2007

Spironolactone Ameliorates the Cardiovascular Toxicity Induced by Concomitant Trastuzumab and Thoracic Radiation Therapy

G. Yavas, E. Celik, C. Yavas, C. Elsurer, and R. Elsurer Afsar, Selcuk University, Department of Radiation Oncology, Konya, Turkey, Selcuk University, Department of Pathology, Konya, Turkey, Selcuk University, Department of Ear, Nose and Throat, Konya, Turkey, Selcuk University, Department of Nephrology, Konya, Turkey

Purpose/Objective(s): Approximately 15-25% of breast cancers (BC) express HER-2 amplification. Trastuzumab (T), a humanized anti-ErbB2 antibody, has proven to be an essential tool in the immunotherapy of BC. However ErbB2 is involved in the growth and survival pathway of adult cardiomyocytes which accounts for the T-induced cardiotoxicity. Because T is generally administered postsurgically for 12 months, patients receiving breast radiation therapy (RT) generally take it concurrently. Limited published data exist concerning the cardiotoxicity profile of concurrent RT and T. Spironolactone (S), an aldosterone receptor antagonist, is known to ameliorate the cardiac damage. The underlying mechanism seems to be the stimulation of the EGFR promoter by aldosterone-mineralocorticoid receptor, which then dose-dependently enhances the EGFR protein levels, which may be successively inhibited by S. In the current study, we aimed to evaluate the impact of S on the cardiovascular toxicity of concomitant use of thoracic RT and T.

Materials/Methods: Eighty adult female albino rats (250–300 g) were divided into eight groups: group (G) 1 was defined as control group. G2, G3, and G4 were RT, S and T groups respectively. G5, G6, G7, and G8 were RT + T, T + S, RT + S and RT + T + S groups respectively. RT was applied under general anesthesia with intraperitoneally administered 90 mg/kg ketamine hydrochloride and 10 mg/kg xylazine. A single dose of 15 Gy was applied to the mediastinum. T (6 mg/kg) was administered intraperitoneally and S (80 mg/kg) was administered by oral gavage. Rats were sacrificed at 6 hours, 21 days, and 100 days after RT and the heart and thoracic aorta samples were taken for microscopic examination. Kruskal-Wallis and Mann-Whitney U tests were used for statistical analyses.

Results: Cardiac inflammation and fibrosis scores and TGF-β expression were not significantly different within the study groups at 6th hour and 21st days of RT. By 100th days of RT the fibrosis scores and TGF-β expression in the cardiac samples were significantly different between the study groups (P values were 0.004 and 0.002 respectively). Pair-wise comparisons revealed that both the cardiac fibrosis scores and TGF-β expression levels were higher in G5 when compared to G8 (P values were 0.046 and 0.028 respectively). Moreover the TGF-β expression was higher in G5 when compared to G2 (P = 0.046). We could not demonstrate any significant differences with respect to the inflammation, fibrosis, and TGF-β expression in the thoracic aorta samples between the study groups.

Conclusion: Although S had a protective effect on cardiac tissue it had no protective effect on thoracic aorta when administered with RT + T. This finding should be clarified with further clinical studies.


2008

The Evaluation of Tolerance and Efficacy of Intraoperative Radiation Therapy (IORT) Combined With External Beam Radiation Therapy (EBRT) in Patients With Breast Cancer, After Breast-Conserving Surgery (BCT)

A. Celejewska, J. Wydmanski, W. Majewski, G. Wozniak, and Z. Kaniewska-Dorsz, Curie Memorial Cancer Center and Institute of Oncology, Gliwice, Poland, Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice, Poland, Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology Gliwice Branch, Gliwice, Poland

Purpose/Objective(s): The aim of the study was to estimate tolerance and efficiency of IORT as a boost in patients with early breast cancer in the light of 10 years of experience.

Materials/Methods: From 2003 to 2005, 122 patients with breast cancer in stage T1-2, N0-1, were treated in the Center of Oncology Maria Sklodowska-Curie Memorial Institute, Gliwice Branch in Poland. The median age was 52 years (27-78). All patients underwent BCT followed by IORT using Low-Energy X Rays and EBRT to the whole breast. The total dose from IORT was 5 Gy to 7.5 Gy and was specified 0.5 cm from the applicator surface. The total dose from EBRT was 50 Gy delivered in 25 fractions. Radiation therapy included regional lymph nodes if pathological stage was classified as N+ and occurred in 13.9% of patients. The adjuvant chemotherapy and hormonotherapy received 55.5% and 70.6% of patients, respectively. Early complications after BCT combined with IORT included: hematomata, edema, wound infection, skin fistula and skin necrosis. Late toxicity of treatment was evaluated according to RTOG/EORTC criteria. A Kaplan-Meier method was used to plot survival curves.

Results: The complications after surgery and IORT included: hematomata 15 pts (12.2%), edema 18 pts (14.7%), wound infection 5 pts (4.1%), skin fistula 6 pts (4.9%), and skin necrosis 7 pts (5.7%). Extended wound healing time occurred in 23 pts (17.7%). Late skin toxicity in Grade I developed 94 (77%) pts and Grade II was observed in 9 (7.3%) pts. Late toxicity from subcutaneous tissue in Grade I, II, and III properly developed 87 (71.3%) pts, 20 (16.2%) pts, and 1 patient (0.8%). The median follow-up was 10 years. Seven pts (5.7%) had localized recurrence, but only three (2.4%) of them were solitary. Fifteen pts (12.2%) had distant metastases. Second malignancies appeared in 17 (13.6%) pts. The 10-year LC and OS specific for breast cancer were 96% and 94%, respectively.

Conclusion: Treatment was well tolerated and may provide an alternative to other methods. The data of LC and OS are encouraging.


2009

Regional Nodal Irradiation in Breast Cancer Patients With Clinical N1 and Pathologic N0 Disease After Neoadjuvant Chemotherapy: An Analysis of the National Cancer Data Base

C.C. Vu, K. Sura, P.Y. Chen, and J.T. Dilworth, Beaumont Health System, Royal Oak, MI, Beaumont Health, Royal Oak, MI

Purpose/Objective(s): Regional nodal irradiation (RNI) in breast cancer is generally recommended for node-positive patients but avoided for node-negative patients. The role of regional nodal irradiation (RNI) in patients who are clinically node-negative but pathologically node-negative following neoadjuvant chemotherapy is unclear.

Materials/Methods: The National Cancer Data Base was used to analyze a cohort of breast cancer patients diagnosed from 2006-2012. Patients with clinical T1-3, N1, M0 disease who underwent neoadjuvant chemotherapy followed by lumpectomy or mastectomy with a negative lymph node dissection were included. All patients received radiation therapy (RT) to the whole breast or chest wall, with or without RNI. Kaplan-Meier log-rank tests and multivariate Cox proportional hazards regression with propensity score matching were used to determine factors associated with overall survival (OS). Clinical, tumor, demographic, comorbidity, and treatment factors were included in the multivariate model.

Results: A total of 3,929 patients were included in the analysis. 43% (831/1943) of lumpectomy patients received RNI in addition to whole breast RT, and 64% (1268/1986) of mastectomy patients received RNI in addition to chest wall RT. After a median follow-up was 43 months, there was no difference in 5-year OS between patients receiving RNI versus patients not receiving RNI (88.2% vs 89.7% for lumpectomy patients, P = 0.24, and 86.2% vs 86.2% for mastectomy patients, P = 0.26). Stratification by clinical or pathologic T-stage failed to identify a subset of lumpectomy or mastectomy patients who might benefit from RNI. Baseline characteristics were mostly balanced between patients receiving and not receiving nodal irradiation, although lumpectomy patients receiving regional nodal irradiation had a higher average number of lymph nodes examined (10.0 vs 8.7). On multivariate analysis using propensity score matching, RNI was not associated with improved overall survival.
2010

Correlation Between Target Motion and the Dosimetric Variance of Target and Organ at Risk during External Beam Partial Breast Irradiation Using 4-Dimensional Computed Tomography

B. Guo, J. Li, W. Wang, Y. Li, M. Xu, and J. Lu

Purpose/Objective(s): This study sought to evaluate the correlation between the respiration-induced target motion and volume variation with the dosimetric variation for target and organ at risk (OAR) during free breathing.

Materials/Methods: The 4DCT scan sets were acquired for 20 patients who underwent external-beam partial breast irradiation (EB-PBI). The volume of the tumor bed (TB) was determined based on seroma and surgical clips on the ten sets of 4DCT images. For each patient a conventional 3D conformal plan (3D-CRT) was generated based on the 4DCT end inhalation phase images, then copied and applied to the other phases.

Results: During free breathing, the median of TB centroid motion was 0.05 mm. In the superoinferior direction, the correlation between the TB motion and dosimetric parameters of the PTV and the ipsilateral normal breast was 0.95 mm, 0.90 mm, 0.75 mm and 0.80 mm in the lateral, anteroposterior, and superinferior directions, respectively. The spatial motion vector was 0.95 mm. In the superoinferior direction, the correlation between the TB motion and dosimetric parameters of the PTV and the ipsilateral normal breast revealed statistical significance ($P < 0.05$). In the motion vector, the dosimetric parameters of the ipsilateral lung all correlated well with the TB motion ($P < 0.05$). The lung volume variation and lung high dose volume all correlated reasonably well ($P < 0.05$), and a correlation also existed between heart volume variation and heart dose volume ($P < 0.05$).

Conclusion: Although respiratory motion can cause a small TB motion during free breathing, this small TB motion still results in dosimetric variation of the target with a possibility of dosimetric off-target or suboptimal dose coverage for EB-PBI. The impact of the respiratory motion on the heart dose may be limited. However, the doses received by the lung during free breathing are relatively sensitive to TB motion and thorax expansion. Therefore, using the combined volume of the tumor bed on the 10 phases of 4DCT may be more reasonable to establish 3D-CRT planning during free breathing for EB-PBI. In addition, the margin of the PTV should be added in SI direction for adequate target coverage and sparing more normal tissue, when there is no advanced technology to 4DCT simulation scan for EB-PBI patient.


2011

Adherence to the Choosing Wisely Campaign Recommendations for Radiation Treatment Duration in Breast Cancer: Analysis of Medicare Data at 12 Centers in the Southeastern United States

A.S. Wallace, K.S. Keene, C.P. Williams, B.F. Jackson, M. Pisu, E.E. Partridge, and G.B. Rocque; University of Alabama at Birmingham Medical Center, Birmingham, AL

Purpose/Objective(s): The Choosing Wisely campaign recommends avoidance of whole breast radiation as part of breast conservation therapy in women > 50 years of age with early stage invasive breast cancer without considering shorter treatment intervals. The purpose of this project is to analyze duration of radiation treatment (RT) in a cohort of Medicare patients in 5 states in the southeastern United States.

Materials/Methods: Data were for Medicare patients > 65 years of age with breast cancer diagnosis from 12 cancer community networks affiliated with an academic center in Alabama, Mississippi, Georgia, Tennessee, and Florida. Eligible patients with AJCC 7 stage 0-II breast cancer who were treated with lumpectomy and subsequent RT from Quarter 1, 2012 to Quarter 1, 2015 were identified using ICD-9 and CPT/HCPCS codes. Adherence was measured by RT treatment duration of short course (SC): $< 4$ calendar weeks versus long course (LC): $> 4$ calendar weeks.

Results: A total of 1,194 patients treated with lumpectomy were identified, 726 (60.8%) of which were treated with radiation therapy. Median age at diagnosis was 71.1 (7.9 IQR); 631 (86.9%) patients were white. The majority of patients was stage I (58.4%); 18.4% and 23.1% were Stage 0 and II, respectively. Median time from lumpectomy to start of radiation was 91.5 days (IQR 48.0 days). Chemotherapy was administered in 14.4% and 21.9% treated with SC vs LC RT respectively. Average adherence to SC at all sites was 36.4%. Average adherence by upper, middle, and lower tertile of sites was 45.9%, 30.4%, and 13% respectively. Sites in the top tertile of guideline adherence were more likely to have larger patient volumes. A trend toward increased guideline adherence per year was observed: 32.8% (2012), 35.3% (2013), and 39.7% (2014).

Conclusion: Trends demonstrate increased adherence to guidelines with progression of time, but continued variability among sites. These trends should continue to increase as long-term data from hypofractionation literature matures. Future studies would benefit from analysis of site, physician, and patient characteristics that likely influence duration of treatment. The project described was supported by Grant Number 1C1CMS331023 from the Department of Health and Human Services, Centers for Medicare and Medicaid Services. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies. The research presented here was conducted by the awardee. Findings might or might not be consistent with or confirmed by the independent evaluation contractor.


2012

A Comparison Study Between Gross Tumor Volumes Defined by Preoperative Magnetic Resonance Imaging, Postoperative Specimens, and Tumor Bed for Radiation Therapy After Breast-Conserving Surgery

A. Zhang, J. Li, W. Wang, Y. Wang, D. Mu, and Z. Chen; Shandong Cancer Hospital & Institute, Jinan, China, 2Shandong Cancer Hospital, Jinan, China, 3School of Medicine, Shandong University, Jinan, China, 4Shandong Cancer Hospital, Jinan, China

Purpose/Objective(s): Although respiratory motion can cause a small TB motion during free breathing, this small TB motion still results in dosimetric variation of the target with a possibility of dosimetric off-target or suboptimal dose coverage for EB-PBI. The impact of the respiratory motion on the heart dose may be limited. However, the doses received by the lung during free breathing are relatively sensitive to TB motion and thorax expansion. Therefore, using the combined volume of the tumor bed on the 10 phases of 4DCT may be more reasonable to establish 3D-CRT planning during free breathing for EB-PBI. In addition, the margin of the PTV should be added in SI direction for adequate target coverage and sparing more normal tissue, when there is no advanced technology to 4DCT simulation scan for EB-PBI patient.

学霸图书馆

www.xuebalib.com

本文献由“学霸图书馆-文献云下载”收集自网络，仅供学习交流使用。

学霸图书馆（www.xuebalib.com）是一个“整合众多图书馆数据库资源，提供一站式文献检索和下载服务”的24小时在线不限IP图书馆。

图书馆致力于便利、促进学习与科研，提供最强文献下载服务。

图书馆导航：

图书馆首页 文献云下载 图书馆入口 外文数据库大全 疑难文献辅助工具