

SELECTED ABSTRACTS FROM THE CAMO 2009 ANNUAL MEETING

Oncology Exchange is pleased to publish selected abstracts of original research presented at the 2009 Annual Meeting of The Canadian Association of Medical Oncologists (CAMO) held April 30 – May 1 in Toronto, ON.

Please note: Abstracts appear as they were submitted by the authors. Neither CAMO nor *Oncology Exchange* accepts responsibility for the content or accuracy of the authors' abstracts.

THE COST OF CANCER DRUGS IN CANADA: WHO IS BEARING THE COST?

Kong Khoo*, Rosemary Colucci, William Hryniuk, Robert Kamino, Tania Redina, Colleen Savage

*Vice-chair, Cancer Advocacy Coalition of Canada and Medical Oncologist, BC Cancer Agency – Centre for the Southern Interior

Objective: We investigate the expenditures for a comprehensive list of take home cancer drugs (THCD) by public payers (Pharmacare plans) and private insurance companies by province for the years 2002 to 2007.

Methodology: Public and private plan expenditures were extracted from the Brogan Inc. claims database for a compiled list of 43 THCD by province. Additional public data not captured by the Brogan Inc. public database was kindly provided by the BC Cancer Agency, Alberta Health Services—Alberta Cancer Board, Saskatchewan Cancer Agency, Newfoundland Cancer Treatment and Research Foundation, and Newfoundland and Labrador Ministry of Health. The Brogan Inc. data was merged with provincial data from BC, Alberta, Saskatchewan and Newfoundland. Costs for THCD were analyzed for: (1) Expenditures per incident cancer case by province; (2) Rate of increase over the last 5 years by province; (3) Total amount spent in

Canada for THCD; (4) Estimate of total amount spent in Canada for all cancer drugs in 2007 using data set from BC.

Results: Both public payer and private payer expenditures are increasing, but the private payer expenditures are increasing at a much faster rate. Different parts of the country had differing reliance on private insurers and differing public provision of the 43 THCD studied, especially in Atlantic Canada. The 43 THCD studied represents about half of all cancer drug expenditures in Canada. In 2007 this amounted to \$555.7 million dollars for all THCD.

Conclusion: There is a major shift from intravenous hospital administered drugs to THCD particularly with the new oral “targeted therapies”. There is an increased reliance on private insurance in different parts of the country with a largely uncoordinated shift from public funding to private insurers for cancer drugs.

IMPACT OF BEVACIZUMAB (BEV) ON OVERALL SURVIVAL (OS) IN PATIENTS (PTS) WITH METASTATIC COLORECTAL CANCER (MCRC): A POPULATION BASED STUDY

Renouf D, Lim HJ, Speers C, Villa D, Gill S, Blanke CD, O'Reilly SE, Kennecke H

British Columbia Cancer Agency, Vancouver, BC, Canada

Objective: As of 2003, irinotecan or oxaliplatin in combination with fluorouracil was standard treatment for MCRC in British Columbia (BC). The addition of bev to chemotherapy (CT) was approved in BC in 2006. We compared OS between referred pts diagnosed with MCRC in 2003/2004 (pre-bev era) and 2006 (bev era).

Methods: All pts diagnosed with MCRC in 2003/04 and 2006, and referred to the BC Cancer Agency (BCCA) were included. The BCCA is a cancer network with centers throughout BC, ≈60% of MCRC pts in BC are referred to

the BCCA. Systemic therapy (ST) is centrally funded and treatment data was obtained from the pharmacy database. The primary endpoint was OS of all pts within each cohort. Secondary endpoints were OS in pts treated with ST, and in those not treated. Kaplan Meier method was used for survival analysis. Subgroup analysis based on age was performed.

Results: 1417 pts were included: 969 from 2003/04, and 448 from 2006. Median age at diagnosis of MCRC was 68y in 2003/04 and 69y in 2006. Median follow up

CONFERENCE REPORT

time was 47.3 and 21.4 mos respectively. Between 2003/04 and 2006 the proportion of pts treated with ST for MCRC increased from 61.1% to 67.6% ($p=0.02$). Proportion of pts who received irinotecan, oxaliplatin and fluorouracil did not change (24.7% to 23.7%, $p=0.68$). Proportion of pts who received bev increased (5.9% to 30.6%, $p<0.001$). Median OS significantly improved for the entire cohort (13.8 to 17.3 mos, $p<0.001$). Median OS for pts who received ST for MCRC improved (18.6 to 23.6 mos, $p=0.001$). Median OS for pts who did not receive ST did not change (6.1 to 5.9 mos, $p=0.65$). Of pts who received ST, the proportion who received bev increased in pts <70

(12.7% to 58%, $p<0.001$) and in pts ≥ 70 (3.6% to 22.7%, $p<0.001$). Median OS for pts <70 who received ST for MCRC improved (20.3 to 26.5 mos, $p = 0.002$). Median OS for pts ≥ 70 who received ST for MCRC improved (16.5 to 19.9 mos), but this was not significant ($p=0.16$).

Conclusions: In this population based study, median OS for MCRC significantly increased between 2003/04 and 2006. The improvement in survival appears to be limited to pts treated with ST for metastatic disease. The main difference in ST has been the addition of bev. On a population basis, the addition of bev to CT is associated with a significant improvement in OS in MCRC.

ADJUVANT TRASTUZUMAB FOR BREAST CANCER OUTSIDE OF CLINICAL TRIALS: CARDIOTOXICITY & ECONOMIC EVALUATION

Snow S,¹ Skedgel C,² Rayson D,¹ Thompson K², Sellon M,¹ Barnes P,¹ Jeyakumar A¹ and Younis T¹

¹QEll Health Sciences Centre/Nova Scotia Cancer Centre, ²Department of Medicine, Dalhousie University

Objective: To examine cardiotoxic events (CE) and economic impact associated with adjuvant trastuzumab (aTZ) therapy in a population based cohort diagnosed with stage I-III breast cancer (BC) over one year in Nova Scotia, Canada.

Methods: A retrospective chart review of all patients treated with aTZ was conducted to abstract clinical-pathological characteristics, treatment details, CEs/significant LVEF declines and associated medical resource utilization (MRU). Cardiac risk scores (CRS) (Rastogi et al ASCO 2007) were computed for all patients. Biserical correlation was performed to detect differences in CRS scores among subgroups. Costs associated with aTZ were based on MRU; unit costs were derived from the literature and local resources. A probabilistic model (Skedgel et al ASCO 2008) was utilized to examine the cost per quality adjusted life year gained (QALYG) at a 25-year horizon with budget impact calculated in 2009 Cdn \$.

Results: Of 630 patients with stage I-III BC, 37 (5.9%)

received aTZ as per HERA trial treatment schedule; two (5.4%) had a CE (one death) and five (13.5%) experienced significant LVEF decline. CEs and LVEF declines were higher in patients with baseline LVEF 50-55% vs. $> 55\%$ (10% vs. 4% and 20% vs. 11%, respectively). CRS accurately predicted the observed CE rate, and was also predictive of significant LVEF decline ($p=0.056$). Compared to previous estimates, the mean cost per patient of \$46,070 (95%CI: \$38,541-\$54,422) was lower and the cost-utility of \$60,439/QALYG was more favourable. Based on the observed aTZ utilization rate, a budget impact of \$59.9m (95%CI: 42.5m-79.9m) for 2009 in Canada is expected.

Conclusions: CEs in this population based cohort appear comparable to that reported in clinical trials, and were accurately predicted by the CRS. Based on the observed aTZ costs per patient, the cost-utility of aTZ is more favourable than previous estimates although the associated budget impact remains substantial.

CARDIOVASCULAR RISK FACTOR CONTROL AMONG CANCER SURVIVORS: A POPULATION BASED SURVEY

Enright K, Krzyzanowska M.

Princess Margaret Hospital, Toronto, ON

Introduction: Cardiovascular disease is a major cause of morbidity and mortality in long term survivors of cancer. Whereas the burden of cardiovascular disease has been described in cancer survivors, the control of modifiable cardiovascular risk factors in this population is unknown.

Methods: We used the National Health and Nutrition Examination Survey (NHANES 1999-2006) data to examine the rate of control of modifiable cardiac risk factors amongst US cancer survivors compared with propensity

matched adult controls with no history of cancer. The modifiable cardiac risk factors (blood pressure, cholesterol, BMI, exercise, smoking) were considered to be controlled if they met the AHA/ACC guideline recommendations.

Results: A total of 1227 cancer survivors and 3672 age, sex and comorbidity matched controls were identified, representing 11.9 million cancer survivors and 31.2 million controls. Compared to age, sex and comorbidity matched controls cancer survivors were more likely to be current

smokers (34.5% v 28.8%, $p = 0.021$), and more likely to have their BMI at target (32.8% v 28.6%, $p = 0.034$). There was no significant difference in the rate of blood pressure control (69.4% v 69.2%, $p = 0.88$), cholesterol control (47.6% v 48.2%, $p = 0.80$) or adherence to exercise recommendations (24.4% v 24.6%, $p = 0.89$). Younger cancer survivors (age 20-40 y) were 2.8 times more likely to be smokers than controls, whereas older cancer survivors (age 60-80 y) were 1.2 times more likely to be smokers than controls. Compared with recent cancer survivors (<5 yr

from cancer diagnosis), long term survivors (>10 years from diagnosis) were more likely to have optimal blood pressure control (73.3% v 65.5%, $p = 0.02$), however there was no difference in smoking rates, cholesterol, exercise or weight control with duration of cancer survival.

Conclusion: Overall the control of modifiable cardiac risk factors was similar between survivors and controls, but was suboptimal in both groups. This study identified smoking cessation, particularly amongst young cancers survivors, as an important area of focus for improvement in survivorship care.

CHEMOTHERAPY DOSING IN THE LARGEST ONCOLOGY PATIENTS: PATTERNS AND EFFECTS

Maria Ho, MD¹; Rick Prayag², PharmD; Piotr Czaykowski, MD MSc FRCPC³

¹ Department of Internal Medicine, University of Manitoba; ² Pharmacy, CancerCare Manitoba; ³ Department of Medical Oncology, CancerCare Manitoba

Objective: To determine the patterns of prescribing of chemotherapy in oncology patients in the upper 10th percentile of body surface area (BSA), and to discern any effects of “empiric” dose reductions.

Methods: Using the CancerCare Manitoba electronic health record (EHR), we identified all oncology patients prescribed chemotherapy in 2004 and 2005 who had a height and weight available from < 60 days prior to start of chemotherapy. Manual review of charts and/or EHR was conducted on those in the $\geq 90^{\text{th}}$ percentile of BSA (Mosteller formula); for females this included those with $\text{BSA} \geq 2.09$; for males, $\text{BSA} \geq 2.15$. Empiric dose reduction in cycle 1 (EDR1) was defined as delivery of $\leq 90\%$ of full dose (averaged over all agents in a multi-agent regimen). Logistic regression was used to evaluate factors associated with EDR1.

Results/Conclusion: Of 117 patients (64 female, 53

male) in the $\geq 90^{\text{th}}$ percentile of BSA, 35 (29.9%) met criteria of EDR1. On univariate logistic regression analysis, EDR1 was associated only with increasing BSA ($p < 0.006$); women with $\text{BSA} \geq$ the median were 9 times as likely to have EDR1, whereas for men there was a > 3 fold increase. Nine patients required a dose reduction of $\geq 10\%$ in cycle 2; this was no less common in those with EDR1 ($p = \text{NS}$, χ^2). For those who did not have EDR1, there was no discernible increase in toxicity. Thus, the largest patients with cancer often receive empirically reduced doses of chemotherapy despite lack of concrete evidence that full dose chemotherapy results in more toxicity. There appears to be a threshold effect: above a certain BSA (2.20 in women, 2.36 in men), empiric dose reduction is significantly more common. This may become especially relevant in an era where there are more obese patients undergoing chemotherapy treatments.

IMPACT OF AGE AT DIAGNOSIS ON SURVIVAL IN HORMONE-REFRACTORY PROSTATE CANCER (HRPC) PATIENTS

M. R. Humphreys,¹ C. Ma,² S. S. Sridhar³

¹ Department of Medicine, University of Toronto, ON, Canada; ² Department of Biostatistics, Princess Margaret Hospital, University Health Network, Toronto, ON, Canada; ³ Department of Medical Oncology and Hematology, Princess Margaret Hospital

Objective: Conflicting data exist for age as a determinant of overall survival (OS) in pts with HRPC. We hypothesize that young (<55) HRPC pts represent a more aggressive biological phenotype and therefore have decreased OS.

Methods: A retrospective chart review was conducted on 334 consecutive HRPC pts treated at the Princess Margaret Hospital between 1995-2005. Summary statistics for demographic and clinical factors were generated, and Kaplan-Meier OS curves were created. Bivariate Cox Proportional-Hazards regression was used to test the association of age at diagnosis while adjusting for a covariate, with significant covariates entered in a multivariate model.

Results: Overall median survivals in the age stratified

categories (<55, $\geq 55-65$, $\geq 65-75$, ≥ 75) were 5.5, 6.9, 7.9, and 4.3 yrs, with 5 yr survivals 51.9%, 67.4%, 67.0% and 34.9%, respectively. Kaplan-Meier curves showed divergence with an overall significant log-rank test ($p < 0.0001$). Compared to pts $\geq 65-75$, the hazard ratios (HR) for HRPC pts <55 and ≥ 75 were 1.40 (95% CI 0.90-2.60, $p = 0.13$) and 2.52 (95% CI 1.67-3.82, $p < 0.0001$), respectively. However, following multivariate analysis HRs for HRPC pts <55 and ≥ 75 were 1.60 (95% CI 0.98-2.62) and 1.25 (95% CI 0.71-2.20). Pts <55 and ≥ 75 presented with advanced stage at diagnosis and progressed to bone metastasis earlier. Pts ≥ 75 also had decreased performance status, more comorbidities, higher PSA at diagnosis, shorter dura-

CONFERENCE REPORT

tion of hormone sensitive disease, and were less likely to receive chemotherapy than pts <75. Conversely, the percentage of rapid PSA doubling times was highest in the <55 cohort. In multivariate analysis with age as a categorical variate, ECOG 3-4 (HR 2.65), time from diagnosis to both HRPC (HR 0.78) and bone metastasis (HR 0.80), and duration of response to androgen ablation (HR 0.86) remained highly significant.

Conclusions: Age at diagnosis influences OS with a bimodal

survival pattern in HRPC. Pts <55 and ≥75 present with more aggressive disease which translated into reduced median and 5 yr survivals in our study. Other covariates, especially ECOG status, likely account for the survival pattern seen in the ≥75 cohort. Conversely, pts <55 had an adjusted HR of 1.60, approaching statistical significance (p=0.06). Our study supports a growing body of evidence that suggests a poor prognosis in younger men; correlating these differences at the molecular level could lead to better targeted therapies.

RISK FACTORS FOR THROMBOEMBOLIC EVENTS IN GERM CELL CANCER PATIENTS RECEIVING CHEMOTHERAPY

Katharine Shim,¹ Kylea Potvin,¹ Karen Mills,² Frances Whiston,³ Larry Stitt,^{3,4} Eric Winquist¹

¹Division of Medical Oncology, London Regional Cancer Program (LRCP); ²Department of Medicine, University of Western Ontario;

³Clinical Cancer Research Unit, London Regional Cancer Program; ⁴Department of Epidemiology & Biostatistics;

University of Western Ontario; London, Ontario, Canada and London Health Sciences Centre, London, Ontario, Canada

Objective: The incidence of thromboembolic events (TEEs) appears to be higher in patients treated for metastatic germ cell tumors (mGCT) than in the general cancer population; so we performed a retrospective review to identify the incidence, type, timing, and risk factors for TEEs.

Methods: All men treated with cisplatin-based chemotherapy for mGCT at London Health Sciences Centre from January 1978 to December 2007 were identified from electronic databases. Data including known risk factors for TEEs were extracted and analysed to identify predictors.

Results: 196 eligible patients were identified with median age 31 years (range, 15-75). Thirty-two TEEs were identified in 29 patients for an overall incidence of 14.8% (95%CI, 9.8-19.8%). The majority of events were deep venous thromboses, and five patients died due to TEEs. Eighteen patients had TEEs within 6 months of chemo-

therapy initiation. Age greater than 30 years (OR 3.02; 95%CI, 1.10-8.33; P=0.033) and elevated serum lactate dehydrogenase (LDH) (OR 1.93; 95%CI, 1.07-3.48; P=0.029) were independent predictors of TEEs. If both risk factors were present, the risk of TEE on treatment was 22.4% (95%CI, 10.7-34.1%). With neither, the negative predictive value was 97% (95%CI, 91-100%).

Conclusions: The overall TEE incidence rate of 14.8% is consistent with prior reports. The risk of TEE appears greatest during or shortly after chemotherapy, and nearly one in 10 patients in this group had a TEE. These data support the concept of prophylaxis in selected patients starting chemotherapy for mGCT. In this cohort, patients under 30 with normal LDH levels were at very low risk for TEE. Further study of these risk factors to guide the study and optimal use of thromboprophylaxis should be pursued.

AN EXPLORATORY STUDY OF THE DIFFERENTIAL EXPRESSION OF CANDIDATE GENES IN BONE METASTASIS BIOPSIES AND BONE MARROW ASPIRATES FROM THE SAME PATIENT

Amir E, Cawthorn T, Broom R, Freedman O, Gianfelice D, Barth D, Wang D, Done S, Galica J, Oldfield M, Clemons M
Princess Margaret Hospital, Toronto, ON

Objectives: A century after Paget's seminal "soil and seed" hypothesis, the underlying molecular mechanisms of bone metastases from primary breast cancers are still unclear. Much recent research has focused upon identifying genes required for tumour cell dissemination, yet it is not clear which genetic alterations are required for these cells to form viable, independent metastases in the bone microenvironment. Despite work to identify the molecular differences between primary tumour cells and disseminated tumour cells (DTCs) and primary tumours and established metastases, little data exists on the differences between DTCs and established metastases.

Methods: Ten breast cancer patients with bone metastases underwent a CT-guided bone metastasis biopsy and a bone marrow aspiration. The gene expression profile of tumour cells from the CT-guided biopsy and the bone marrow was analysed from RNA extracted from each sample. Standard clustering and array analysis tools were used. Pathway analysis software was used to identify genes integral to specific pathways postulated to be involved in cancer metastasis.

Results: A signature of 133 candidate genes, which were differentially expressed between the two sample types, was identified. Paired analysis of samples obtained from the same patient identified a unique subset of 161 genes, of

which 52 overlapped with the unmatched list. Several genes relevant to breast cancer metastasis to bone (i.e. osteopontin, CTGF, parathyroid hormone receptor, EGFR) were found to be significantly over-expressed in the metastatic as compared to the disseminated tumour cells.

Conclusions: Results provide evidence to indicate that

there are specific subsets of genes, which are required for disseminated tumour cells in the bone marrow to form overt bone metastases. A number of genes identified participate in the “vicious cycle” model of osteolytic bone metastases formation. Specific genes of interest will be selected for further validation by quantitative real-time PCR analysis.

INTERPRETING THE RESULTS OF CLINICAL TRIALS OF CANCER CHEMOTHERAPY: THE IMPORTANCE OF REPORTING CONCURRENT SUPPORTIVE CARE.

Freedman OC,¹ Zimmermann C,² Clemons MJ¹

¹Medical Oncology, Princess Margaret Hospital, Toronto; ²Head, Palliative Care Services, University Health Network, Toronto

Objective: Important outcomes for cancer patients depend not only on anti-cancer treatment, but also on supportive measures that aim to alleviate symptoms of cancer or side effects due to therapy. A comparison of cancer therapies that is evaluated in a randomized clinical trial may therefore be significantly confounded by differences in supportive treatments between trial arms.

Methods: We performed a systematic review of the past 5 years of randomized, phase III trials evaluating breast cancer chemotherapy to assess the prevalence of confounding effect of differential use of supportive treatments. We identified publications in MEDLINE (OVID: 1996-week 3 2008). Inclusion criteria were phase III clinical trials with at least one of the following outcomes: nausea, vomiting, febrile neutropenia, infection, diarrhea, pain.

Results: We identified 202 studies from the initial search. 62 studies met inclusion criteria; more than half (32) involved women with advanced breast cancer. All trials

were open-label. Fifty-two studies (82%) did not report the antiemetics used, and only 5 studies (8%) reported the type, dose, and frequency of antiemetics. Twenty-four trials (39%) did not report whether prophylactic growth factors could be used, and only 5 trials (8%) reported both the dose and the type of growth factor used in all arms of the trial. Twenty-one trials (33%) provided at least minimal guidelines regarding the use of antibiotics for prophylaxis of febrile neutropenia. No trial reported guidelines for treatment of pain, myalgia, or arthralgia.

Discussion: Despite substantial differences demonstrated in important outcomes of toxicity, a minority of phase III trials report guidelines for use of supportive medication. In order to minimize confounding in cancer chemotherapy trials, guidelines for the type, dose, and frequency of supportive care drugs should be provided and the percent of patients in each arm of the trial receiving these medications should be reported.

WHAT IS THE OPTIMAL STRATEGY TO CONFIRM THE DIAGNOSIS OF EPITHELIAL OVARIAN CARCINOMA (EOC) PRIOR TO NEOADJUVANT CHEMOTHERAPY (NAC)? THE PRINCESS MARGARET HOSPITAL EXPERIENCE.

Freedman OC, Dodge J, Shaw P, Oza AM, Bernardini, M, Murphy KJ, Klachook S, Lo E, Rosen B, Mackay H. Princess Margaret Hospital, Toronto, Canada

Objective: New multicenter trials are being initiated utilizing NAC yet no standard diagnostic strategy has been defined for EOC prior to the administration of NAC. We reviewed the diagnostic experience of patients (pts) at our centre receiving NAC to determine if an optimal strategy could be determined.

Methods: A retrospective chart review of all pts known to receive NAC followed by cytoreductive surgery for presumed EOC between 1994 & 2007 was performed. Final diagnoses were based on expert pathology review of surgery specimens. Diagnostic strategies were defined as histology, cytology & clinical. Performance of these strategies in predicting final pathology was compared using Fisher’s exact test.

Results: 152 pts received NAC. Initial diagnosis was made on the basis of: cytology (paracentesis/thoracentesis) 90 (59%); percutaneous biopsy 40 (26%), radiology & CA-125 18 (12%),

surgical biopsy 4 (3%). Of the pts without a preoperative tissue diagnosis an attempt to obtain tissue was made in 28%. The final diagnosis was consistent with invasive EOC in 145 (95%) pts. The remaining 7 were ovarian LMP (4), carcinosarcoma (1) endometrial serous cancer (1), GI tumor (1). The diagnostic accuracies of the 3 strategies differed: histology (42/44), cytology (88/90), and clinical (15/18), (p=0.03). 17% of pts had an alternate diagnosis when only clinical parameters were used to define the need for NAC.

Conclusion: Diagnosis of EOC based on cytology and histology are superior to clinical factors alone. Even in a centre with trained gynaecologic cytopathologists, cytology/biopsy preclude specific subtype diagnosis in a significant number of pts. These data are important for clinical practice and the design of future clinical trials.

CONFERENCE REPORT

COMPARISON OF RANDOMIZED PHASE II STUDIES (RP2S) AND RANDOMIZED CONTROLLED STUDIES (RCTS) USING IDENTICAL SYSTEMIC THERAPIES

Bin, James, Pond G., Chen E.

Princess Margaret Hospital, University of Toronto, Toronto, ON

Objective: Previous research has shown that results from single-arm phase 2 studies are poor predictors of results from subsequent RCTs. It has been suggested that RP2s are more efficient in predicting outcomes of RCTs, and RP2s have increasingly been used in evaluating novel agents or therapeutic strategies. We attempted to determine if results from RP2s were concordant with outcomes of RCTs.

Methods: We searched Medline and Cancerlit for RP2s evaluating systemic therapies for advanced solid malignancies, published from January 2000 to October 2008. Each publication was reviewed and a search was conducted for RCTs using identical therapies. Results of each RCT were reviewed and determined to be either “positive” or “negative” based on whether the stated primary endpoint of the study was met. Additional data such as year of publication, journal impact factor, number of patients enrolled, whether multiple centers were involved, response rates (RR), and survival data were collected. The rate of concordance

between RP2s and RCTs was determined and univariate analyses were performed to determine potential predictors from RP2s of “positive” RCTs as well as concordance.

Results: A total of 196 RP2s meeting study criteria were identified. However, only 16 had corresponding RCTs. Among these 16 RCTs, 11 showed concordance with RP2 results, for a rate of 68%. There was a moderately strong association between RRs from RP2s and corresponding RCTs, with a difference in RR of 3.8% (95% CI -10.6 to 3.0%). The difference in median survival was 1.0 mo (95% CI -1.0 to 3.2) and for time to progression it was -0.5 mo (95% CI -1.0 to 1.1) between RP2s and RCTs. No characteristics from RP2s could predict positivity or concordance with RCTs.

Conclusion: Based on this small number of RP2s and RCTs, results from RP2s have relatively high concordance with results from RCTs. However, there were no significant predictors of concordance.

DISCORDANCE BETWEEN HORMONE RECEPTOR PROFILE OF PRIMARY BREAST CANCER AND METASTATIC BONE DISEASE: SHOULD BONE MARROW BIOPSY BE CONSIDERED A STANDARD OF CARE?

Amir, Eitan, R. Broom, O. Freedman, W. Ooi, S. Done, D. Gianfelice, D. Barth, H. Kahn, J. Galica, M. Oldfield, M. Clemons


Princess Margaret Hospital, Toronto, ON

Objectives: The treatment of bone metastases in breast cancer patients is based on the hormone receptor status of the primary tumor. Discordant receptor expression between primary and metastatic tumours has been reported in around 20-60% of cases. This study, therefore, aimed to prospectively explore the incidence of discordant receptor status in primary and metastatic bone disease, and to evaluate the role of bone marrow biopsies for the reassessment of receptor status.

Methods: 19 patients with known bone metastases underwent both a CT-guided bone metastasis biopsy, as well as bone marrow aspirate and trephine. The estrogen receptor (ER) and progesterone receptor (PR) of these samples was assessed and compared to those of primary breast cancer.

Results: Tumor cells were found in 13 (68.4%) of bone metastasis samples and in 9 (47.4%) of bone marrow biopsies. Discordance between the primary and metastatic samples was seen in 10 patients (52.6%). Among these, ER and PR changed from positive to negative in 7 cases and from negative to positive in 1 case. In 6 cases (31.6%), malignant cells were identified in both bone metastasis and bone marrow samples from the same patient. Among these, ER and

PR were concordant in 100% and 83% of cases.

Conclusion: Given the receptor profile of metastatic disease is assumed to be the same as the primary tumor, discordance between primary and metastatic cancer can have a significant impact on the outcome of treatment choices. Receptor discordance rates in this analysis were similar that which has been reported in previous studies. There appeared to be good concordance between bone metastasis and bone marrow biopsies. Therefore, bone marrow biopsy may be a simple, safe and well-tolerated way to obtain tissue to reassess receptor status of metastatic breast cancer, and should be considered before the more invasive bone metastasis biopsy. 

You're not receiving *Oncology Exchange*?

If you or someone you know would like to receive *Oncology Exchange*, please send an email to elaine@parkpub.com or fill out the online subscription form at www.oncologyex.com.