THE COST-EFFECTIVENESS OF PROSTATE-SPECIFIC ANTIGEN SCREENING FOR PROSTATE CANCER DETECTION

Tencer T, Hay JW
University of Southern California, Los Angeles, CA, USA

OBJECTIVE: To compare the cost-effectiveness of PSA screening for the detection of prostate cancer in the United States versus no screening. Incremental Cost per Quality-Adjusted Life Year (QALY) using a lifetime decision model was used. METHODS: Estimates of cost, utility and probabilities were taken from literature, clinical experts and the Bureau of Labor Statistics. Cancer specific mortality rates were determined by the grade of the disease. The DEALE method was used to calculate average life expectancy of men in the general population, using the life tables from the CDC. A cohort of men stratified into six age groups: 45–59, 50–54, 55–59, 60–64, 65–69, and 70–74. The time horizon was a lifetime; future values discounted at 3% and the perspective was societal. RESULTS: In 2002 USD, a one time screening of each age group was found to be cost-effective. The incremental cost-effectiveness ratio (ICER) ranged from $5291 per life year saved for men aged 45–49 to $12,219 per life year saved for men aged 70–74. After adjusting for quality of life, we found that the ICER ranged from $6,452/QALY to $14,902/QALY for men aged 70–74. Results of sensitivity analysis show lowering the positive predicted value of the PSA test by $14,902/QALY for men aged 70–74. Incremental Cost per Quality-Adjusted Life Year (QALY) using a lifetime decision model was used. CONCLUSION: This model found a one time PSA screening for prostate cancer in each age group to be cost-effective relative to no screening.

THE COST-EFFECTIVENESS OF HERCEPTIN® IN ADJUVANT SETTING: THE HERA TRIAL

Neyts M, Cocquyt V, Albrecht J
1 Ghent University, Gent, Belgium; 2 University Hospital Gent, Gent, Belgium

OBJECTIVES: Trastuzumab as adjuvant therapy is being tested in a number of large randomised trials. Our purpose is to calculate the cost implications of using trastuzumab as in the HerA trial and provide information on the product's value for money. METHODS: Standard breast-cancer treatment models were set up for different subpopulations according to stage (I, II, III) and menopausal condition (≤ 50 years). They were constructed from the hospital's point of view to analyse the impact of new treatments on real costs. Costs were calculated using the micro-costing method and gathered in close collaboration with the staff of our treatment centre. The comparator or benchmark in our analysis was the existing practice. On the basis of the HerA trial and experts opinions, trastuzumab monotherapy was implemented in our treatment model. In addition to a sensitivity analysis, a threshold analysis was performed to target the current cost-effectiveness level while medical effectiveness and the price of trastuzumab were used as variable parameters. RESULTS: Trastuzumab treatment as in the HerA trial was very expensive ($37,980 €/patient). The product as such is expensive and treatment is maintained for one year. The impact on total costs depends on the percentage of patients being eligible for trastuzumab treatment. Monthly treatment costs were largely influenced by the discount ratio, the price of medication and the flow through of patients to metastatic treatment. According to our threshold analysis, price discounts are indispensable to get value for money unless great effectiveness improvements can be realised. CONCLUSIONS: With a model reflecting real-world conditions, cost implications of using trastuzumab in adjuvant setting can be calculated before the product is widely spread. When the ongoing trials cast light on new elements, new analysis must be performed. The model provides essential information for price-setting policies as well as for policymakers considering reimbursement.

ECONOMIC IMPACT OF PROSTATE-SPECIFIC ANTIGEN DOUBLING TIME IN PATIENTS WITH HORMONE-REFRACTORY PROSTATE CANCER

Mulani P, Botteman M, Hay JW, Cifaldi M
1 Abbott Laboratories, Abbott Park, IL, USA; 2 PharmEnter North America, Bethesda, MD, USA; 3 University of Southern California, Los Angeles, CA, USA

OBJECTIVE: There is limited information about cost implications of prostate-specific antigen doubling time (PSADT) in patients with hormone-refractory prostate cancer (HRPCA). This research was undertaken to assess the association between PSADT < four-months with health care costs in HRPCA patients. METHODS: A health care claims database (Pharmetrics®) with data from 70 managed care plans (1995–2002) was used. HRPCA patients were identified using a pre-specified algorithm. For each patient, we determined whether his PSADT was < or > four-months. Costs were broken down by service type; management, surgery, ancillary, facility and pharmacy. The costs of HRPCA patients with PSADT < four-months were compared to the cost of patients with PSADT > four-months. In addition, a within-group analysis compared the cost of patients with PSADT < four-months before and after reaching a PSADT < four-months (the “event”). RESULTS: In total, 413 HRPCA patients were identified, of which 71 HRPCA had PSADT < four-months. The per-month health care cost (post-event) for patients who experienced the event were, total $1524 (S.D.187.3), ancillary ($415 [56.1]), management ($471 [69.4]), facility ($209 [47.5]), pharmacy ($346 [33.3]), and surgery ($84 [27.9]), whereas the corresponding pre-event costs were, total ($1000 [141.1]) ancillary ($297 [89.2]), management ($205 [41.7]), facility ($25 [15.9]), pharmacy ($436 [51.3]), and surgery ($37 [14.5]). The monthly costs for patients who did not experience the event were total $1064 [52.1], ancillary ($315 [20.6]), management ($319 [21.4]), facility ($115 [12.3]), pharmacy ($251 [10.2]), and surgery ($64 [5.5]). Most of the between- and within-group comparisons were significant (P < 0.05). CONCLUSIONS: HRPCA patients with PSADT < four-months had significantly higher health care costs (post event). Therapies that extend PSADT have a potential to show significant cost savings.

THE COST OF CANCER IN KOREA: 1999–2003

Jung YH, Ko S
Korea Institute for Health and Social Affairs, Seoul, South Korea

OBJECTIVE: Cancer has been the first leading cause of death in Korea. During the period of 1993–2003, the mortality rate of cancer increased the most among the 10 major causes of death. The aim of the study is to estimate the cost of cancer in Korea during 1999–2003. METHODS: We estimate both direct and indirect cost of cancer using a prevalence-based approach. Direct cost estimates include medical expenditures, traffic cost and caregivers’ cost. Indirect costs representing the loss of productivity are estimated based on human capital theory. The cost estimates reported here are calculated at 0% discount rate. The major data sources are National Health Insurance Statistical Yearbook, Annual Report on the Cause of Death Statistics, and Survey...
ESTIMATING COSTS OF UNCONTROLLED CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING AMONG WORKING-AGE CANCER PATIENTS
Shih YCT1, Han S2, Zhao L1, Elting LS1
1University of Texas MD Anderson Cancer Center, Houston, TX, USA; 2Rice University, Houston, TX, USA

OBJECTIVES: Poorly controlled CINV may lead to additional office or emergency room visits, thus, increasing the overall costs of cancer care. This study estimates the societal costs of uncontrolled CINV for working-age cancer patients. METHODS: Employees or spouse and/or dependents with cancer who received highly or moderately emetogenic chemotherapy were identified from a 1997–2002 proprietary dataset linking medical claims to work-loss information. Patients were followed from the earliest date of chemotherapy for up to six-months, excluding those with less than three-months of continuous enrollment. Direct medical costs were measured using payments, normalized as monthly, and updated to 2004 USD. Work loss days were identified from employment records. Costs of uncontrolled CINV were derived by comparing medical costs and work-loss days for three groups, patients with uncontrolled CINV and no ER visit, with uncontrolled CINV and ER visit, and with controlled CINV, using the Wilcoxon Mann-Whitney test in univariate analyses. All patients with uncontrolled CINV were pooled as one group in multivariate analysis. RESULTS: In all, 2,071 patients were identified; 25% required medical care for uncontrolled CINV; 2% had ER visits. Compared with patients with controlled CINV ($8132), total direct costs were significantly higher for patients with uncontrolled CINV, no ER ($10,376, P < 0.001) and uncontrolled CINV and ER ($12,810, P < 0.001), respectively. Estimated work-loss days were 6.1, 7.2, and 8.9 days the above groups, respectively. After controlling for demographics, geographic regions, and comorbidities, the difference in monthly medical costs between the controlled and uncontrolled group was $2619 ($P < 0.001). However, the difference in work-loss (0.21 days) was no longer significant (P = 0.73). CONCLUSIONS: Uncontrolled CINV was associated with a significant increase in medical costs. For patients with uncontrolled CINV but no ER visit, increases in cost were driven by outpatient care, whereas for those with ER visits, inpatient care was the major cost driver.

SURVIVAL AND COST FOLLOWING BREAST CANCER RECURRENCE: ESTIMATES FROM SEER-MEDICARE DATA
Thompson D1, O’Sullivan AK1, Stokes M1, Montoya E1, Earle C1, Winer EP1, Kulig K1, Weinstein MC1
1Innovus Research, Inc, Medford, MA, USA; 2Dana-Farber Cancer Institute, Boston, MA, USA; 3Pfizer Inc, New York, NY, USA; 4Harvard School of Public Health & Innovus Research, Inc, Boston, MA, USA

OBJECTIVES: A variety of pharmacologic therapies are available or in development for the prevention of breast cancer recurrence. Assessing the benefits of these treatments is complicated by a paucity of data on the impact of recurrence on economic costs and patient survival. The purpose of this study was to shed light on these issues. METHODS: We conducted a retrospective analysis of SEER-Medicare data, which consists of information from the SEER cancer registry linked to administrative claims from the Medicare program. All patients in SEER who were diagnosed and treated for primary breast cancer during 1991–1993 were identified, and their subsequent Medicare claims histories were scanned for evidence of recurrence. Patients were stratified according to type of recurrence (local, contralateral, or distant) and their Medicare claims further scanned from the time of their recurrence through 2002 to assess patterns of survival and health care costs (which were inflated to 2003 dollars). Patients who did not have recurrence were used as controls. Techniques pioneered by Lin for the analysis of censored cost data were used to estimate ten-year undiscounted costs of recurrence by type. RESULTS: We identified 8725 patients in SEER who were diagnosed with and treated for primary breast cancer during 1991–1993, including 1485 who subsequently had a recurrence (local, 759; contralateral, 228; distant, 498). Median survival was 124.0 months among controls, versus 42.8 and 7.1 months among patients with local and distant recurrence, respectively. 52.4% of patients with contralateral recurrence remained alive after all data were censored at 93.5 months. Cumulative ten-year costs following local, contralateral, and distant breast cancer recurrence exceeded those of controls by $84,406, $29,609, and $222,106, respectively. CONCLUSION: The impact of breast cancer recurrence on patient survival and economic costs is substantial and varies considerably by type.