identified through their consulting physician, who invited them to complete a pen and paper questionnaire. HRQOL was measured through patient completed EQ-5D-5L questionnaires. EQ-5D index scores were derived using available country-specific health state value sets. Descriptive summary statistics were reported for index and VAS scores for each country, age groups at time of PRO completion, and adjuvant treatment status (active treatment vs. surveillance). ***Results:*** Among 2,327 patients identified, 1,122 (48%) completed an accompanying patient self-completion form (mean age 59 years, 78% actively receiving adjuvant therapy, stage at diagnosis: 31% stage I, 48% stage II, 20% stage III, 1% stage unknown). Overall, unadjusted mean utilities among patients ranged from 0.836 (active treatment) to 0.851 (surveillance), and by age from 0.875 (25-34) to 0.734 (75+) and by country from 0.876 (UK) to 0.757 (France). Mean VAS scores ranged from 74.9 (active treatment) to 74.5 (surveillance), by age from 78.9 (25-34) to 69.3 (75+) and by country from 78.9 (UK) to 68.0 (Germany). ***Conclusions:*** Overall HRQOL among breast cancer disease-free patients was high. These results improve our understanding of baseline HRQOL among patients with early disease and may facilitate future studies examining the impact of disease recurrence, including metastasis.

CN2
TREATMENT PATTERNS, SURVIVAL, AND HEALTHCARE RESOURCE USE FOR LOCALLY ADVANCED OR METASTATIC RENAL CELL CARCINOMA IN ENGLAND: RESULTS OF A LONGITUDINAL OBSERVATIONAL COHORT STUDY

Kearney M,[1] Knott C,[2] Lamy FX,[3] Harnett J,[4] Amin A,[5] Verpillat P[3]
[1]*Merck KGaA, Darmstadt, HE, Germany,* [2]*Health Data Insight CIC, Fulbourn, UK,* [3]*Merck KGaA, Darmstadt, Germany,* [4]*Pfizer Inc., New York, PA, USA,* [5]*Merck Serono, Ltd, Feltham, LON, UK*

Objectives: Recent approval of immune checkpoint inhibitor (ICI) and tyrosine kinase inhibitor (TKI) combination therapies has altered the first-line (1L) standard of care for patients with advanced renal cell carcinoma (aRCC). The objective of this study was to evaluate treatment patterns, outcomes, and healthcare resource use (HRU) among patients with newly diagnosed aRCC in England. ***Methods:*** This cohort study included patients aged ≥18 years diagnosed with primary stage III or IV aRCC between January 2013 and June 2017 in the National Cancer Registration and Analysis Service, a population-level cancer registry in England, with follow-up until March 2018. ***Results:*** A total of 14,629 patients with aRCC (mean age 68.3 years [SD: 12.3], 65.6% male, and 83.4% with clear cell tumor histology) were included. The baseline mean modified Deyo-Charlson Comorbidity Index score was 2.8 (SD: 1.7). There were 8,130 deaths (55.6%) during follow-up, resulting in a median survival of 21.6 months from diagnosis and 24-month survival of 48.4% (95% CI: 47.5%-49.2%). During follow-up, 51.5% underwent ≥1 surgical resection, and 13.7% received radiation therapy. Overall, 3,549 patients (24.3%) received systemic therapy: 13.0% of patients with stage III disease and 30.0% with stage IV. Among patients receiving 1L therapy, 1,379 (38.9%) also received 2L, 491 (13.8%) 3L, and 173 (4.9%) ≥4L. Targeted therapies were the most frequently (>80%) administered agents across all lines; ICIs were the second most common agents, ranging from 1.7% for 1L to 31.8% for ≥4L (overall: 8.6%). Mean (SD) HRU per patient per year was as follows: outpatient visits, 19.8 (28.1); hospital admissions, 4.8 (10.1); emergency department visits, 2.0 (4.4). ***Conclusions:*** This observational study describes clinical management and outcomes for patients with aRCC in England before the introduction of ICI/TKI combinations in the 1L setting. Systemic therapy use was limited, highlighting the need for additional treatment options in this elderly population with significant comorbidities.

CN3
BRCA TESTING RESULTS AMONG WOMEN 65 YEARS AND OLDER IN THE UNITED STATES

Guo F, Fuchs EL, Wong R, Kuo YF, Berenson AB
The University of Texas Medical Branch at Galveston, Galveston, TX, USA

Objectives: Genetic testing for BRCA1/2 pathogenic variants has been used for targeted, individualized cancer prevention and treatment. Over the past decade, criteria for testing has been loosened. How this has impacted BRCA testing in older women has not been studied. We assessed whether the rate of BRCA testing has changed over time among older women in the United States. ***Methods:*** This study used de-identified data from a 10% random sample of women ≥65 years old in Optum's de-identified Integrated Claims-Clinical dataset (2007-2018). A total of 3824 women with BRCA testing results from 2008-2018 were evaluated. Annual percentage change (APC) in BRCA testing and test results were determined. A positive test result indicates a higher risk for developing susceptible cancers (breast or ovarian). Multivariable logistic regression models were used to assess the relationship between positive test results and race/ethnicity, region of residence, income, education, and personal history of breast or ovarian cancer. ***Results:*** Among 3824 women ≥65 years old who underwent BRCA testing from 2008-2018, positive results decreased from 85.7% in 2008 to 55.6% in 2018 (APC -2.55, 95% confidence interval -3.45 to -1.64). Among patients with breast or ovarian cancer, positive results decreased from 83.3% to 61.6%, compared to 88.9% to 48.8% among those without breast or ovarian cancer from 2008-2018 (APC -3.17 vs. -2.49, p=0.29). In 2016-2018, women with positive test results were less likely to have a personal history of breast or ovarian cancer or be living in the Midwest or in areas with high percentage of college graduates. There were no racial/ethnic differences in positive rates of the test results. ***Conclusions:*** The significantly decreasing positive rate among women ≥65 years old is most likely due to loosening of the criterion for testing. However, socioeconomic and regional disparities in testing utilization remain an issue.

CN4
INVESTIGATING PROGRESSION-FREE SURVIVAL AS A POTENTIAL SURROGATE ENDPOINT FOR OVERALL SURVIVAL IN FIRST-LINE TREATMENT FOR GLIOBLASTOMA MULTIFORME: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Fu A,[1] **Fazeli MS,**[2] Kanters S,[2] Siliman G,[2] Chaudhary MA,[1] Gogate A,[1] Kurt M[1]
[1]*Bristol-Myers Squibb, Lawrenceville, NJ, USA,* [2]*Evidinno Outcomes Research Inc., Vancouver, BC, Canada*

Objectives: Due to unmet therapeutic needs in glioblastoma multiforme (GBM), identification of earlier endpoints for evaluating new therapies is desirable. Given that progression-free survival (PFS) is an earlier assessable endpoint than overall survival (OS), we evaluated whether PFS could act as a surrogate for OS among first-line therapies for GBM. ***Methods:*** Phase 3 RCTs on methylated, unmethylated, and mixed (methylated, unmethylated, undetermined) populations from a systematic literature review informed the evidence base. Correlation between the trial-level log-hazard ratios (HRs) of PFS and OS was explored via bivariate random-effects meta-analyses (BRMA), and weighted linear regression (WLR) based on trial size. WLR was also used to derive estimated surrogacy equations and compute the surrogate threshold effect (STE), which is the minimal treatment effect on PFS required to predict a significant treatment effect on OS. ***Results:*** Five, seven, and ten trials were considered for methylated, unmethylated, and mixed populations, respectively. The correlation coefficients between $\log(HR_{PFS})$ and $\log(HR_{OS})$ in the BRMA for the methylated, unmethylated, and mixed populations were 0.73 (95% confidence interval: 0.01,0.95), 0.88 (0.58,0.97), and 0.71 (0.34,0.89). WLR analyses showed slightly greater correlation coefficients. Pairs of slope and intercept of the surrogacy equations expressing $\log(HR_{OS})$ as a linear function of $\log(HR_{PFS})$ were (0.81,0.13), (1.20,0.04), and (0.72,0.02) for methylated, unmethylated, and mixed populations, respectively. The STEs implied by the surrogacy equations from the WLR were 0.34, 0.81, and 0.66 for methylated, unmethylated, and mixed populations, respectively. ***Conclusions:*** Estimated correlations between treatment effects were only moderate and do not support PFS as a surrogate for OS. With sparse evidence and lack of individual-level data, further evidence is required to support PFS as a surrogate for OS in this context.

Cost and Resource Use Studies

CR1
PHASE-SPECIFIC AND LIFETIME COSTS OF MULTIPLE MYELOMA (MM) AMONG ELDERLY PATIENTS IN THE UNITED STATES

Bhattacharya K,[1] Yang Y,[2] Bentley JP,[2] Ramachandran S,[3] Banahan B III,[4] Chang Y,[3] Shah R,[5] Bhakta N[6]
[1]*Department of Pharmacy Administration, University of Mississippi School of Pharmacy, OXFORD, MS, USA,* [2]*University of Mississippi School of Pharmacy, Oxford, MS, USA,* [3]*University of Mississippi, University, MS, USA,* [4]*Center for Pharmaceutical Marketing and Management, University of Mississippi, University, MS, USA,* [5]*Pharmerit International, Bethesda, MD, USA,* [6]*St. Jude Children's Research Hospital, Memphis, TN, USA*

Objectives: This study aimed to estimate lifetime costs and phase-specific costs of MM, and identify cost drivers among elderly MM patients enrolled in fee-for-service Medicare. ***Methods:*** A retrospective cohort study was conducted using 2006-2016 SEER-linked Medicare administrative claims data. Newly diagnosed MM patients were matched to non-cancer beneficiaries on months of eligibility and death date/date of loss of eligibility. The index date for the non-cancer group was the MM diagnosis date of the matched MM patient. Costs attributable to MM were calculated for the following 4 phases: pre-diagnosis (3 months prior to diagnosis), initial, continuous, and terminal. Continuous phase was defined as any time spent between the initial and terminal phases. Duration of the initial and terminal phases were estimated using Joinpoint regression analysis. Survival time was taken into account to compute the lifetime and phase-specific costs. All costs attributable to MM were estimated controlling for clinical and socio-demographic characteristics at baseline. Generalized linear models with log link and gamma distribution were used to assess incremental MM costs and recycled predictions were used to account for covariate