Decision Regret following Treatment for Localized Breast Cancer: Is Regret Stable Over Time?

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BACKGROUND: While studies suggest most women have little regret regarding their breast cancer treatment decisions immediately following treatment, no studies to date have evaluated how regret may change over time.

OBJECTIVE: To measure the stability of posttreatment decision regret over time among women with breast cancer.

METHODS: Women diagnosed with breast cancer between August 2005 and May 2007 reported to the Detroit, Michigan, or Los Angeles County Surveillance, Epidemiology, and End Results (SEER) registry and completed surveys at 9 months following diagnosis (time 1) and again approximately 4 years later (time 2). A decision regret scale consisting of 5 items was summed to create 2 decision regret scores at both time 1 and time 2 (range, 0-20). Multivariable linear regression was used to examine change in regret from 9 months to 4 years. Independent variables included surgery type, receipt of reconstruction, and recurrence status at follow-up. The model controlled for demographic and clinical factors.

RESULTS: The analytic sample included 1536 women. Mean regret in the overall sample was 4.9 at time 1 and 5.4 at time 2 (P < 0.001). In the multivariable linear model, we found no difference in change in decision regret over time by surgery type. Reporting a new diagnosis of breast cancer at time 2 was associated with a 2.6-point increase in regret over time compared with women without an additional diagnosis (P = 0.003). Receipt of reconstruction was not associated with change in decision regret over time.

CONCLUSIONS: Decision regret following treatment was low and relatively stable over time for most women. Those facing an additional diagnosis of breast cancer...
following treatment may be at risk for elevated regret-related distress.

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Older women with localized breast cancer: costs and survival rates increased across two time periods.

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Significant national attention has been paid to the rising costs of cancer care. However, few studies have evaluated the association between trends in costs and survival outcomes. We used the Surveillance, Epidemiology, and End Results (SEER) Program–Medicare linked database to compare changes in costs and survival rates over time, among women ages 67–94 who were diagnosed with stage II or III breast cancer in 1994–96 or 2004–06. We found that median cancer-related costs increased from $12,335 to $17,396 among women with stage II disease, and from $18,107 to $32,598 among women with stage III disease. Although the median cost of breast surgery declined between the two study periods, the median cost of chemo- and radiation therapy increased substantially, leading to an overall rise in cancer-related costs. Meanwhile, adjusted overall five-year survival improved, from 67.8 percent to 72.5 percent for women with stage II disease and from 38.5 percent to 51.9 percent for those with stage III disease. These findings suggest that increases in cancer care costs have been accompanied by improved outcomes. Future work should identify opportunities to optimize efficiency in cancer care.

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Axillary lymph node management in breast cancer with positive sentinel lymph node biopsy.

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The surgical treatment of localized breast cancer has become progressively less aggressive over the years. The management of the axillary lymph nodes has been modified by the introduction of sentinel lymph node biopsy. Axillary dissection can be avoided in patients with sentinel lymph node negative biopsies. Based on randomized trials data, it has been proposed that no lymph node dissection should be carried out even in certain patients with sentinel lymph node positive biopsies. This commentary discusses the basis of such recommendations and cautions against a general omission of lymph node dissection in breast cancer patients with positive sentinel lymph node biopsies. Instead, an individualized approach based on axillary tumor burden and biology of the cancer should be considered.

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Taxane-based regimens as adjuvant treatment for breast cancer: a retrospective study in egyptian cancer patients.

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BACKGROUND: To evaluate the impact of adding taxanes to anthracycline-based regimens in the adjuvant setting in localized young female breast cancer patients on the overall survival (OS) and the disease free survival (DFS).

MATERIALS AND METHODS: This retrospective study included all female breast cancer patients who were candidates for adjuvant chemotherapy presenting to Kasr Al Ainy centre of clinical oncology and Cairo oncology centre (Cairo Cure) in the period from January 2005 till December 2010.

RESULTS: Our study included 865 patients, 732 of whom received anthracycline based regimens and 133 taxane based regimens. The mean age of patients was 39 years. After a median follow up of 50 months the median DFS was 48.4 months. Survival analysis indicated that the tumor size (>5cm vs. <5cm) p=0.001), nodal involvement (Yes vs. No) p=0.0001) and pathology (invasive lobular vs. ductal) p=0.048) affected DFS. As regards hormonal status, ER, PR and HER 2neu positive patients had longer DFS (p=0.001, 0.003, 0.106). On multivariate analysis DFS was affected by tumor size and lymph node involvement (p=0.014, 0.007). Subgroup analysis showed improvement in arms treated with taxanes in terms of DFS with positive Her2neu, ER and PR, but this was not statistically significant.

CONCLUSIONS: Adding adjuvant taxanes to anthracyclines is beneficial for
treatment of localized breast cancer among all subgroups, especially higher risk groups. The type of adjuvant chemotherapy regimens and tumor characteristics have direct effects on DFS.

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Epithelial-to-mesenchymal transition in breast cancer: a role for insulin-like growth factor I and insulin-like growth factor-binding protein 3?

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Evidence indicates that for most human cancers the problem is not that gene mutations occur but is more dependent upon how the body deals with damaged cells. It has been estimated that only about 1% of human cancers can be accounted for by unmistakable hereditary cancer syndromes, only up to 5% can be accounted for due to high-penetrance, single-gene mutations, and in total only 5%-15% of all cancers may have a major genetic component. The predominant contribution to the causation of most sporadic cancers is considered to be environmental factors contributing between 58% and 82% toward different cancers. A nutritionally poor lifestyle is associated with increased risk of many cancers, including those of the breast. As nutrition, energy balance, macronutrient composition of the diet, and physical activity levels are major determinants of insulin-like growth factor (IGF-I) bioactivity, it has been proposed that, at least in part, these increases in cancer risk and progression may be mediated by alterations in the IGF axis, related to nutritional lifestyle. Localized breast cancer is a manageable disease, and death from breast cancer predominantly occurs due to the development of metastatic disease as treatment becomes more complicated with poorer outcomes. In recent years, epithelial-to-mesenchymal transition has emerged as an important contributor to breast cancer progression and malignant transformation resulting in tumor cells with increased potential for migration and invasion. Furthermore, accumulating evidence suggests a strong link between components of the IGF pathway, epithelial-to-mesenchymal transition, and breast cancer mortality. Here, we highlight some recent studies highlighting the relationship between IGFs, IGF-binding protein 3, and epithelial-to-mesenchymal transition.

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Trends in breast cancer stage distribution before, during and after introduction of a screening programme in Norway.

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BACKGROUND: Screening is intended to advance diagnosis thereby shifting the stage distribution towards more locally confined stages. Consequently we aimed to estimate trends in stage-specific breast cancer in relation to the introduction of population-based screening.

METHODS: From the Cancer Registry of Norway we retrieved cancer stage, age and year of diagnosis on all women aged 20 or older diagnosed with breast cancer during the period 1987-2010 in Norway (approximate source population: 1.8 million). Three calendar-time periods were defined: before (1987-95), during (1996-2004), and after (2005-10) screening was introduced; and two age groups: women eligible for screening (50-69 years) or younger (20-49 years). Poisson regression was used to estimate the incidence of localized (stage I) and more advanced cancer (stages II+), respectively, and logistic regression to estimate the proportion of localized cancer.

RESULTS: The annual incidence of localized breast cancer among women aged 50-69 years rose from 63.9 per 100 000 before the introduction of screening to 141.2 afterwards, corresponding to a ratio of 2.21 (95% confidence interval: 2.10; 2.32). The incidence of more advanced cancers increased from 86.9 to 117.3 per 100 000 afterwards, corresponding to a 1.35 (1.29; 1.42)-fold increase. Advanced cancers also increased among younger women not eligible for screening, whereas their incidence of localized cancers remained nearly constant.

CONCLUSION: Incidence of localized breast cancer increased significantly among women aged 50-69 years old after introduction of screening, while the incidence of more advanced cancers was not reduced in the same period when compared to the younger unscreened age group.

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registry who had been prescribed a first-time AI for localized breast cancer 18-24 months previously.

MAIN OUTCOME MEASURES: Items assessed medication adherence, demographic, and medical information. Scales included the Female Sexual Function Index, the Menopausal Sexual Interest Questionnaire, the Female Sexual Distress Scale-Revised, the Breast Cancer Prevention Trial Eight Symptom Scale to assess menopausal symptoms, and the Merck Adherence Estimator®.

RESULTS: Questionnaires were returned by 129 of 296 eligible women (43.6%). Respondents were 81% non-Hispanic white with a mean age of 63 and 48% had at least a college degree. Only 15.5% were nonadherent. Ninety-three percent of women scored as dysfunctional on the Female Sexual Function Index, and 75% of dysfunctional women were distressed about sexual problems. Although only 52% of women were sexually active when starting their AI, 79% of this group developed a new sexual problem. Fifty-two percent took action to resolve it, including 24% who stopped partner sex, 13% who changed hormone therapies, and 6% who began a vaginal estrogen. Scores on the Adherence Estimator (beliefs about efficacy, value, and cost of medication) were significantly associated with adherence (P=0.0301) but sexual function was not.

CONCLUSIONS: The great majority of women taking AIs have sexual dysfunction that is distressing and difficult to resolve. Most continue their AI therapy, but a large minority cease sexual activity.


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Concurrent administration of trastuzumab with locoregional breast radiotherapy: long-term results of a prospective study.


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This single-center prospective study aims to assess the outcomes and the toxicities related to the concurrent administration of trastuzumab (T) with adjuvant locoregional radiotherapy (RT) in localized breast cancer. Data of 308 patients were analyzed. T was delivered every 3 weeks (loading dose of 8 mg/kg, then 6 mg/kg) for 1 year. Left ventricular ejection fraction (LVEF), measured by echocardiography or myocardial scintigraphy, was considered as impaired when below 55%. Toxicities were assessed according to the Common Terminology Criteria for Adverse Events version 3.0. Univariate and multivariate analyses were carried out using the Cox model. Median follow-up was 50.2 months (13.0-126.0). Median age at diagnosis was 52 years (25-83). Internal mammary node (IMN) RT was performed in 227 patients (73.7%). After completion of RT, 26 patients (8.4%) presented an impaired LVEF: 17 (5.5%) of grade 1, 7 (2.3%) of grade 2, and 2 (0.6%) of grade 3. At 48 months, locoregional control rate was 95% [95% CI 92; 98], and overall survival rate was 98% [95% CI 96; 100]. In univariate analysis, neither the treated breast side (p = 0.655) nor IMN RT (p = 0.213) exposed patients to LVEF alteration. In multivariate analysis, clinical lymph node
involvement was associated with an increased risk of locoregional and distant recurrence (p = 0.016 and p = 0.007, respectively). In this prospective study, the toxicities of concurrent T with locoregional breast RT were acceptable and the outcomes favorable. Longer follow-up is warranted to confirm these results.

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We assessed whether presenting breast cancer stage has changed over time in Florida, and whether there is variation in this change with respect to race, ethnicity, and socioeconomic status (SES). Data were obtained from the Florida Cancer Data System. We included females with invasive breast cancer and complete information on race, ethnicity, and SES during 1981-2009 (n = 226,651). Associations between categorical variables were examined using Chi-square tests. Predictors of SEER stage at diagnosis (local, regional, and distant) were modeled with multinomial ordinal logistic regression models. There was a significant increase in local disease and a decrease in regional and distant disease at presentation (p < 0.0001) over the time period assessed. Compared to whites, black patients continue to have lower odds of local presentation (OR 0.73, 95% CI 0.63, 0.85), as do Hispanic patients (OR 0.80, 95% CI 0.76, 0.84) compared to non-Hispanics. The increase in local stage at diagnosis was greater for black than white patients, as was the decrease in regional and distant disease (p < 0.001). Hispanic women also had significant increase in localized disease and decrease in regional and distant disease (p < 0.001), but there was little difference in the change compared to non-Hispanic women. Localized breast cancer stage at diagnosis has become more common over time in all groups. Significant disparity persists, with black and Hispanic patients being less likely to present with localized disease than white patients overall. There was a greater change for black versus white patients, resulting in a narrowing in the racial gap in stage at diagnosis.

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Breast cancer in Mississippi: impact of race and residential geographical setting on cancer at initial diagnosis.

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OBJECTIVE: To analyze female breast cancer data for Mississippi from 2005 to 2009 to test whether race and/or geography had an impact on the stage of breast cancer at the time of diagnosis.

METHODS: A cross-sectional design for data was developed and collected by the Mississippi Cancer Registry (MCR). The MCR dataset contained female breast cancer cases diagnosed between 2005 and 2009. Of the 9699 cases used, 2925 were white patients living in urban counties and 3584 were white patients residing in a rural county. Among African American patients, 1247 lived in urban areas, and 1943 resided in rural counties.

RESULTS: Geography had a significant impact on the stage of breast cancer at which the patient was diagnosed. Women living in rural Mississippi had a greater chance (white 4% and African American 19%) of presenting with advanced regional/distant breast cancer rather than in situ/localized breast cancer. The number of white patients was similar to the number of African American patients who presented at the time of diagnosis with advanced regional/distant breast cancer. African American women had greater odds than white women (urban 25%, rural 47%) of presenting with advanced regional/distant breast cancer.

CONCLUSIONS: This study provides important new information about two specific factors that may affect the stage of breast cancer diagnosis: race (whites vs African Americans) and geography (urban vs rural county). The implications of this study will aid the Mississippi State Department of Health in targeting screening programs throughout the state. The results also may affect medical and allied health care.

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Distant invasive breast cancer recurrence risk in human epidermal growth factor receptor 2-positive T1a and T1b node-negative localized breast cancer diagnosed from 2000 to 2006: a cohort from an integrated health care delivery system.

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PURPOSE: To determine the invasive recurrence (IR) risk among patients with small, node-negative human epidermal growth factor receptor 2 (HER2) -positive breast cancer.

PATIENTS AND METHODS: Among 16,975 consecutive patients with invasive breast
cancer diagnosed from January 1, 2000, to December 31, 2006, in a large, integrated health care system, we identified a cohort of 234 patients with HER2-positive T1aN0M0 or T1bN0M0 (T1abN0M0) disease with a median follow-up of 5.8 years. Kaplan-Meier methods were used to estimate the percentage of patients who were free of invasive recurrence (recurrence-free interval [RFI]) at 5 years for both distant (DRFI) and local (LRFI) recurrences.

RESULTS: Of 15 IRs, 47% were locoregional only. Among T1ab patients not treated with adjuvant trastuzumab or chemotherapy (n = 171), the 5-year invasive DRFI was 98.2% (95% CI, 94.5% to 99.4%); it was 99.0% (95% CI, 93.0% to 99.9%) for T1a patients, and 97.0% (95% CI, 88.6% to 99.2%) for T1b patients. Locoregional plus distant 5-year invasive RFI was 97.0% (95% CI, 90.9% to 99.0%) for T1a and 91.9% (95% CI, 81.5% to 96.6%) for T1b patients; it was 89.4% (95% CI, 70.6% to 96.5%) for T1b tumors reported at 1.0 cm. T1b tumors reported at 1.0 cm accounted for 24% of the T1ab cohort, 61% of the cohort total tumor volume, and 75% of distant recurrences. Invasive RFI for T1b 1.0 cm tumors was lower than that for T1a tumors: 84.5% versus 97.4% (P = .009).

CONCLUSION: The distant IR risk of T1a HER2-positive breast cancer appears quite low. The distant IR risk in T1b patients, particularly those with 1.0-cm tumors, is higher. Potential risk differences for T1a and T1b, including the 1.0-cm tumors, should be considered when making treatment decisions.

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Health insurance and breast-conserving surgery with radiation treatment.

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OBJECTIVES: To examine the impact of health insurance type on treatment of early-stage breast cancer using breast-conserving surgery (BCS) with radiation therapy (RT) among women in Florida and identify factors that contribute to the variations in receiving the treatment in women with the same health insurance type.

STUDY DESIGN AND METHODS: Breast cancer cases diagnosed during 1997 to 2002 were obtained from the Florida Cancer Data System. Women 40 years and older diagnosed with localized breast cancer were included. Demographic, insurance, and treatment information were extracted and linked with 2000 census data. χ² and multilevel logistic regression analyses were used.

RESULTS: A total of 33,706 women were diagnosed with localized breast cancer in Florida during 1997 to 2002. The average age of the women was 66 years, 58.62% had BCS while 38.61% had mastectomy, and only 2.77% had no surgical treatment. Type of health insurance plays a significant role in receiving BCS with RT. Furthermore, we found significant variations in the use of BCS with RT among women who have the same type health insurance by marital status, age, tumor size, year of diagnosis, level of education, and poverty level.

CONCLUSIONS: Although clinical practice guidelines recommend BCS with RT to treat women with localized breast cancer, significant differences in receiving the recommended treatment is found between and within types of health insurance.
Identifying cultural barriers and educating the public about available treatment options are the major policy implications of this study. These observed differences require further study.

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Cognitive deficits in Korean women treated with chemotherapy for breast cancer.
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BACKGROUND: Cognitive deficits have been reported as detrimental side effects in chemotherapy-treated breast cancer patients and survivors. Korean women treated for breast cancer may experience unrecognized cognitive deficits related to their treatment. However, no research has examined cognitive test performance in chemotherapy-treated Korean breast cancer survivors.

OBJECTIVE: The objectives of this study were 2-fold: (1) to examine differences in occurrence and severity of cognitive deficits in Korean women treated with adjuvant chemotherapy for breast cancer as compared with a control group of women without breast cancer and (2) to examine the relationship of selected demographic and cultural factors with cognitive test performance.

METHODS: Sixty-four Korean women, 32 women treated for localized breast cancer and 32 healthy controls, were enrolled. Breast cancer participants were assessed with established cognitive measures within 4 months after chemotherapy, and healthy controls, within 6 months after negative screening mammography.

RESULTS: The breast cancer group showed a significantly higher occurrence and greater severity of cognitive deficits than controls did. Importantly, older age, less education, greater collectivist tendency, and greater childrearing burden were reliably associated with poorer attention and working memory test performance.

CONCLUSIONS: Cognitive deficits were found in chemotherapy-treated Korean women with moderate to large effect sizes compared with controls. Cultural characteristics contributed to worse cognitive performance.

IMPLICATIONS FOR PRACTICE: Healthcare providers should recognize that Korean women may be highly vulnerable to cognitive deficits. Cultural factors also need to be considered when assessing cognitive function and designing therapeutic interventions to counteract negative cognitive outcomes.

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Radiofrequency ablation and breast cancer: a review.
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BACKGROUND: Radiofrequency ablation (RFA) use in breast cancer is a developing
area of research. There have been a number of published studies over the last decade, which explores the feasibility of minimally invasive techniques in breast cancer treatment. In this review, we will discuss the most recent data on radiofrequency ablation and examine the current methods, outcomes, complications, and limitations of RFA in breast cancer therapy.

METHODS: Pub Med search for English Language articles on RFA in breast cancer.

RESULTS: More than 25 studies were reviewed and we searched for number of tumors, average size, electrode used, if they successfully ablated the tumor, when the tumor was then resected and if the patients experienced any complication from the ablation.

CONCLUSIONS: Radiofrequency ablation is an emerging minimally invasive therapy in small, localized breast cancer. Currently, no clinical trials have been published to directly compare RFA to the current standard of surgical resection. Ultimately, RFA will need clinical trials to evaluate oncologic outcomes involving long interval follow-up to determine survival, local control and disease progression before it becomes a reasonable alternative to surgical resection.

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Delta-like ligand 4 (DLL4) in the plasma and neoplastic tissues from breast cancer patients: correlation with metastasis.


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Delta-like ligand 4 (DLL4) is a ligand of the notch pathway. In tumor angiogenesis, DLL4 switches to vascular maturation by providing a negative feedback on VEGFR2 activity. We investigated the expression of DLL4 in the plasma and cancer tissues from breast cancer patients. Plasma samples were collected from 18 women with localized breast cancer, six women with benign breast disease and from six patients with widespread metastatic disease. DLL4 was assessed using ELISA and in cancer tissues using immunohistochemistry. Patients with metastatic breast cancer had significantly higher levels (median 6.7 ± 0.81 ng/ml) compared to patients with localized tumors (median 5.4 ± 0.70 ng/ml) (p = 0.005) and to patients with benign breast disease (median 4.3 ± 0.28) (p = 0.0003). High histology grade was significantly linked with higher plasma DLL4 levels (median 5.59 ± 0.62 vs. 5.12 ± 0.44 ng/ml; p = 0.01). Surgical removal of high-grade breast cancer resulted in significant reduction in DLL4 plasma levels (p = 0.003). DLL4 was expressed in tumor-associated vessels and in cancer cells. The ratio of DLL4+/CD31+ vascular density (VD) ranged from 23 to 88% (median 49 %). High DLL4 cancer cell expression and high DLL4+ VD were significantly linked with nodal involvement (p = 0.004 and 0.01, respectively). Linear regression analysis showed a significant association of DLL4 plasma levels with the percentage of DLL4+ cancer cells (p = 0.03, r = 0.50) and with DLL4+ VD (p = 0.0007, r = 0.60). It is concluded that DLL4 is overexpressed in breast cancer cells and breast cancer vasculature and is linked with nodal and distant metastasis. DLL4 plasma levels measurement can reliably estimate the total DLL4 breast cancer/vasculature activity.
Primary endocrine therapy as an approach for patients with localized breast cancer deemed not to be surgical candidates.

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PURPOSE OF REVIEW: For women diagnosed with localized hormone-receptor-positive breast cancer who have a poor performance status or who have medical conditions precluding aggressive treatment with chemotherapy or surgery, primary endocrine therapy has been proposed as a therapeutic alternative. Given that society is rapidly aging overall, this subset of patients will likely become a greater proportion of the patient population seen by breast cancer specialists.

RECENT FINDINGS: On the basis of the results from randomized trials in patients whose health does not permit surgery, it appears that tamoxifen achieves a similar overall survival compared with surgery plus tamoxifen, supporting the use of primary endocrine therapy. In the neoadjuvant setting, aromatase inhibitors appear superior to tamoxifen, suggesting that these agents may be the best choice in the primary endocrine therapy setting. In addition, new breakthroughs for the management of hormone-receptor-positive disease in the metastatic setting have recently been reported.

SUMMARY: This review will discuss the rationale and evidence for primary endocrine therapy; which agents could be selected for use; and how recent advances for the management of hormone-receptor-positive disease may potentially apply to this population.
screening to women after the age of 40 in a variety of settings.

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High grade angiosarcoma fifteen years after breast conservation therapy with radiation therapy: A case report.

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INTRODUCTION: Angiosarcoma is a rare tumor of the breast. Secondary angiosarcoma of the breast refers specifically to a tumor that arises after a latency period following radiation. With breast conservation therapy gaining significant popularity to that of mastectomy, more cases of secondary angiosarcoma continue to arise in the irradiated fields of these patients.

PRESENTATION OF CASE: The authors describe the case of an 80 year old female who presented fifteen years after her surgery and radiation treatment with two bleeding skin lesions in her breast. These lesions were found to be high grade angiosarcoma upon excision. Due to high cardiac co-morbidity she was treated with re-excision and surveillance.

DISCUSSION: This case is an example of a rare sequela to a common procedure. Breast conservation therapy with lumpectomy and radiation has become a popular technique in treating localized breast cancer. Radiation like all therapy has its known adverse effects. Further work is needed with the small amount of published cases of angiosarcoma after breast irradiation so that we may find optimal treatment plans for these patients. Like any rare entity, difficulty lies in accruing enough cases to compare prognosis and results.

CONCLUSION: Secondary breast angiosarcoma diagnosis requires frequent follow ups and a high index of suspicion. With mastectomy giving the best chance of treatment in these cases, early detection is crucial in this rare sequela.

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PEGylated liposomal Gemcitabine: insights into a potential breast cancer therapeutic.

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PURPOSE: Nanoencapsulation of chemotherapeutics is an established method to target breast tumors and has been shown to enhance the efficacy of therapy in various animal models. During the past two decades, the nucleoside analog Gemcitabine has been under investigation to treat both recalcitrant and localized breast cancer, often in combination with other chemotherapeutics. In this study, we investigated the chemotherapeutic efficacy of a novel Gemcitabine-encapsulated liposome previously formulated by our group, GemPo, on both sensitive (4T1) and recalcitrant (MDA-MB-231) breast cancer cell lines.

METHODS: Gemcitabine free drug and liposomal Gemcitabine were compared both in vitro and in vivo using breast cancer models.

RESULTS: We demonstrated that GemPo differently hindered the growth, survival and migration of breast cancer cells, according to their drug sensitivities. Specifically, whereas GemPo was a more potent cytotoxic and apoptotic agent in sensitive breast cancer cells, it more potently inhibited cell migration in the resistant cell line. However, GemPo still acted as a more potent inhibitor of migration, in comparison with free Gemcitabine, irrespective of cell sensitivity. Administration of GemPo in a 4T1-bearing mouse model inhibited tumor growth while increasing mice survival, as compared with free Gemcitabine and a vehicle control. Interestingly, the inclusion of a mitotic inhibitor, Paclitaxel, synergized only with free Gemcitabine in this model, yet was as effective as GemPo alone. However, inclusion of Paclitaxel with GemPo significantly improved mouse survival.

CONCLUSIONS: Our study is the first to demonstrate the pleiotropic effects of Gemcitabine and Gemcitabine-loaded nanoparticles in breast cancer, and opens the door for a novel treatment for breast cancer patients.

PMID: 24081907  [PubMed - indexed for MEDLINE]
without chemotherapy may prove to be viable treatment options. In patients with locally advanced or metastatic disease, RFA may be suitable for palliation of larger symptomatic tumors. Additional studies with long-term patient follow-up are necessary to better understand response to RFA and to determine its future role in the treatment algorithm for breast cancer.

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Differences in outcomes between elderly and nonelderly breast cancer patients in Louisiana.

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INTRODUCTION: Elderly breast cancer patients are diagnosed with a higher stage of disease. They are also found to undergo less surgery, receive more frequently hormonal treatment and have decreased relative survival. The interest of this study was to examine the differences in treatment and survival between elderly versus young (>65 versus <65) patients in Louisiana.

METHODS: The SEER database was searched, and all cases of female breast cancer in the state of Louisiana between 2000 and 2008 were analyzed. Data were stratified by age group and year of occurrence. The SEER definitions for breast cancer, surgery, chemotherapy, elderly populations, young populations, radiation therapy and breast conservative surgery were applied.

RESULTS: The state prevalence of localized breast cancer is lower compared with the national rate (128.5 versus 144, P < 0.001). The rate of regional breast disease is much higher in Louisiana patients than national average rate (69.7 versus 57.9, P < 0.001). There is no difference in disseminated disease. The elderly group was offered less surgery compared with the young group (11.39% versus 6.68%, P < 0.005). The elderly group received more general radiation interventions than the young group (65.97% versus 53.86%, P < 0.005). Mortality rates for the elderly group were higher in Louisiana compared with the national average. This difference was more remarkable in the >85 age group (127.8 versus 118.5, P < 0.001).

CONCLUSIONS: Differences between young and elderly breast cancer patients were observed. Mortality is higher among elderly breast cancer patients in Louisiana compared with the national average. Further studies are needed to review these differences.

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Hypercalcemia secondary to gastrointestinal stromal tumors: parathyroid hormone-related protein independent mechanism?

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OBJECTIVE: Hypercalcemia is a common paraneoplastic manifestation of many malignancies like breast, ovarian, and squamous-cell cancers of head and neck; however, there have been only a few case reports of hypercalcemia associated with gastrointestinal stromal tumors (GISTs). We report a case of GIST presenting with hypercalcemia without any osseous metastasis and provide a literature review regarding the mechanisms of hypercalcemia and therapeutic strategies.

METHODS: We present a report of case and a review of the relevant literature.

RESULTS: A 52-year-old woman with history of localized breast cancer in remission and a pelvic 13 × 12 cm GIST with peritoneal, liver, and lung metastases presented with hypercalcemia of 14.3 mg/dL (8.5-10.5 mg/dL). Parathyroid hormone-related protein (PTHrP) was undetectable, intact parathyroid hormone (PTH) was appropriately low at 1 pg/mL (10-65 pg/mL), and 1,25 dihydroxy vitamin D (1,25 OH2 vit D) was elevated at 131 pg/mL (18-78 pg/mL) with normal renal function. Calcium responded transiently to tyrosine kinase inhibitor therapy and bisphosphonates but within a year, she expired due to tumor progression.

CONCLUSION: GIST is a rare cause of hypercalcemia. In addition to PTHrP expression, direct tumor production of 1,25(OH)2 vit D or 1-α hydroxylase enzyme resulting in activation of 25-hydroxy vitamin D may be an alternative mechanism in GIST-related hypercalcemia. Therapy with tyrosine kinase inhibitors and bisphosphonates is recommended, though prognosis is poor. Further investigations are needed to characterize the etiology and management of hypercalcemia in these patients.

PMID: 24013983  [PubMed - indexed for MEDLINE]


JOURNAL CLUB: Is screening MRI indicated for women with a personal history of breast cancer? Analysis based on biopsy results.

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OBJECTIVE: American College of Radiology and Society of Breast Imaging guidelines call for routine breast MRI screening only for women with the highest risk profiles for development of breast cancer, suggesting that screening of women at lower risk might result in an increased frequency of false-positive biopsy results. The purpose of this study was to test this assumption by comparing MRI-guided biopsy outcomes of lesions detected at MRI screening of women with a personal history of breast cancer with outcomes among women with genetic or familial high risk.

MATERIALS AND METHODS: Outcomes of 130 MRI-guided biopsies were analyzed. One group consisted of women with hereditary (genetic or familial) risk, and the other group consisted of women with a personal history of breast cancer. Biopsies
were performed with a 9-gauge vacuum-assisted device or surgically after MRI localization.

RESULTS: Of 130 MRI-guided biopsies, 20 (15%) yielded malignant histologic findings, 14 (11%) yielded high-risk lesions, and 96 (74%) had benign findings. There was a slightly higher malignancy rate for the personal-risk group (19%) compared with the hereditary-risk group (13.5%). There also was a slightly higher combined rate of malignancy and high-risk lesions (34% vs 22%) with no statistically significant difference (p < 0.25, p < 0.12). Patients in the hereditary-risk group were younger (44 ± 1.2 vs 54 ± 1.7 years; p < 0.001) than those in the personal-risk group.

CONCLUSION: Our preliminary data show no difference between the two risk groups with respect to probability of an MRI-guided biopsy result of malignancy, calling into question the proposed assumption. Further prospective studies of the role of MRI screening combined with MRI-guided biopsy when required for patients with previously treated localized breast cancer may be indicated.

PMID: 24059385  [PubMed - indexed for MEDLINE]


An Irish breast cancer survivorship study: are we meeting our patients' needs?

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Irish breast cancer survivor's needs have not been studied. Physical, psychological, social and spiritual concerns were investigated. Patient satisfaction with hospital discharge, GP follow-up, and the benefit of a discharge pack was investigated. A cohort of patients from the South East Cancer Centre was identified.INCLUSION CRITERIA: localized breast cancer, completion of adjuvant therapy, GP-led follow-up in the last 5 years. An anonymous questionnaire was developed, and ethical approval obtained. Subgroup analyses for age and time since diagnosis and discharge were completed. 80 patients were identified. 44 patients (55%) completed the questionnaire, 5 (6%) were excluded. Commonest concerns included: fatigue (51%), fear of recurrence (69%) and second cancers concerns (69%) 23 (59%) and 25 patients (64%) were satisfied with discharge and GP follow-up respectively. 27 patients (67%) reported benefit from a discharge pack. Irish breast cancer survivors had concerns, and were satisfied with GP follow-up.

PMID: 24416846  [PubMed - indexed for MEDLINE]


Cardiac safety of the adjuvant Trastuzumab in a Moroccan population: observational monocentric study of about 100 patients.


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BACKGROUND: Trastuzumab is a humanized monoclonal antibody that binds to the extracellular domain of the human epidermal growth factor receptor 2 (HER 2) and inhibits carcinoma cellular proliferation. Its use as an adjuvant for a period of one year is currently an internationally recognised standard for the treatment of localized breast cancer. Its use is generally well tolerated, with the most salient side effect being a particular cardiotoxicity that is typically manifested by an asymptomatic decrease in the left ventricular ejection fraction (LVEF) requiring careful monitoring before and during treatment. To evaluate the cardiac safety of trastuzumab we conducted a retrospective observational study of patients with HER2-positive localized breast cancer treated with trastuzumab between May 2008 and May 2010 in Morocco.

FINDINGS: The study comprised of 100 patients. The average in LVEF before the start of trastuzumab was 70%, and at the end of treatment 66%, a decrease in absolute terms of 4%; this difference was statistically significant. 38% of the patients exhibited cardiotoxicity. 97% of our patients have completed treatment, of whom 23% with a provisional arrest because of a regressive fall in LVEF. A final arrest has been made in 3% of cases due to a non regressive reduction in LVEF. A symptomatic heart failure was found in three patients. Analysis of risk factors toxicity found a baseline LVEF higher in the patients who met cardiotoxicity than the rest of our sample.

CONCLUSIONS: The cardiac safety in our study seems comparable with the literature data but located in the upper range of levels of toxicity. Cardiotoxicity is the major complication of Trastuzumab, of which LV dysfunction is the most common. Most instances are transient, asymptomatic and reversible.

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PMID: 23985308 [PubMed - indexed for MEDLINE]

The challenges of individualized care for older patients with localized breast cancer.

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Individualized care is achieved when the appropriate screening and/or evaluative tests are used, the treatment plan is driven by evidence-based data and the patient's functional ability, physical and mental health, preference and social situation are incorporated into treatment decisions. Breast cancer is a disease of aging; yet, the management of breast cancer in older women in most cases lacks evidence from prospective randomized clinical trials (i.e., level 1 evidence) to support treatment recommendations. Older women are underrepresented in therapeutic clinical studies, even though studies show that selected fit older women enrolled on clinical trials derive similar benefits as younger women. Very few studies have focused on the distribution and biological behavior of different molecular subtypes of breast cancer in older women making it difficult to conclude whether old age adds extra biological complexity. A comprehensive geriatric assessment that includes a multidimensional process designed to assess
functional ability, physical health, cognitive and mental health, social issues and environmental situation of elderly person should be an integral part of individualized care for older patients with breast cancer. However, incorporation of this tool into standard oncology practice is very slow despite the expected steep increase in older individuals with cancer projected over the next 25 years. All of the factors mentioned above hinder progress in delivering individualized care to older patients with breast cancer. This article provides an overview on progress and challenges of individualized and personalized health care in older women with breast cancer.

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Oncoplastic Surgery and Radiation Therapy for Breast Conservation: Early Outcomes.

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PURPOSE:: To analyze a multidisciplinary community experience with oncoplastic breast surgery (OBS) and postoperative radiation therapy (RT).

METHODS:: The records of 79 patients with localized breast cancer who underwent OBS+RT were reviewed. OBS included immediate reconstruction and contralateral mammoreduction. All patients had negative surgical margins. Whole-breast RT was delivered without boost. A subset of 44 patients agreed to complete a validated quality of life survey pre-RT, post-RT, 6 months after RT, and at final follow-up assessing cosmesis and treatment satisfaction.

RESULTS:: Sixty-seven patients (85%) were white. Median age was 62 years. Median interval between OBS and RT start was 9.6 weeks. Median RT dose was 46 Gy. Fourteen patients (18%) developed surgical toxicities before RT. Five patients (6%) developed RT toxicities. Physician rating of cosmesis post-RT was: 3% excellent, 94% good, and 4% fair. Cosmesis was rated as excellent or good by 87% of patients pre-RT, 82% post-RT, 75% at 6 months, and 88% at the final follow-up. Treatment satisfaction was rated as "total" or "somewhat" by 97% of patients pre-RT, 93% post-RT, 75% at 6 months, and 96% at final follow-up. No significant relation was found between patient or treatment-related factors and toxicity. Local control is 100% at median follow-up of 2.9 years.

CONCLUSIONS:: OBS followed by RT resulted in acceptable toxicity and favorable physician-rated cosmesis in this large community series. Patients' ratings of cosmesis and treatment satisfaction were initially high, decreasing at 6 months, returning near baseline at final follow-up.

PMCID: PMC3975701
PMID: 23799290 [PubMed - as supplied by publisher]


BACKGROUND: Little is known about the development of posttraumatic stress disorder (PTSD) over time among women diagnosed with breast cancer. This study examines changes in PTSD symptoms in the first 6 months after diagnosis and assesses racial/ethnic differences in PTSD symptomatology over time.

METHODS: We recruited women with newly diagnosed breast cancer, stages I to III, from three sites in the United States. Three telephone interviews were conducted: baseline at about 2 to 3 months after diagnosis, first follow-up at 4 months after diagnosis, and second follow-up at 6 months after diagnosis. We measured traumatic stress in each interview using the Impact of Events Scale; recorded sociodemographic, tumor, and treatment factors; and used generalized estimating equations and polytomous logistic regression modeling to examine the associations between variables of interest and PTSD.

RESULTS: Of 1139 participants, 23% reported symptoms consistent with a diagnosis of PTSD at baseline, 16.5% at first follow-up, and 12.6% at the second follow-up. Persistent PTSD was observed among 12.1% participants, as defined by having PTSD at two consecutive interviews. Among participants without PTSD at baseline, 6.6% developed PTSD at the first follow-up interview. Younger age at diagnosis, being black (odds ratio [OR] = 1.48 vs white, 95% confidence interval [CI] =1.04 to 2.10), and being Asian (OR = 1.69 vs white, 95% CI = 1.10 to 2.59) were associated with PTSD.

CONCLUSIONS: Nearly one-quarter of women newly diagnosed with breast cancer reported symptoms consistent with PTSD shortly after diagnosis, with increased risk among black and Asian women. Early identification of PTSD may present an opportunity to provide interventions to manage symptoms.

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PMID: 23434900  [PubMed - indexed for MEDLINE]

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A trend analysis of breast cancer incidence rates in the United States from 2000 to 2009 shows a recent increase.

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Recent reports have shown that the breast cancer incidence rate in the US stabilized after a sharp reduction in 2002 and 2003. It is important to continue monitoring breast cancer incidence rates according to age group, race/ethnicity, estrogen receptor (ER) status, and tumor stage. Age-standardized breast cancer incidence rates were calculated using data from the surveillance, epidemiology, and end results 18 registries from 2000 to 2009, for 677,774 female breast cancer patients aged 20 and above. Jointpoint regression models were used to fit a
series of joined straight lines on a log scale to annual age-standardized rates. The incidence rates of all breast cancer significantly increased for non-Hispanic blacks from 2005 to 2009 (annual percentage change, APC = 2.0 %, p = 0.01) and Asian/Pacific Islanders from 2000 to 2009 (APC = 1.2 %, p = 0.02). Since 2004, incidence rates in women aged 40-49 years significantly increased for most racial/ethnic groups (overall APC = 1.1 %, p = 0.001). The incidence rate of carcinoma in situ significantly increased in all racial/ethnic groups, with an APC range from 2.3 to 3.0 % (p < 0.005). The localized breast cancer incidence significantly increased in non-Hispanic blacks (APC = 1.3 %, p = 0.004) and Asians (APC = 1.2 %, p = 0.03). ER-positive breast cancer significantly increased in almost all age/race sub-groups after 2005 (APC by race: non-Hispanic whites 1.5 %, non-Hispanic blacks 4.3 %, Asian/Pacific Islanders 1.7 %, and Hispanics 1.8 %; all p values <0.05), while ER-negative breast cancer decreased in most sub-groups (APC by race: non-Hispanic whites-3.9 %, non-Hispanic blacks-3.7 %, Asian/Pacific Islanders-1.5 %, and Hispanics-4.3 %; all p values <0.05). Recently the incidence of breast cancer appears to be increasing in certain subgroups, including ER-positive, early-stage breast cancers, in particular among non-Hispanic blacks and Asian/Pacific Islanders. Further studies are warranted to examine possible reasons for these changes, such as changes in mammography screening methods and risk factors prevalence.

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MR-guided high-intensity focused ultrasound ablation of breast cancer with a dedicated breast platform.

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Optimizing the treatment of breast cancer remains a major topic of interest. In current clinical practice, breast-conserving therapy is the standard of care for patients with localized breast cancer. Technological developments have fueled interest in less invasive breast cancer treatment. Magnetic resonance-guided high-intensity focused ultrasound (MR-HIFU) is a completely noninvasive ablation technique. Focused beams of ultrasound are used for ablation of the target lesion without disrupting the skin and subcutaneous tissues in the beam path. MRI is an excellent imaging method for tumor targeting, treatment monitoring, and evaluation of treatment results. The combination of HIFU and MR imaging offers an opportunity for image-guided ablation of breast cancer. Previous studies of MR-HIFU in breast cancer patients reported a limited efficacy, which hampered the clinical translation of this technique. These prior studies were performed without an MR-HIFU system specifically developed for breast cancer treatment. In this article, a novel and dedicated MR-HIFU breast platform is presented. This system has been designed for safe and effective MR-HIFU ablation of breast cancer. Furthermore, both clinical and technical challenges are discussed, which have to be solved before MR-HIFU ablation of breast cancer can be implemented in routine clinical practice.

PMID: 23232856  [PubMed - indexed for MEDLINE]
Radiation therapy following surgery for localized breast cancer: outcome prediction by classical prognostic factors and approximated genetic subtypes.


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The purpose of this study was to evaluate the outcome prediction power of classical prognostic factors along with surrogate approximation of genetic signatures (AGS) subtypes in patients affected by localized breast cancer (BC) and treated with postoperative radiotherapy. We retrospectively analyzed 468 consecutive female patients affected by localized BC with complete immunohistochemical and pathological information available. All patients underwent surgery plus radiotherapy. Median follow-up was 59 months (range, 6-132) from the diagnosis. Disease recurrences (DR), local and/or distant, and contralateral breast cancer (CBC) were registered and analyzed in relation to subtypes (luminal A, luminal B, HER-2, and basal), and classical prognostic factors (PFs), namely age, nodal status (N), tumor classification (T), grading (G), estrogen receptors (ER), progesterone receptors and erb-B2 status. Bootstrap technique for variable selection and bootstrap resampling to test selection stability were used. Regarding AGS subtypes, HER-2 and basal were more likely to recur than luminal A and B subtypes, while patients in the basal group were more likely to have CBC. However, considering PFs along with AGS subtypes, the optimal multivariable predictive model for DR consisted of age, T, N, G and ER. A single-variable model including basal subtype resulted again as the optimal predictive model for CBC. In patients bearing localized BC the combination of classical clinical variables age, T, N, G and ER was still confirmed to be the best predictor of DR, while the basal subtype was demonstrated to be significantly and exclusively correlated with CBC.

PMCID: PMC3589925
PMID: 23019151 [PubMed - indexed for MEDLINE]

Six-year experience routinely using moderate deep inspiration breath-hold for the reduction of cardiac dose in left-sided breast irradiation for patients with early-stage or locally advanced breast cancer.

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PURPOSE: Moderate deep inspiration breath-hold (mDIBH), using an Active Breathing
Control device, has been used in our clinic since 2002 to reduce cardiac dose for patients receiving left-sided breast irradiation. We report our routine use of the mDIBH technique in clinically localized breast cancer, treated to the intact breast, reconstructed breast, or chest wall.

MATERIALS AND METHODS: Ninety-nine patients with left-sided breast cancer were evaluated for Active Breathing Control treatment, of which, 87 patients were treated with mDIBH. Plans for both the free-breathing (FB) and mDIBH computed tomography scans were evaluated. Dose-volume histograms (DVHs) were analyzed for the heart and ipsilateral lung, comparing results for mDIBH versus FB plans.

RESULTS: Eighty-seven patients were included for analysis. Of those, 66% received adjuvant chemotherapy with cardiotoxic agents. The mean dose for the whole breast was 47.6 Gy. There was a statistically significant decrease in all DVH parameters evaluated, favoring the delivery of mDIBH over FB plans. mDIBH plans significantly reduced cardiac mean dose (4.23 vs. 2.54 Gy; P<0.001), a relative reduction of 40%. In addition, there were significant reductions in all other heart parameters evaluated (ie, volume of heart treated, V30, V25, V20, V15, V10, and V5). mDIBH also significantly reduced lung dose, including a reduction of the left lung mean dose (9.08 vs. 7.86 Gy; P<0.001), a relative reduction of 13%, as well as significant reduction of all lung DVH parameters evaluated.

CONCLUSIONS: To date, this series represents the largest experience utilizing mDIBH to reduce cardiac irradiation during left-sided breast cancer treatment. Statistically significant reductions in all heart and lung DVH parameters were achieved with mDIBH over FB plans. mDIBH, for the treatment of left-sided breast cancer, is a proven technique for reducing cardiac dose that may lead to reduced cardiotoxicity and can be routinely integrated into the clinic.

PMCID: PMC3375337
PMID: 22270108  [PubMed - indexed for MEDLINE]


Mitotic counts in breast cancer after neoadjuvant systemic chemotherapy and development of metastatic disease.

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Although pathologic complete response after neoadjuvant systemic chemotherapy (NST) is associated with an excellent prognosis, the prognosis for patients with residual disease is variable. The mitotic count (MC) is commonly used in the evaluation of histologic tumor grade, but its prognostic value relative to other factors when determined after NST has not been studied. We evaluated MC in the residual tumor after NST in order to determine whether it provided prognostic information independent of other factors, including the residual cancer burden (RCB). We retrospectively reviewed pathologic specimens from 80 patients with localized breast cancer who received standard NST, of whom 61 had residual disease evaluable for MC analysis and RCB score. The exact number of mitotic figures was counted in 10 high power (40×) fields (hpf). We classified tumors as having high (≥13 per 10 hpf) and low (<13 per 10 hpf) MC because this threshold fell at the midpoint for an intermediate MC score in the Nottingham combined histologic grade. Distant metastases developed in 2 of 32 (6.3 %) patients with a low MC compared with 18 of 29 (62.1 %) with a high MC (log-rank test, p < 0.001).
When adjusted for other covariates, including age, estrogen receptor, HER2/neu expressions, and RCB score, a high MC was associated with a significantly higher risk of developing distant metastases (hazard ratio 11.21, 95 % CI [2.19, 57.37]; p = 0.004). Our findings indicated that evaluation of MC after NST warrants validation and further evaluation as a prognostic marker in breast cancer.

PMID: 23417359  [PubMed - indexed for MEDLINE]


Noninitiation of adjuvant chemotherapy in women with localized breast cancer: the breast cancer quality of care study.

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PURPOSE: For some women, adjuvant chemotherapy for nonmetastatic breast cancer decreases recurrences and increases survival; however, patient-physician decisions regarding chemotherapy receipt can be influenced by medical and nonmedical factors.

PATIENTS AND METHODS: We used a prospective cohort design and multivariate modeling to investigate factors related to noninitiation of chemotherapy among women with newly diagnosed breast cancer recruited from three US sites. We interviewed patients at baseline and during treatment on sociodemographic, tumor, and treatment decision-making factors. Patients were categorized according to National Comprehensive Cancer Network guidelines as those for whom chemotherapy was definitely indicated, clinically discretionary, or discretionary based on age greater than 70 years.

RESULTS: Of 1,145 patients recruited, chemotherapy was clinically indicated for 392 patients, clinically discretionary for 459 patients, discretionary because of age for 169 patients, and not indicated for 93 patients; data were insufficient for 32 patients. Chemotherapy rates were 90% for those in whom chemotherapy was clinically indicated, 36% for those in whom it was discretionary because of clinical factors, and 19% for those in whom it was discretionary based on age greater than 70 years. Nonreceipt of chemotherapy was associated with older age, more negative beliefs about treatment efficacy, less positive beliefs about chemotherapy, and more concern about adverse effects. In the two discretionary groups, clinical predictors of worse outcome (greater tumor size, positive nodes, worse grade, and estrogen receptor- and progesterone receptor-negative status) were associated with increased chemotherapy initiation.

CONCLUSION: Utilization of adjuvant chemotherapy was most common among patients who, based on clinical criteria, would most likely benefit from it, patients with more positive than negative beliefs regarding treatment efficacy, and patients with few concerns about adverse effects.

PMCID: PMC3478575  PMID: 23008305  [PubMed - indexed for MEDLINE]

FOXP3 expression in cancer cells and anthracyclines efficacy in patients with primary breast cancer treated with adjuvant chemotherapy in the phase III UNICANCER-PACS 01 trial.


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BACKGROUND: Predictive markers of response to chemotherapy are lacking in breast cancer patients. Forkhead Box Protein 3 (FOXP3) is an anti-oncogene whose absence in cancer cells could confer resistance to DNA damaging agent. So we made the hypothesis that FOXP3 expression predicts the response to anthracyclines in breast cancer patients and that adjuvant chemotherapy adding taxanes to anthracyclines confers an overall survival (OS) benefit over anthracyclines alone, in patients with FOXP3-negative tumors.

PATIENTS AND METHODS: Expression of FOXP3 in cancer cells was evaluated by immunohistochemistry in tumor samples from 1097 patients who participated in the PACS01 randomized trial that evaluated in adjuvant setting the adjunction of docetaxel (Taxotere) to anthracyclines in patients with localized breast cancer. Kaplan-Meier analysis and Cox regression model were used to assess OS according to the presence or absence of FOXP3 expression in tumor cells.

RESULTS: Four hundred and five tumors were found to express FOXP3 (37%). FOXP3 expression in breast cancer cells was associated with better OS (P = 0.003). Uni- and multivariate survival analyses according to treatment arm revealed that FOXP3 expression in breast cancer cells is independently associated with improved OS in patients treated with anthracycline-based adjuvant chemotherapy, but not in patients treated with sequential anthracycline-taxane. Moreover, in vitro experiments showed that FOXP3 induction in breast cancer cell lines using histone deacetylase inhibitor enhances anthracyclines efficacy.

CONCLUSION: FOXP3 expression in tumor cells may be an accurate predictive biomarker of anthracycline efficacy in breast cancer.

PMID: 22431701  [PubMed - indexed for MEDLINE]


Irradiation in early-stage breast cancer: conventional whole-breast, accelerated partial-breast, and accelerated whole-breast strategies compared.

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Comment in

Whole-breast irradiation (WBI) following breast-conserving surgery (BCS) has been used for several decades as an alternative to mastectomy in the treatment of localized breast cancer, and it has been shown to decrease rates of local-regional recurrence and improve survival rates compared with BCS alone. WBI
is delivered using high-energy external beam radiation and typically consists of approximately 5 weeks of daily treatments to the entire breast, with or without inclusion of a "boost" to the primary site. Accelerated partial-breast irradiation (APBI) and accelerated whole-breast irradiation (AWBI) have been developed as alternatives to conventional WBI for selected patients with early-stage breast cancer. Given its large size and long follow-up, the Canadian trial of AWBI has been widely considered as practice-changing, and additional studies of AWBI are maturing or newly-launched. Use of APBI is based on the observation that the majority of local recurrences occur near the primary tumor site. Because a smaller portion of the breast is irradiated, treatment courses can often be abbreviated, and techniques such as conformal external beam, catheter- or balloon-based brachytherapy, and intra-operative radiation have been developed. Data from early APBI randomized trials and retrospective studies report mixed results. However, given the protracted time to local recurrence and complications following breast-conserving therapy, definitive results from contemporary randomized clinical trials comparing conventional WBI against AWBI or APBI are still limited.

PMID: 23061336  [PubMed - indexed for MEDLINE]


Trends of population-based breast cancer survival in Germany and the US: decreasing discrepancies, but persistent survival gap of elderly patients in Germany.

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BACKGROUND: Studies have revealed both higher cancer survival in the US than in Germany and substantial improvement of cancer survival in the past in these countries. This population-based study aims at comparing most recent 5-year relative survival of breast cancer patients and preceding trends in both countries.

METHODS: Women with a first invasive breast cancer diagnosed and followed up between 1988 and 2008 from Germany and the US (utilizing data from the Saarland Cancer Registry and the Surveillance, Epidemiology, and End Results Program, respectively) were included. Period analysis was used to derive most up-to-date 5-year relative survival and preceding survival trends according to age and stage.

RESULTS: Since 1993, age standardized relative survival has steadily improved in Germany and the US to 83% and 88%, respectively. In the period 2005-08, relative survival of localized cancer was above 97% in both countries, and 79% and 83% for locally/regionally spread breast cancer, respectively. Prognosis of metastasized disease has remained very poor overall, with improvement essentially being restricted to younger patients. The proportion of patients diagnosed with localized breast cancer was consistently higher in the US. If adjusted for stage, the differences in relative survival between both countries diminished over time and eventually disappeared.

CONCLUSIONS: Similar survival is now observed in both countries for patients below the age of 70 years, but in Germany survival is still much lower for elderly patients. The observed trends point to treatment advances as a major
cause for improved survival. However, substantial differences in mammography usage existed between both countries and might probably also account for the observed differences (to a lesser extent, also differences in health care systems, and delivery of cancer care). Encouraging, survival of breast cancer patients has improved in Germany to a much greater extent than in the US, albeit the persisting survival gap for elderly patients in Germany requires particular attention by researchers, public health authorities, and clinicians.

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Long-term survival of older breast cancer patients: population-based estimates over three decades.

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Significant progress has been made in the treatment of breast cancer. However, treatment effect on survival in older patients, particularly the "oldest old" (85+ years), with breast cancer is not clear. Data from the Surveillance, Epidemiology, and End Results databases were used to determine relative survival of older patients with breast cancer for up to 9 years following diagnosis. We compared trends in survival and stage distribution in the years 1977-1986, 1987-1996, and 1997-2006 in patients from 65 to 74, 75 to 84, and 85+ years of age. Between 1977-1986 and 1997-2006, 1 year survival increased from 94.9 to 97.9 %, 93.6 to 96.7 %, and 88.5 to 93.5 % in the 65-74, 75-84, and 85+ age groups, respectively. Survival gains increased with each year in all three age groups with the largest improvement seen at 9 years of follow-up. Although the "oldest old" had the lowest survival rates, improvement in survival was greatest in this age group with greater than 20 % increase in survival at 9 years. There was an increased diagnosis of localized breast cancer and decrease in regional disease in all age groups over the three decades. In conclusion, relative survival for older patients has increased considerably in the interval between 1977 and 2006, with the largest improvement seen in those 85 years and older. These results likely indicate that the benefit from advances in therapy and supportive care also extends to older patients with breast cancer, including the 'oldest old', but the impact of early diagnosis on survival requires further clarification.

PMID: 22710707 [PubMed - indexed for MEDLINE]


The effect of aprepitant and race on the pharmacokinetics of cyclophosphamide in breast cancer patients.


Author information:
 PURPOSE: The prodrug cyclophosphamide is metabolized by cytochrome P450(CYP)2B6 to the active metabolite, 4-hydroxycyclophosphamide (4-OH), and by CYP3A4/5 to toxic chloracetaldehyde and 2-dechloroethylcyclophosphamide (DCE). Since aprepitant is a moderate inhibitor of CYP3A4, the study was designed to determine whether its concurrent use alters the pharmacokinetics (PK) of cyclophosphamide. In addition, we sought to determine the effect of race and pharmacogenomics on cyclophosphamide PK.

 METHODS: Eighteen patients with localized breast cancer were randomized in this double-blinded cross-over study to receive aprepitant or placebo in addition to cyclophosphamide 600 mg/m(2) and doxorubicin 60 mg/m(2). Blood samples were collected for both PK analysis of cyclophosphamide and metabolites and pharmacogenomic analysis. Single nucleotide polymorphisms genotyped were CYP3A4*1B, CYP3A5*3, and CYP2B6*6.

 RESULTS: The geometric mean area under concentration-time curve (AUC(0-t) μg/mL h) for cyclophosphamide was 282 following aprepitant and 230 following placebo (ratio 1.23; 90% CI 1.13, 1.33). 4-OH AUC(0-t) (μg/mL h) was 6.80 following aprepitant and 6.96 following placebo (ratio 0.98; 90% CI 0.88, 1.08). DCE AUC(0-t) (μg/mL h) was 6.76 following aprepitant and 9.37 following placebo (ratio 0.72; 90% CI 0.64, 0.81). Genotype analysis was confounded by race. Race was a significant predictor of DCE lnAUC(0-t) (P = 0.0169) as African Americans had approximately a 2-fold higher DCE AUC than Caucasians.

 CONCLUSIONS: Aprepitant altered the exposure of cyclophosphamide and DCE but not the active 4-OH metabolite, making it unlikely that aprepitant would change the clinical efficacy of cyclophosphamide. African Americans were also found to have altered PK compared with Caucasian patients.

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than were non-Latina whites (P < .0001). Baseline job type and receipt of axillary node dissection were associated with employment status among Latinas but not non-Latina whites.

CONCLUSIONS: Neither low-income Latinas nor non-Latina whites approached the 80% rate of return to work seen in wealthier white populations. Latinas followed a protracted return-to-work trajectory compared to non-Latina whites, and differences in job type appear to have played an important role. Manual laborers may be disproportionately impacted by surgical procedures that limit physical activity. This can inform the development of rehabilitative interventions and may have important implications for the surgical and postsurgical management of patients.

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Chemotherapy-induced ovarian failure as a prototype for acute vascular toxicity.

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BACKGROUND: Chemotherapy-related amenorrhea is a frequent side effect observed in young breast cancer patients. Studies in mice revealed that chemotherapy-induced gonadal toxicity may result from vascular damage. We prospectively evaluated ovarian blood flow and function in young breast cancer patients following chemotherapy.

METHODS: Young female patients with localized breast cancer undergoing adjuvant or neoadjuvant anthracycline- or taxane-based chemotherapy were evaluated using transvaginal ultrasound prior to initiation of and immediately after cessation of chemotherapy. Doppler-flow velocity indices of the ovarian vasculature—resistance index (RI), pulsatility index (PI)—and size measurements were visualized. Hormonal profiles, anti-Müllerian hormone (AMH) levels, and menopausal symptoms were assessed at the same time points.

RESULTS: Twenty breast cancer patients were enrolled in the study. The median age was 34 ± 5.24 years. Ovarian blood flow was significantly reduced shortly following chemotherapy: RI decreased by 52.5% and PI decreased by 24.2%. The mean ovarian size declined by 19.08%. Patients who were treated with sequential chemotherapy experienced further reductions in ovarian blood flow and ovarian size after the second sequence. AMH levels dropped dramatically in all patients following treatment. Hormonal profiles after treatment depicted a postmenopausal profile for most patients, accompanied by related symptoms.

CONCLUSIONS: Our results may imply a mechanism of chemotherapy-induced ovarian toxicity manifested by decreased ovarian blood flow accompanied by a reduction in ovarian size and diminished post-treatment AMH levels. Based upon our former preclinical studies, we assume that this may derive from an acute insult to the ovarian vasculature and may represent an initial event triggering a generalized phenomenon of end-organ toxicity.
A new mouse model for the study of human breast cancer metastasis.

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Breast cancer is the most common cancer in women, and this prevalence has a major impact on health worldwide. Localized breast cancer has an excellent prognosis, with a 5-year relative survival rate of 85%. However, the survival rate drops to only 23% for women with distant metastases. To date, the study of breast cancer metastasis has been hampered by a lack of reliable metastatic models. Here we describe a novel in vivo model using human breast cancer xenografts in NOD scid gamma (NSG) mice; in this model human breast cancer cells reliably metastasize to distant organs from primary tumors grown within the mammary fat pad. This model enables the study of the entire metastatic process from the proper anatomic site, providing an important new approach to examine the mechanisms underlying breast cancer metastasis. We used this model to identify gene expression changes that occur at metastatic sites relative to the primary mammary fat pad tumor. By comparing multiple metastatic sites and independent cell lines, we have identified several gene expression changes that may be important for tumor growth at distant sites.

HER2 evaluation and its impact on breast cancer treatment decisions.

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BACKGROUND: Eighteen to twenty percent of breast cancer tumors show abnormal amplification of the Human Epidermal growth factor Receptor 2 (HER2) gene and increased expression of the associated protein. HER2 amplification is associated with rapid tumor proliferation and shorter disease-free and overall survival. Because women with HER2 amplification are more likely to benefit from treatment with the drug trastuzumab, testing for HER2 is recommended to guide therapy. However, little is known about use of HER2 testing in real-world settings. This study examined uptake, use, appropriateness of HER2 testing, and the relationship between HER2 test results and treatment decisions.
METHODS: We assessed electronic data from 3,634 patients with invasive breast cancer diagnosed from 1998 to 2007 in a large integrated health system. We collected data on patient and tumor characteristics, HER2 testing status, test results, and trastuzumab treatment.

RESULTS: From 1998 to 2000, the percent of patients who underwent HER2 evaluation increased from 12 to 94%; <3% of women with ductal carcinoma in situ, for whom HER2 testing is not recommended, were tested. Trastuzumab use increased 5-fold after 2004, when guidelines expanded to include recommending adjuvant treatment for early-stage breast cancer in addition to metastatic treatment. Ninety-five percent of women receiving trastuzumab had a positive HER2 result. After 2004, 55% of women with invasive breast cancer and overexpression of HER2 received trastuzumab treatment; this ranged from 44% of women with localized breast cancer to 80% of women with distant metastatic disease.

CONCLUSIONS: These findings illustrate appropriate and effective implementation of a HER2 testing strategy in a managed care setting.

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One-year longitudinal study of fatigue, cognitive functions, and quality of life after adjuvant radiotherapy for breast cancer.


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PURPOSE: Most patients with localized breast cancer (LBC) who take adjuvant chemotherapy (CT) complain of fatigue and a decrease in quality of life during or after radiotherapy (RT). The aim of this longitudinal study was to compare the impact of RT alone with that occurring after previous CT on quality of life.

METHODS AND MATERIALS: Fatigue (the main endpoint) and cognitive impairment were assessed in 161 CT-RT and 141 RT patients during RT and 1 year later. Fatigue was assessed with Functional Assessment of Cancer Therapy-General questionnaires, including breast and fatigue modules.

RESULTS: At baseline, 60% of the CT-RT patients expressed fatigue vs. 33% of the RT patients (p <0.001). Corresponding values at the end of RT were statistically similar (61% and 53%), and fatigue was still reported at 1 year by more than 40% of patients in both groups. Risk factors for long-term fatigue included depression (odds ratio [OR] = 6), which was less frequent in the RT group at baseline (16% vs. 28 %, respectively, p = 0.01) but reached a similar value at the end of RT (25% in both groups). Initial mild cognitive impairments were reported by RT (34 %) patients and CT-RT (24 %) patients and were persistent at 1 year for half of them. No biological disorders were associated with fatigue or cognitive impairment.

CONCLUSIONS: Fatigue was the main symptom in LBC patients treated with RT, whether they received CT previously or not. The correlation of persistent fatigue with initial depressive status favors administering medical and psychological programs for LBC patients treated with CT and/or RT, to identify and manage this main quality-of-life-related symptom.

Estimating Decision-Relevant Comparative Effects Using Instrumental Variables.

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Instrumental variables methods (IV) are widely used in the health economics literature to adjust for hidden selection biases in observational studies when estimating treatment effects. Less attention has been paid in the applied literature to the proper use of IVs if treatment effects are heterogeneous across subjects. Such a heterogeneity in effects becomes an issue for IV estimators when individuals' self-selected choices of treatments are correlated with expected idiosyncratic gains or losses from treatments. We present an overview of the challenges that arise with IV estimators in the presence of effect heterogeneity and self-selection and compare conventional IV analysis with alternative approaches that use IVs to directly address these challenges. Using a Medicare sample of clinically localized breast cancer patients, we study the impact of breast-conserving surgery and radiation with mastectomy on 3-year survival rates. Our results reveal the traditional IV results may have masked important heterogeneity in treatment effects. In the context of these results, we discuss the advantages and limitations of conventional and alternative IV methods in estimating mean treatment-effect parameters, the role of heterogeneity in comparative effectiveness research and the implications for diffusion of technology.

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PMID: 22010051  [PubMed]


MRI-guided ablation of breast cancer: where do we stand today?

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The treatment of patients with localized breast cancer has changed considerably over the past few decades. The next challenge is to use image-guided minimally invasive tumor ablation techniques. The fact that MRI is the most accurate imaging modality for visualization and delineation of breast tumor margins in three dimensions and provides MRI-based temperature mapping, makes it particularly applicable for monitoring during minimally invasive ablation techniques. The overall result of the studies performed on MRI-guided minimally invasive tumor ablation studies are varying, with reported total tumor ablation
rates ranging between 20% and 100%. Strict selection of patients, consensus on the treatment zone margin and optimization of MR-imaging, should make MRI-guided breast cancer tumor ablation a useful tool in clinical practice.

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Genomic testing and therapies for breast cancer in clinical practice.

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OBJECTIVE: Given the likely proliferation of targeted testing and treatment strategies for cancer, a better understanding of the utilization patterns of human epidermal growth factor receptor 2 (HER2) testing and trastuzumab and newer gene expression profiling (GEP) for risk stratification and chemotherapy decision making are important.

STUDY DESIGN: Cross-sectional.

METHODS: We performed a medical record review of women aged 35 to 65 years diagnosed between 2006 and 2007 with invasive localized breast cancer, identified using claims from a large national health plan (N = 775).

RESULTS: Almost all women received HER2 testing (96.9%), and 24.9% of women with an accepted indication received GEP. Unexplained socioeconomic differences in GEP use were apparent after adjusting for age and clinical characteristics; specifically, GEP use increased with income. For example, those in the lowest income category (<$40,000) were less likely than those with an income of $125,000 or more to receive GEP (odds ratio, 0.34; 95% confidence interval, 0.16 to 0.73). A majority of women (57.7%) with HER2-positive disease received trastuzumab; among these women, differences in age and clinical characteristics were not apparent, although surprisingly, those in the lowest income category were more likely than those in the high-income category to receive trastuzumab (P = .02). Among women who did not have a positive HER2 test, 3.9% still received trastuzumab. Receipt of adjuvant chemotherapy increased as GEP score indicated greater risk of recurrence.

CONCLUSION: Identifying and eliminating unnecessary variation in the use of these expensive tests and treatments should be part of quality improvement and efficiency programs.

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Genomic testing and therapies for breast cancer in clinical practice.

Haas JS(1), Phillips KA, Liang SY, Hassett MJ, Keohane C, Elkin EB, Armstrong J, Toscano M.

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PURPOSE: Given the likely proliferation of targeted testing and treatment strategies for cancer, a better understanding of the utilization patterns of human epidermal growth factor receptor 2 (HER2) testing and trastuzumab and newer gene expression profiling (GEP) for risk stratification and chemotherapy decision making are important.

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CONCLUSION: Identifying and eliminating unnecessary variation in the use of these expensive tests and treatments should be part of quality improvement and efficiency programs.

FPMID: PMC3092459
FPMID: 21886507 [PubMed]

Trastuzumab and vinorelbine in early stages of HER2-positive breast cancer.
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The combination of vinorelbine and trastuzumab (VH) is highly active and well tolerated in patients with metastatic HER2+ breast cancer. We assessed the efficacy and tolerability of VH as an alternative adjuvant treatment for patients with localized breast cancer refusing or ineligible for standard adjuvant trastuzumab-based chemotherapy. Twenty-eight patients with stage I-III breast cancer were treated only with VH as preoperative or postoperative chemotherapy. Fourteen patients received VH as adjuvant treatment for pT1a-b pN0 or eR+ pT1c pN0 cancers. VH was well tolerated, the only grade 3-4 toxicity being neutropenia with 2 cases of febrile neutropenia. At a median follow-up of 39 months, no breast cancer relapses were documented; moreover, overall and disease-free survival was 96.4%. In summary, our results indicate that VH is effective and well tolerated. VH should be prospectively tested as adjuvant treatment for pN0 pT1a-b breast cancer patients for which no standard treatment is well defined.
A prospective, controlled study of the botanical compound mixture LCS101 for chemotherapy-induced hematological complications in breast cancer.


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BACKGROUND: This prospective, controlled study evaluated the safety, tolerability, and efficacy of the mixture of botanical compounds known as LCS101 in preventing chemotherapy-induced hematological toxicity in breast cancer patients.

METHODS: Female patients diagnosed with localized breast cancer were randomly allocated to receive treatment with either LCS101 or placebo capsules, in addition to conventional chemotherapy. The study intervention was initiated 2 weeks prior to the initiation of chemotherapy and continued until chemotherapy was completed, with participants receiving 2 g of LCS101 capsules thrice daily. Subjects were assessed for the development of hematological and nonhematological toxicities, as well as the tolerability and safety of the study intervention.

RESULTS: Sixty-five breast cancer patients were recruited, with 34 allocated to LCS101 and 31 allocated to placebo treatment. Patients in the treatment group developed significantly less severe (grades 2-4) anemia (p < .01) and leukopenia (p < .03) when comparing grades 0-1 with grades 2-4, with significantly less neutropenia (p < .04) when comparing grades 0-2 with grades 3-4. This effect was more significant among patients undergoing a dose-dense regimen. No statistically significant effect was found with respect to nonhematological toxicities, and side effect rates were not significantly different between the groups, with no severe or life-threatening events observed in either group.

CONCLUSION: The addition of LCS101 to anthracycline- and taxane-based chemotherapy is safe and well tolerated, and may significantly prevent some chemotherapy-induced hematological toxicities in early breast cancer patients. These results should encourage further larger and more extensive clinical trials.
American Indian/Alaska Native (AI/AN) women have the lowest cancer-screening rate of any ethnic or racial group; AI/AN women in all regions are less likely than non-Hispanic white women to be diagnosed with localized breast cancer; and those AI/AN women presenting with breast cancer have the lowest 5-year survival rate compared to other ethnic groups. This study found that cultural beliefs are more of a factor in mammography screening behavior than other barriers such as access; and that a more holistic educational intervention designed by AI/AN women prompted individual intent and actions to seek mammograms among AI/AN women >40 and to change unhealthy eating and sedentary lifestyles.

PMCID: PMC2992132
PMID: 20405355 [PubMed - indexed for MEDLINE]


Precise correlation between MRI and histopathology - exploring treatment margins for MRI-guided localized breast cancer therapy.

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BACKGROUND: Magnetic resonance imaging (MRI) is more often considered to guide, evaluate or select patients for partial breast irradiation (PBI) or minimally invasive therapy. Safe treatment margins around the MRI-visible lesion (MRI-GTV) are needed to account for surrounding subclinical occult disease.

PURPOSE: To precisely compare MRI findings with histopathology, and to obtain detailed knowledge about type, rate, quantity and distance of occult disease around the MRI-GTV.

METHODS AND MATERIALS: Patients undergoing MRI and breast-conserving therapy were prospectively included. The wide local excision specimens were subjected to detailed microscopic examination. The size of the invasive (index) tumor was compared with the MRI-GTV. The gross tumor volume (GTV) was defined as the pre-treatment visible lesion. Subclinical tumor foci were reconstructed at various distances to the MRI-GTV.

RESULTS: Sixty-two patients (64 breasts) were included. The mean size difference between MRI-GTV and the index tumor was 1.3mm. Subclinical disease occurred in 52% and 25% of the specimens at distances ≥10mm and ≥20mm, respectively, from the MRI-GTV.

CONCLUSIONS: For MRI-guided minimally invasive therapy, typical treatment margins of 10mm around the MRI-GTV may include occult disease in 52% of patients. When surgery achieves a 10mm tumor-free margin around the MRI-GTV, radiotherapy to the tumor bed may require clinical target volume margins >10mm in up to one-fourth of the patients.

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Intrinsic resistance to chemotherapy in breast cancer.
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Systemic therapy improves disease-free survival in patients with breast cancer, but does not cure patients with advanced or metastatic disease, and fails to benefit the majority of patients with localized breast cancer. Intrinsic resistance to chemotherapy is emerging as a significant cause of treatment failure and evolving research has identified several potential causes of resistance, such as drug efflux pumps, disregulation of apoptosis and cancer stem cells. Building upon preclinical models, drugs designed to reverse resistance to therapy are currently under investigation in clinical trials for the treatment of breast cancer.

Mammary fat necrosis following radiotherapy in the conservative management of localized breast cancer: does it matter?
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PURPOSE: Fat necrosis is a well-described and relatively common complication arising from post-lumpectomy irradiation of the breast, most commonly breast brachytherapy. We wish to assess the clinical significance of fat necrosis resulting from post-lumpectomy breast irradiation.
METHODS: We reviewed the literature to determine the overall incidence and significance of fat necrosis to determine whether or not fat necrosis poses a significant clinical problem.
RESULTS: Fat necrosis occurs in up to one-quarter of patients following post-lumpectomy breast irradiation. Only rarely is invasive intervention required however, it does significantly degrade the quality of all modalities of breast imaging.
CONCLUSIONS: Fat necrosis is a common complication of radiotherapy which rarely requires therapeutic intervention. However, post-therapeutic clinical imaging such as mammography, ultrasound and magnetic resonance imaging are affected which may result in additional diagnostic procedures up to and including biopsy.
BACKGROUND: Breast cancer is the first cancer in women both in incidence and mortality. The treatment of breast cancer benefited from the progress of chemotherapy and targeted therapies, but there was a parallel increase in treatment costs. Despite a relatively high incidence of many sites of cancer, so far, there is no national register for this disease in Morocco. The main goal of this paper is to estimate the total cost of chemotherapy in the early stages of breast cancer due to its frequency and the chances of patients being cured. This study provides health decision-makers with a first estimate of costs and the opportunity to achieve the optimal use of available data to estimate the needs of antimitotics and trastuzumab in Morocco.

METHOD: We start by evaluating the individual cost according to the therapeutic sub-groups, namely: 1. Patients needing chemotherapy with only anthracycline-based therapy. 2. Patients needing chemotherapy with both anthracycline and taxane but without trastuzumab. 3. Patients needing trastuzumab in addition to chemotherapy. For each sub-group, the protocol of treatment is described, and the individual costs per unit, and for the whole cycle, are evaluated. Then we estimate the number of women suffering from breast cancer on the basis of two databases available in Morocco. Finally, we calculate the total annual cost of treatment of breast cancer in Morocco.

RESULTS: The total cost of breast cancer in Morocco is given in Moroccan dirhams (MAD), the US dollar at the current exchange rate (MAD 10 = USD 1.30) and in international dollars or purchasing power parity (MAD 10 = PPP 1.95). The cost of a therapy with trastuzumab is 8.4 times the cost of a sequential chemotherapy combining anthracycline and taxane, and nearly 60 times the cost of chemotherapy based on anthracycline alone. Globally, between USD 13.3 million and USD 28.6 million need to be devoted every year by the Moroccan health authorities to treat women with localized breast cancer in keeping with international recommendations.

DISCUSSION: According to our estimation methods, the complete cost of adjuvant chemotherapy including trastuzumab will range from 1.3 to 2.4% of the global budget of the Moroccan Health Department (MAD 9.8 billion or USD 1.274 billion). Unfortunately, only one-third of the Moroccan population has healthcare insurance whereas for each patient the treatment with chemotherapy alone costs 1.15 times the annual minimum income (MAD 23,710 or USD 3,082), and treatment requiring both chemotherapy and trastuzumab costs 9.76 times the annual minimum income. For the tumour over expressing HER2Neu, we need to treat 25 women in order to save (cure) one woman: the calculated cost for one life saved is USD 663,000. The question is, is it cost-effective for an emerging country?

CONCLUSION: In this paper we aimed at evaluating the total cost of chemotherapy in the early stages of breast cancer in order to provide health decision-makers with a first estimation and a good opportunity for the optimal use of available data for the needs of antimitotics and trastuzumab in Morocco. Different protocols were considered and the individual cost of the whole treatment was given according to therapies using anthracycline alone, sequential chemotherapy...
combining anthracycline and taxane, and sequential chemotherapy with trastuzumab. According to our estimations, Moroccan health authorities need to devote between USD 13.3 million and USD 28.6 million every year in order to treat women suffering from localized breast cancer in ways consistent with international recommended standards.

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PMID: 20828417  [PubMed]


Changes in circulating tumor cell detection in patients with localized breast cancer before and after surgery.


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BACKGROUND: Few data exist on the potential role of circulating tumor cells (CTCs) in patients with operable breast cancer. If the presence of CTCs in early breast cancer could predict an increased risk for relapse, it might be an early marker for treatment efficacy and could help in deciding treatment continuation. METHODS: Thirty milliliters of peripheral blood was taken from 56 breast cancer patients before surgery and again 5 days after surgery, and the presence of CTCs was evaluated. In case of positivity of one of the perioperative samples, another sample was taken after 30 days. The presence of CTCs was assessed with the CellSearch System (Veridex, Warren, NJ).

RESULTS: One to three CTCs were found in 16 (29%) of 56 patients before surgery, in 14 (30%) of 47 patients at day 5, and in 8 (30%) of 27 at day 30. No association with pathological characteristics was found, apart a borderline significant association between presence of CTCs at baseline and vascular invasion (P = 0.07). When we looked at concordance between CTCs at baseline and after day 5 (47 patients), we found 40% discordant samples (10 negative at baseline and positive at day 5, and 9 vice versa).

CONCLUSIONS: This study provides evidence of the presence of CTCs in approximately 30% of patients with localized breast cancer both before and after surgery, with change from positive to negative and vice versa in 40% of cases. No association with the pathological variables was found, except for vascular invasion and presence of preoperative CTCs. Long-term follow-up will be required to understand the significance of these data.

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