PCN1

EPOETIN ALFA AND DARBEPOETIN ALFA ANEMIA TREATMENT OUTCOMES IN CANCER PATIENTS FROM A VA PERSPECTIVE
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OBJECTIVES: To compare dosing and treatment outcomes in patients with cancer receiving epoetin alfa (EPO) and darbepe- tin alfa (DARB). METHODS: Records across several clinical and administrative data systems from adults receiving care in outpatient VA practice settings were reviewed. Eligible patients were required to have a cancer diagnosis, be ≥18 years, and have a record of treatment with EPO or DARB for anemia (hemoglobin [Hb] <11 g/dL). RESULTS: A total of 2159 patients (1267 EPO, 892 DARB) were identified from November 2002—August 2003. Baseline characteristics such as age, gender, weight, tumor type, percent receiving chemotherapy, baseline Hb, ECOG status, transfusion use, and iron supplementation across groups were all similar. Mean treatment duration was approximately 9 weeks (EPO: 57 days; DARB: 68 days). Mean weekly doses were: EPO 35.337IU, DARB 108 mcg. Mean cumulative doses were: EPO 286.040IU, DARB 1036 mcg. Based on average wholesale price (AWP, Red Book 2003), weekly and cumulative treatment costs were lower for EPO (EPO: $472/week, $3820/episode; DARB: $539/week, $5170/episode, respectively). Hb change from baseline independent of observed transfusion was significantly greater for EPO compared to DARB at all assessments (Wk 4: 0.56 vs. 0.33 g/dL, p < 0.001; Wk 8: 0.76 vs. 0.46 g/dL, p < 0.001; Wk 12: 0.93 vs. 0.64 g/dL, p < 0.001, respectively). Cumulative hematologic effect, assessed by area under the Hb change curve, was also greater for EPO (7.2 vs. 4.5 g/dL). CONCLUSIONS: Results show greater early and overall hematologic outcomes with EPO compared to DARB at lower treatment costs suggesting dominance.

PCN2

IMPACT OF CHEMOTHERAPY-INDUCED DIARRHEA ON MANAGEMENT PATTERNS AND RESOURCE UTILIZATION AMONG CANCER PATIENTS: RESULTS FROM A MULTI-SITE STUDY
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OBJECTIVES: Diarrhea is a significant dose-limiting toxicity associated with chemotherapy treatment among cancer patients. The objective of this study was to describe the demographic, clinical, and management pattern characteristics of patients who experience chemotherapy-induced diarrhea (CID) and assess the impact of CID on resource utilization. METHODS: We conducted a retrospective chart review of 378 cancer patients, ≥18 years, who experienced diarrhea during their chemotherapy treatment between 2000 and 2003 from 25 community oncology centers throughout the US. Demographic characteristics, severity of diarrhea, and changes to chemotherapy treatment due to diarrhea were evaluated using descriptive analysis. Comparisons of planned chemotherapy therapy versus actual chemotherapy received by patients due to diarrhea and impact of CID on anti-diarrheal medications, inpatient hospitalization and outpa-

tient visits were examined. RESULTS: Patients enrolled were mostly white (80%) and middle-aged (mean 67 years). The most common chemotherapy regimen received was 5-fluorouracil intravenous push + leukovorin (27%). There was a mean of 3.9 diarrheal episodes per patient. Patients who experienced CID underwent significant changes in their chemotherapy treatment, including dose reductions (45%), delays in therapy (71%), and reduction in dose intensity (64%). Treatment with anti-diarrheal medications was done largely at home (74.9%) followed by during office visits (29.6%). Forty-four percent (n = 166) of the study population had at least one CID related outpatient visit. Mean number of outpatient visits for CID per patient was 2.5 + 2.5. Fifty-six patients (14.8%) experienced a CID-related hospitalization during the study time frame. CONCLUSIONS: The study results showed that a significant number of patients experiencing CID required changes (usually reductions) to their chemotherapy treatment, which may ultimately impact patient clinical outcomes. CID also had a substantial impact on resource utilization, which may translate into a considerable economic burden.

PCN3

POTENTIAL IMPACT OF WANING OF VACCINE-INDUCED IMMUNITY AGAINST HUMAN PAPILLOMAVIRUS 16/18
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OBJECTIVES: To assess the comparative clinical benefits associated with HPV 16/18 vaccination when different assumptions are made about the duration of efficacy and the natural history of detectable HPV 16/18 in women over 30. METHODS: A computer-based model of cervical cancer simulates HPV 16/18 vaccination in a cohort of 12 year olds. We evaluated the impact of waning after 5, 10, and 15 years on the effectiveness of a vaccine that prevents 90% of persistent HPV 16/18 using alternative assumptions about the relative proportion of HPV infections in women over the age of 30 attributable to new acquisition of HPV versus reactivation of latent or previously acquired HPV. RESULTS: When we assumed that 50% of HPV infections in older women are attributable to new acquisition of HPV, the overall reduction in cancer varied from 54% with no waning, to 26%, 31%, and 36%, with waning after 5, 10, and 15 years, respectively. As the proportion of persistent HPV infections attributable to new (versus latent) infections was varied from 75% to 25%, the overall reduction in cancer with waning at 5 years ranged from 16% to 36%; at 10 years ranged from 21% to 41%, and at 15 years ranged from 28% to 48%. CONCLUSION: There are dramatic differences in the relative effects of waning when adopting different assumptions about the proportion of persistent HPV infection attributable to new (versus latent) infections in older women, highlighting the high priority that should be placed on empiric data to inform such assumptions.

PCN4

TECHNOLOGY ADVANCES AND TREATMENT PATTERN VARIATIONS IN ONCOLOGY: EVIDENCE FROM USE OF CPT-11 IN ELDERLY METASTATIC COLORECTAL CANCER PATIENTS
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OBJECTIVE: Technology advances have introduced many novel oncology drugs to the market recently. Economic models comparing chemotherapy drugs often assumed similar treatment pattern (e.g., same duration in best supportive care (BSC)) following the completion/discontinuity of chemotherapy. This study explores the association between technology advances and treatment patterns by examining utilization patterns among Medicare beneficiaries with metastatic colorectal cancer (MCRC) when a new technology irinotecan (CPT-11) became available in 1999.

METHODS: A sample of chemo-treated MCRC patients diagnosed after January 1, 1998 and died before December 31, 2001 was selected from the SEER-Medicare data. A multivariate logistic model was used to examine factors associated with receiving CPT-11. The course of cancer treatment was categorized as pre-chemotherapy, chemotherapy, and post-chemotherapy (i.e., BSC) stages. T-test was used to compare the duration at each stage for patients who received CPT-11 vs. those who did not.

RESULTS: The study sample included 627 chemo-treated MCRC patients. Among patients with identifiable chemotherapy regimens (N = 477), 45.6% had at least one claim indicative of CPT11 (J9206). The logistic model showed that compared with patients in the age group 65–69, those in the age group 75–79 (OR = 0.42; P = 0.008) and ≥ 80 (OR = 0.33; P = 0.001) were significantly less likely to receive CPT-11. No gender (OR = 1.36; P = 0.13) or racial difference (OR = 1.1; P = 0.76) was found. Compared with the non-users, the CPT-11 group had longer survival (547 vs. 359 days, P < 0.0001), longer time on chemotherapy (398 vs. 164; P < 0.0001) and shorter time in BSC (75 vs. 122; P = 0.0006). No difference was found in the pre-chemo duration (73 vs. 70; P = 0.86).

CONCLUSIONS: New technology appears to have changed the time allocation in different treatment stages in cancer; it lengthens the duration of chemotherapy and shortens that of BSC. The observed survival difference in this study needs to be interpreted with caution as it may be subject to sample selection bias.

ANALYSIS OF OVER 2400 MODERN PHASE I CANCER TRIALS: COMPOSITION, OUTCOMES, AND USE OF SURROGATE ENDPOINTS

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OBJECTIVES: There has been no comprehensive analysis of phase I cancer trials since 1991, despite the transition from cytotoxic to targeted drugs. Trends in response rates (RR) and toxic death rates (TDR) for modern phase I trials are therefore unknown. We set out to perform the most extensive outcomes analysis to date of phase I cancer trials. METHODS: We analyzed the composition and outcomes of all phase I cancer trials submitted to meeting of the American Society of Clinical Oncology for years 1991 through 2002. For trials testing unapproved, single-agents in solid tumors, we reviewed published reports and performed patient-level analysis. The major outcomes variables included overall response rate (RR) and toxic death rate (TDR). We also analyzed the use of biomarkers (BM) and surrogate endpoints (SE). RESULTS: The overall data set included 2439 trials. Over the period of analysis, phase I trials have become significantly more international, more complex in design, and more likely to identify a commercial sponsor. Drugs under investigation have become more likely to be given by the oral route, less likely to be produced by recombinant technology, and less likely to be cytotoxic. The strongest predictor for inclusion of a BM or SE was NIH sponsorship (odds ratio, 2.9).

The overall RR and TDR for single-agent studies published in final form was 3.96% and 0.6%, respectively. Both RR and TDR fell significantly over the period. In linear regression models, RR fell from 8.0% in 1991 to 2.4% in 2001; but the fall in TDR was more pronounced over the same period. Significantly higher RRs and TDRs were seen among cytotoxic drugs as compared to targeted and biologic agents. CONCLUSIONS: The composition and design of phase I cancer trials is changing. Although overall RRs have declined, the risk/benefit ratio for patients may be improving.

FACTORS INFLUENCING PHYSICIAN RECOMMENDATION FOR IMATINIB MESYLATE IN CHRONIC PHASE CHRONIC MYELOID LEUKEMIA (CML) PATIENTS

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OBJECTIVE: The use of imatinib mesylate as first line treatment in management of chronic phase chronic myeloid leukemia (CML) is controversial. The objective of this study was to examine significant influences on physician recommendation for imatinib mesylate in chronic phase CML patients.

METHODS: Data were collected via e-mail and web-based survey from a random sample of 1100 hematologists/oncologists listed in the American Society of Clinical Oncology (ASCO) database. Rogers’ model of adoption of innovations was used as the main framework for the study. A series of pre-tested vignettes varying patient age and disease severity were used to assess physician recommendations to treat with imatinib vs. bone marrow transplant. A visual analog scale was used to measure physicians’ recommendations. The main survey procedure used a modified Dillman’s method. Factor analysis was performed for appropriate measures. Multiple regression analysis was used to test the model. Based on the theoretical model, the categories of independent variables included: innovation characteristics, communication channels, physician characteristics, social system characteristics and control variables. A within subjects repeated measures analysis was conducted to study the influence of patient age and disease severity on physician recommendation.

RESULTS: A total of 305 responses were received giving a response rate of 29%. The regression model was found to be significant (p < 0.05). Perceived relative advantage of imatinib in efficacy, peer influence, past experience and academic affiliation were found to be significant positive influences. Specialty in bone marrow transplantation was found to be a significant negative influence. Physicians were found to recommend imatinib mesylate to a greater extent in patients at least 55 years old as compared to younger ones. CONCLUSION: Rogers’ model of adoption of innovation is useful in explaining physician recommendation for imatinib mesylate. In addition, patient age is a significant influence on physician recommendation for imatinib mesylate.

CANCER—Cost Studies

TRENDS IN CHEMOTHERAPY USE, OUTCOMES, AND COST FOR PATIENTS WITH ADVANCED NONSMALL LUNG CANCER: EVIDENCE FROM SEER-MEDICARE

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OBJECTIVES: Clinical trials suggest that chemotherapy offers a modest survival advantage in advanced nonsmall cell lung cancer.