PCN115

COST UTILITY ANALYSIS OF 90Y-IBRITUMOMAB TUXETAN FOLLOWING FIRST-LINE CHEMOTHERAPY COMPARED TO NO FOLLOW-UP IN PATIENTS WITH STAGE III OR IV FOLLICULAR LYMPHOMA IN SPAIN

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OBJECTIVES: A multicenter randomized phase III trial (study 304820) showed patients with stage III or IV follicular lymphoma who achieved a partial or complete response after first-line treatment with 90Y-ibritumomab tuxetan had significantly longer PFS time than patients receiving no treatment. The objective of this study is to compare costs and outcomes of subsequent treatment with a course of 90Y-ibritumomab tuxetan compared to no treatment in patients with complete or partial response following first-line chemotherapy from a Spanish payer perspective.

METHODS: A lifetime Markov model was developed to compare “9Y-ibritumomab tuxetan consolidation therapy vs. ‘no consolidation’”. The model consists of four states: progression-free with complete response (CR), progression-free with partial response (PR), progressive disease and death. Patients enter the model after an assessment of response to first-line treatment (induction therapy) demonstrates partial or complete response. An important feature of the model is the possibility for response status to convert from PR to CR as shown in study 304,820. Following final response, individuals either remain in their current health state, experience disease progression, or die. PFS data from the trial was used to model disease progression. Costs were calculated from the perspective of the Spanish health care system. Future costs and benefits were discounted at 3.5% per annum. Utilities were calculated using the EQ-SD from study 304,820. RESULTS: The incremental cost per additional QALY is estimated to be $18,263 for partial responders and $29,322 for all responders (including those with a complete response after first-line therapy). The parameters which have the greatest impact are the utility estimates, particularly the utility in the progressive disease state. CONCLUSIONS: The base case model demonstrates that “9Y-ibritumomab tuxetan consolidation following induction therapy offers good value for money while significantly prolonging PFS. Sensitivity analyses show the results to be reasonably robust.

PCN116

A SURVIVAL BASED COST-EFFECTIVENESS ANALYSIS OF 5 YEARS LETROZOLE vs TAMOXIFEN AS ADJUVANT THERAPY FOR POSTMENOPAUSAL WOMEN WITH EARLY BREAST CANCER: CANADIAN PERSPECTIVE

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OBJECTIVES: The 76 months follow-up of the BIG 1-98 study reported a hazard ratio [HR] for overall survival (OS) of 0.81 and a HR for disease free survival (DFS) of 0.84 in the letrozole (LET) group versus tamoxifen (TAM). The 100 months follow-up of the ATAC study reported almost identical results observed at 68 months follow-up for the HR of OS (0.97) in the anastrozole (ANA) group when compared with TAM. The HR for DFS was 0.85. This analysis compares the cost-effectiveness of LET and ANA versus tamoxifen from the Canadian health care perspective using the most recent survival data from the BIG 1-98 and ATAC studies. METHODS: A Markov model was used to estimate the cost per quality adjusted life year (QALY) of LET or ANA versus TAM. Annual survival probabilities were extracted from updated BIG 1-98 and ATAC trials, and literature. Cost values representing resource use were informed from a Canadian costing analysis. Utilities weights were derived from literature. A time horizon of 20 years and a 5% discount rate were used. RESULTS: LET and ANA are predicted to increase QALYs by 0.26 and 0.03 per patient compared to TAM, respectively. Lifetime costs increase by $2710 and $2297 for LET and ANA respectively. The incremental cost-effectiveness ratio (ICER) of LET versus TAM is $10,420. The ICER for ANA versus TAM is $41,569. The model is more sensitive to the utility weight for remission post-chemotherapy. The incremental cost per QALY remained below $50,000 for all plausible parameter estimates, and all extrapolation scenarios. CONCLUSIONS: The model provides a robust framework for estimating cost-effectiveness, allowing exploration of critical areas of uncertainty.

PCN117

COST-UTILITY MODEL TO EVALUATE ADJUVANT CHEMOTHERAPY FOR EARLY BREAST CANCER IN THE USA

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OBJECTIVES: Several new interventions have become available recently for the treatment of early breast cancer (EBC) which are effective in reducing the incidence of disease relapse. Our objective was to develop a model to evaluate the cost-effectiveness and cost-utility of such interventions in the USA. The model was demonstrated for the comparison of docetaxel (75 mg/m2), doxorubicin (50 mg/m2), and cyclophosphamide (300 mg/m2) (TAC, 6 cycles) with fluorouracil (500 mg/m2), doxorubicin (50 mg/m2), and cyclophosphamide (100 mg/m2) (FAC, 6 cycles) in node-positive EBC patients. METHODS: A combined decision tree and Markov model estimated costs and outcomes from initiation of adjuvant chemotherapy to death. Parametric survival functions were fitted to patient-level data from trial BCIRG 001 and time-dependent transition probabilities for disease relapse were estimated. Costs were estimated from US databases (Pharmetrics claims database and Premier hospital database) and a published retrospective analysis of linked SEER-Medicare data for 1580 EBC patients with disease recurrence (cost year 2008). Utility weights were estimated from EORTC QLQ-C30 data collected in trial BCIRG 001 using a published algorithm, and from published literature. Probabilistic and univariate sensitivity analyses (varying all parameters by +/- 50% of base-case values) were performed. Alternative scenarios were programmed to explore uncertainty beyond the trial follow-up period. RESULTS: Mean total expected lifetime costs and outcomes were significantly higher for the TAC cohort. Incremental costs were $19,732–$31,441; life years were 0.93 (0.87–0.97) and QALYs were 0.74 (0.44–0.91). Incremental cost-effectiveness ratios for TAC versus FAC were $21,318 per life year saved ($16,933–$33,816) and $26,654 per QALY ($18,553–$50,554). In univariate sensitivity analysis, results were most sensitive to the utility weight for remission post-chemotherapy. The incremental cost per QALY remained below $50,000 for all plausible parameter estimates, and all extrapolation scenarios. CONCLUSIONS: The model provides a robust framework for estimating cost-effectiveness, allowing exploration of critical areas of uncertainty.
tamofoxen from a German health service perspective. METHODS: A semi-Markov model was adapted to include the 100-month clinical trial efficacy data. Kaplan-Meier curves on time to recurrence (TTR) from the ATAC trial were fitted by survival regression including a treatment coefficient. Treatment specific progression rates were extrapolated to 20 years, and were assumed to be constant based on pooled treatment arms thereafter. Survival probabilities after recurrence were identified for all treatment arms, based on German national mortality data. Published literature and physician survey provided data on resource use and unit costs and utilities. Probabilistic analysis was carried out to obtain incremental cost-effectiveness ratios and cost-effectiveness acceptability curves. Sensitivity analyses were conducted. RESULTS: Over 25 years anastrozole patients gained 0.32 QALYs at a cost of €6,819 per patient, resulting in an ICER of €21,069 (95% CI €12,567–€46,604) per QALY gained, vs tamoxifen. With >99% probability the ICER was below €30,000/QALY. The results were robust to plausible changes in parameters tested in sensitivity analyses, including the hazard ratio for TTR. CONCLUSIONS: This is the first cost-utility analysis of an aromatase inhibitor based on extended follow-up data. Anastrozole’s carryover treatment effect beyond therapy completion at 5 years translates into lower cost-effectiveness results against tamofoxen for PM HR+ EBC women from a German national health insurance perspective.

COST-EFFECTIVENESS OF A POPULATION-BASED COLORECTAL CANCER SCREENING PROGRAM IN IRELAND

PCN121

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OBJECTIVES: More than one million new cases of colorectal cancer are diagnosed worldwide annually. In Ireland, incidence rates are among the highest in western Europe, survival is lower than the European average, and mortality in men exceeds that in other western European countries. We evaluated the cost-effectiveness of a population-based colorectal cancer screening programme in Ireland. METHODS: Three screening scenarios were assessed: 1) biennial guaiac-based faecal occult blood testing (gFOBT) in those aged 55–74; 2) biennial faecal immunochemical testing (FIT) in those aged 55–74; and 3) once-only flexible sigmoidoscopy (FSIG) at age 60. A semi-Markov model was used to follow a cohort of 55-year-old individuals over their lifetime. Model parameters were obtained from local data, literature review and expert clinical opinion. Costs included screening and diagnostic tests, cancer treatment, complications, and surveillance of screen-detected adenomas. Health outcomes were assessed in quality-adjusted life years (QALYs). Costs and outcomes were discounted at 4% per annum. Screening scenarios were compared with the status quo (“no screening”). Probabilistic sensitivity analyses were undertaken. RESULTS: All three screening scenarios were highly cost-effective compared to no screening. In the base-case analysis, FSIG had the lowest incremental cost-effectiveness ratio (ICER = €589 per QALY gained), followed by FIT (€1,696 per QALY gained), and gFOBT (€4,428 per QALY gained); gFOBT was dominated. Compared to FSIG, FIT was associated with a greater health gain, and greater lifetime reductions in colorectal cancer incidence (15%) and mortality (36%). However, it was more costly than FSIG, required more colonoscopies, and would result in more complications. The ICER for FIT versus FSIG was €2,058 per QALY gained. Results were robust to variations in parameter estimates. CONCLUSIONS: These results suggest that population-based colorectal cancer screening would be a highly cost-effective in Ireland. FIT is the optimal screening strategy since it as associated with the greatest health gain.

COST-EFFECTIVENESS ANALYSIS OF HORMONAL THERAPIES IN PATIENTS WITH ADVANCED PROSTATE CANCER IN ITALY

PCN122

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OBJECTIVES: Prostatic cancer is the second most frequent cancer and the third highest cause of cancer-related deaths in Italy. Age is the principal risk factor and given the aging Italian population, it seems that the related health care expenditure is bound to increase, causing the need for pharmacoeconomic evaluation of therapies and treatments. METHODS: We performed a cost-effectiveness analysis of hormonal therapies in patients with advanced prostate cancer who underwent radical prostatectomy, from biochemical recurrence to death. Nine androgen suppression therapies were considered: orchietomy, two nonsteroidal antiandrogens (NSAA), four laterising hormone-releasing hormone (LHRH) agonists, cyproterone acetate and the maximal androgen blockade (MAB) obtained with the association of a NSAA and a LHRH. In the simulation, the androgen suppression therapies were started at PSA recurrence and continued until death. The study used the Italian NHS prospective and a patient's lifetime simulation horizon. Drug costs were calculated for each therapy, considering the less costly brand. RESULTS: All therapies produced a life expectancy (LE) of about 12 life years (LYs) with a small variability ranging from 12.3 LYs for MAB to 11.37 LYs for NSAA-flutamide. Quality adjusted life expectancy ranged from 9.98 QALYs for MAB to 9.28 QALYs for NSAA-flutamide. The cost per patient presented more variable results, ranging from €12,538 for orchietomy to €659.69 for NSAA-bicalutamide. Orchietomy provided the most cost-effective alternative with €1,100/QALY. In the LHRH-agonists class leuprorelin was the most cost-effective at about €2200/QALY. CONCLUSIONS: MAB was identified as the most effective and the most costly therapy. Orchietomy was less effective but involved the lowest cost and, thus, represented the most cost-effective strategy. Nonetheless, its application in actual clinical practice is difficult and is almost always refused by patients. Among the class of LHRH-agonists, leuprorelin (22.5 mg–7.5 mg) dominated the alternatives and provided an excellent therapeutic strategy.