on the RCT results, we performed a cost-utility analysis to evaluate the cost-effectiveness of bevacizumab added to chemotherapy in patients with advanced NSCLC. METHODS: We developed a Markov model to project quality-adjusted life years (QALYs) and direct medical costs from a US health care payer perspective in patients treated with bevacizumab plus chemotherapy vs. chemotherapy alone. Survival and toxicity data for the model came from the RCT (ECOG 4599). We obtained utilities from a literature search and unit costs from Medicare. We discounted QALYs and costs at 3% per year. We addressed uncertainty with one-way and probabilistic sensitivity analyses. RESULTS: Compared to chemotherapy alone, bevacizumab and chemotherapy increased median life expectancy by 0.23 years and median QALYs by 0.13, at an incremental lifetime cost of US$71,000 per patient. The projected incremental cost-effectiveness ratios (ICERs) were US$310,000/life-year gained and US$57,000/QALY gained, respectively. Sensitivity analysis showed that the cost-effectiveness was most sensitive to the number of cycles of bevacizumab, its unit cost, and the utility in stable disease state during treatment. CONCLUSIONS: Based on commonly cited cost-effectiveness thresholds, bevacizumab is not projected to be cost-effective for these trial patients from a payer perspective (but without accounting for any possible price assistance). Further analysis from the societal perspective could generate different results. These findings might help decision-makers to make informed decisions about resource allocation for advanced NSCLC care.

ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) CETUXIMAB TREATMENT DECISION MODEL: CHEMOTHERAPY+CETUXIMAB VS. CETUXIMAB TREAT-TO-RASH STRATEGY VS. CHEMOTHERAPY ONLY IN FIRST-LINE TREATMENT OF STAGE III/IV NSCLC

METHODS: A decision analytic model was developed to estimate direct medical costs, patient time costs, and quality-adjusted life-years (QALYs) for three treatment strategies: 1) chemotherapy+cetuximab for all patients; 2) chemotherapy+cetuximab for one month and continued for patients experiencing rash; and 3) chemotherapy only. Model parameters were derived from the pivotal trial of cetuximab, published literature, and government sources. The model included trial-based adverse events and costs related to drug treatment, routine follow-up, AEs, and post-progression care. The model results were examined using one-way and probabilistic sensitivity analyses (PSA). RESULTS: Total QALYs for the chemotherapy+cetuximab for all, treat-to-rash, and chemotherapy only strategies were 0.608, 0.610, and 0.574, respectively. Total costs were $175,532; $154,174; and $101,164, respectively. Relative to chemotherapy only, chemotherapy+cetuximab and treat-to-rash strategies had incremental cost-effectiveness ratios of $2,219,000 and $1,470,000 per QALY, respectively. Relativa to chemotherapy+cetuximab for all, the treat-to-rash strategy had a cost-savings of $21,138, and a small increase in QALYs. One-way sensitivity analyses found results to be sensitive to the cost and required dose of cetuximab, cost of care after progression, and progression-free and overall survival. In the PSA, chemotherapy only had the highest probability of being cost effective until a willingness-to-pay of $1,400,000; after which treat-to-rash had the highest probability. CONCLUSIONS: These results suggest that the addition of cetuximab to chemotherapy for this patient population is not a cost-effective alternative to chemotherapy only by any plausible standard of willingness-to-pay. Sensitivity analysis showed that the cost-effectiveness is most sensitive to the number of cycles of cetuximab, its unit cost, and the utility in stable state disease during treatment. CONCLUSIONS: Based on commonly cited cost-effectiveness thresholds, bevacizumab is not projected to be cost-effective for these trial patients from a payer perspective (but without accounting for any possible price assistance). Further analysis from the societal perspective could generate different results. These findings might help decision-makers to make informed decisions about resource allocation for advanced NSCLC care.

CONCLUSIONS: This analysis showed that the incremental cost per patient for adjuvant trastuzumab therapy would be 26,462 EUR on average. Benefit to the patient would be 3.11 QALY, on average, in a 45 years time horizon. Quality of life gained for adjuvant trastuzumab therapy observation would be 8,498 EUR. Sensitivity analysis for different scenarios (0% costs and outcomes, 5% costs and outcomes, 5% costs and 0% outcomes) indicated results were sensitive to the discount rate, but the ICER remained below 20,000 EUR/QALY.

ECOLOGICAL EVALUATION OF DASATINIB FOR THE TREATMENT OF CHRONIC MYELOGENOUS LEUKAEMIA IN PATIENTS RESISTANT TO IMATINIB IN COLOMBIA AND VENEZUELA

OBJECTIVES: To perform an economic evaluation of Dasatinib for the treatment of Chronic Myelogenous Leukaemia (CML) in patients resistant to imatinib in Colombia and Venezuela, using unit costs data found in the study entitled “An Economic Evaluation of Dasatinib for the treatment of Chronic Myelogenous Leukaemia in Imatinib-Resistant Patients”, which was carried out by the York consortium, UK. METHODS: On the same initial assumptions of the York work as regards to population, age of start, time horizon and discount rate, and adjusting the rates of mortality due to other causes, we used a Markov model which would enable a prediction of costs and health benefits obtained during the entire lifetime for each of the treatment options. RESULTS: In the chronic phase of the disease, dasatinib yielded 6.33 and 6.03 QALYs for Colombia and Venezuela respectively, in comparison with 6.03 and 5.73 QALYs in the case of imatinib. In Colombia, with an ICER of $54,120,910 per QALY, stated in 2009 Colombian pesos, dasatinib showed a better cost-effectiveness ratio than nilotinib, and in Venezuela, dasatinib proved to be dominant. In the accelerated phase, dasatinib produced 3.5 times more QALYs than those of the imatinib group in both countries. In the blastic phase, QALYs were 3.4 times more than those of the imatinib group. CONCLUSIONS: Dasatinib at a dose of 140 mg/day showed a better cost-effectiveness ratio than the doses of 800 mg of Imatinib and 800 mg of Nilotinib for the treatment of patients with CML resistant to usual imatinib doses in the chronic phase, as well as in the accelerated and blastic phases.

SIMILARITIES AND DIFFERENCES IN TREATMENT PATTERNS AND RESOURCE UTILISATION FOR MULTIPLE MYELOMA: A COMPARISON BETWEEN 4 NORDIC COUNTRIES

OBJECTIVES: Compare Multiple Myeloma (MM) treatment patterns and resource consumption in the Nordic Countries. METHODS: A modified Delphi-panel was designed, consisting of 14 haematologists at different university hospital clinics in Norway, Denmark, Finland, and Sweden. In a 3-round process with structured questionnaires in February 2007 to January 2008, resources utilisation was surveyed including drugs, tests, bone marrow transplantations (BMT), hospital inpatient stay/visits, radiotherapy, surgical- and diagnostic procedures. RESULTS: Patient characteristics were slightly different with mean age ranging from 67 to 70; age above 65 years 52%–64%; males 55%–64%; co-morbidities 47%–63%. Differences were found in the time spent in 1st line treatment (Norway 18 months; Finland 7 months) and the share and age of patients continuing on to 2nd and 3rd lines (Norway 38% and 22%; Finland 89% and 72%, respectively). Melphalan and prednisone combination in 1st line was used in all countries. Differences in the introduction of thalidomide, bortezomib and lenalidomide were seen, with Denmark treating 24% of the patients with bortezomib used in all countries. Differences in the introduction of thalidomide, bortezomib and lenalidomide in 1st line. This could be driven by differences in the number of visits. Radiotherapy was highest in Sweden and Denmark. Small differences were seen in other resource categories. CONCLUSIONS: Although Nordic treatment guidelines for MM from 2005 are well accepted (excl. Finland) some differences in treatment patterns are seen. These were seen in differences in patient characteristics, clinical studies and a non-synchronised development of new treatment guidelines. Also differences in political decisions, relative prices and health care organisations may have an impact.

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