nant strategy over WLC alone when used at initial TURB for patients diagnosed with NMIBC in England and Wales, with improved patient outcomes and cost-savings expected to offset investment in HAL.

PCN96

UNCERTAINTY AND COST-EFFECTIVENESS ANALYSIS OF THE SEQUENTIAL APPLICATION OF TYROSINE KINASE INHIBITORS FOR THE TREATMENT OF CHRONIC MYELOID LEUKEMIA

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OBJECTIVES: Currently, there are several tyrosine kinase inhibitors (TKI) approved for the treatment of chronic myeloid leukemia (CML). The aim of our study was to evaluate the long-term cost-effectiveness of different therapy regimens for CML focusing on the evaluation of the uncertainty using probabilistic sensitivity analysis (PSA). **METHODS:** We performed a cost-effectiveness analysis using a state-transition Markov model. The model evaluates seven treatment strategies including different combinations of TKIs as well as chemotherapy or stem cell transplantation. For model parameters, we used published trial data, and Austrian clinical, epidemiological, and economic data from the Austrian CML registry, statistical and economic databases. We performed a cohort simulation over a lifelong time horizon, adopted a societal perspective with an annual 3% discount rate. We conducted extensive uncertainty analyses and contrasted different methodological approaches to define parameter uncertainty distributions from our source data. We compared the base-line derived from the mean parameter values with the mean outcomes of all PSA scenarios. **RESULTS:** In the base-case efficiency frontier, nilotinib without second-line TKI resulted in an ICUR (1) of 118,600 €/QALY compared to the baseline strategy imatinib without second-line TKI. Imatinib followed by nilotinib after failure yielded an ICUR (2) of 123,900 €/QALY compared to nilotinib without second-line TKI. Nilotinib followed by dasatinib after failure resulted in an ICUR (3) of 149,400 €/QALY compared to imatinib followed by nilotinib after failure. The remaining strategies were excluded due to absolute or extended dominance. The PSA resulted in ICURs of (1) 116,200 €/QALY (2) 130,300 €/QALY and (3) 130,300 €/QALY. **CONCLUSIONS:** Based on our analysis, we recommend imatinib followed by nilotinib as the most cost-effective treatment strategy including a second-line TKI. Mean results from PSA show only small deviation from the base-case analysis. When new path to cure data are available, results will need to be updated.

PCN97

A SYSTEMATIC REVIEW AND CRITICAL APPRAISAL OF ECONOMIC EVALUATIONS OF RADIOTHERAPY FOR CANCER

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OBJECTIVES: To review published cost-effectiveness studies which evaluate radiotherapy in individuals with breast, cervical, colorectal, head and neck, or prostate cancer. To compare the economic methods used with the guidelines used in the appraisal programme for the National Institute of Health and Care Excellence (NICE) in the UK. **METHODS:** Systematic searches of seven databases (Medline, EMBASE, CDSR, NHSEED, HTA, DARE and EconLit) were conducted in July 2012. In addition, research registers, the NICE website and conference proceedings were searched. Studies that reported results of economic evaluations of radiotherapy interventions in terms of incremental quality adjusted life-years or life-years for individuals diagnosed with cancers were included. The quality of these studies was assessed in terms of meeting, essential, preferred and UK NICE-specific requirements for economic evaluations. **RESULTS:** Twenty-nine studies satisfied the inclusion criteria (breast=14, colorectal=2, prostate=10, cervical=0, head and neck=3). The majority (13) of the studies were set in the US with just 2 conducted in the UK. Considering essential methodological criteria, only 3 (10%) studies used estimates for clinical effectiveness which were identified by systematic literature review. Just a quarter (8/29) used health related quality of life data from patients with the particular cancers. While the majority of studies used one-way sensitivity analyses, only a third (10/29) reported the results of a full probabilistic sensitivity analysis. Additional essential criteria such as the use of an appropriate horizon, a clear description of both the comparators and the patient group indication were generally satisfied. However, as only 2 of the studies were conducted in the UK, the majority of the UK NICE specific requirements were not met. **CONCLUSIONS:** This review indicates there is little robust evidence of the cost-effectiveness of radiotherapy interventions in these cancers and very little evidence which could be used to support decision making in the UK.

PCN98

SELECTIVE INTERNAL RADIOTHERAPY (SIRT) USING RESIN YTTRIUM-90 MICROSPHERES FOR CHEMOTHERAPY-REFRACTORY METASTATIC COLORECTAL CANCER: AN ITALIAN COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: SIRT using resin microspheres of yttrium-90 can be used to treat liver metastases resulting from colorectal cancer (CRC). A retrospective cohort study found a survival advantage from SIRT compared to standard care in chemotherapy-refractory patients. This study was used in combination with other sources to model the cost-effectiveness of SIRT vs best supportive care (BSC) in this indication. **METHODS:** A state-transition model was developed, with three health states, based on survival outcomes from a retrospective cohort study in chemotherapy-refractory mCRC comparing yttrium-90 resin microspheres (SIR-Spheres; Sirtex, Sydney, Australia) *vs.* BSC. The model was developed from the perspective of the National Health Service in Italy. The model included costs for treatment acquisition, pre-treatment work-up and delivery of microspheres, and chemotherapy received in addition to, instead of, or after, SIRT. In addition costs of managing AEs and a cost of death were included. Costs were obtained from the University Hospital in Bologna, Agenzia Italiana del Farmaco, and the literature. Utility data was not available from the study, so was taken from a recent NICE economic evaluation in the same indication. **RESULTS:** SIRT increased survival resulting in a life-year gain of 1.35 (2.12 vs 0.98) life years and a quality-adjusted life year (QALY) gain of 0.83 (1.52 vs 0.70). The costs of SIRT, monitoring and further treatment were greater in the SIRT arm with partial cost-offset through a reduction in adverse events. Overall, SIRT lead to an increase in costs of €24,626 (€39,973 vs €15,347), resulting in a cost/QALY of €29,850. Probabilistic sensitivity analysis showed a 97% chance of SIRT being cost-effective at a threshold of €50,000/QALY. **CONCLUSIONS:** The analysis demonstrates that SIRT using resin yttrium-90 microspheres has the potential of being a cost-effective option in the treatment of patients with chemotherapy-refractory liver metastases resulting from colorectal cancer.

PCN99

THE COST-EFFECTIVENESS OF BENDAMUSTINE VERSUS FLUDARABINE FOR THE FIRST-LINE TREATMENT OF CHRONIC LYMPHOCYTIC LEUKEMIA (CLL) IN MEXICO

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OBJECTIVES: To determine the cost-effectiveness of bendamustine versus fludarabine for the first line treatment of CLL in Mexico. **METHODS:** An economic model was constructed from the Mexican public payer perspective, with a 25-year (lifetime) horizon and a discount rate of 5%. The model included three health states, progression-free (PF), progressive disease (PD), and death. Clinical inputs (Kaplan-Meier curves, response rates, hazard ratios (HRs) and adverse event (AE) rates were from a phase 3 trial comparing bendamustine and chlorambucil, and from a network meta-analysis. Resource use data were from interviews with Mexican hematologists treating CLL. Resource use for PF patients was weighted based on treatment response. Unit costs were obtained from Mexican Social Security Institute (IMSS) and were expressed in 2013 Mexican Pesos. Univariate and probabilistic sensitivity analyses were conducted to determine the key drivers of cost-effectiveness, and the uncertainty around the results, respectively. **RESULTS:** Total lifetime costs for bendamustine and fludarabine were $660,796 and $536,068, respectively. Bendamustine patients accrued more LYs (6.83 vs. 5.98), QALYs (5.13 vs. 4.25), and PF LYs (2.97 vs. 1.13) compared to fludarabine patients. The ICERs were $146,848 (cost per LY), $142,853 (cost per QALY) and $67,647 (cost per PF LY). Univariate sensitivity analysis revealed the cost per LY ICER was most sensitive to number of bendamustine cycles, the PFS for bendamustine vs. chlorambucil and the cost of bendamustine. Probabilistic sensitivity analysis with 1,000 iterations predicted bendamustine had a 48% chance of being cost-effective, compared to fludarabine, at a willingness to pay (WTP) of $125,000. **CONCLUSIONS:** At a WTP of $125,000 (GDP per capita of Mexico) bendamustine is cost effective versus fludarabine.

PCN100

COST-EFFECTIVENESS OF INDUCTION TREATMENT WITH BORTEZOMIB ADDED TO THALIDOMIDE AND DEXAMETHASONE IN NEWLY DIAGNOSED MULTIPLE MYELOMA PATIENTS ELIGIBLE FOR AUTOLOGOUS STEM CELL TRANSPLANTATION IN GERMANY

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OBJECTIVES: To estimate the cost-effectiveness of bortezomib, thalidomide, and dexamethasone (VTD) induction therapy, versus TD alone in newly diagnosed multiple myeloma (ndMM) patients eligible for autologous stem cell transplantation (ASCT) in Germany. **METHODS:** A life-time Markov model with monthly cycles is used to model disease progression and generate cost per quality-adjusted life years (QALY). It includes five health states; four of which are related to the lines of treatment, and death. Patients enter the first line state at randomisation and receive induction usually followed by ASCT. Patients can move to the next line upon progression or die within a line, until they enter the final (4+) line where they remain until death. Transition probabilities are derived from multi-state survival analysis of patient level data from the PETHEMA-trial for first line, the APEX-trial for second and third line, and an observational data set (eVOBS) for further lines. The model uses ASCT and time dependent utilities from the literature and trial estimated grade ≥3 adverse events (AEs) associated disutilities to calculate the QALYs. Cost estimates related to treatments, transplant and AEs are based on German specific sources. A payer's perspective is chosen. Discount rates of 3% for both cost and utilities are applied. **RESULTS:** Total life years of 6.38 VTD and 5.06 for TD with first line duration of 50.47 versus 32.85 months respectively. Incremental costs of VTD versus TD are 22,179€ [95%CI:6,950€;33,528€] and incremental QALYs are 0.72 [95%CI:0.33;1.20], resulting in an ICER of €30,655 per QALY gained. The univariate analyses show that the model is most sensitive