guidelines, and TG-101. Cosmesis was assessed using the Harvard Breast Cosmesis Scale.

Results: Twenty patients were treated successfully. At a median follow-up of 18 months (1-78), all patients remain locally controlled (100%) and no significant adverse events have occurred. All patients continue to experience good-excellent cosmetic outcomes. At least 3 fiducials were tracked in 85% of cases. Fiducial tracking was not successful in one patient. The mean number of beams delivered was 145 (77-196). The mean treated PTV30Gy was 74 cm3 (15-142 cm3) with a mean prescription isodose line of 82% (75-86%). 99% of the PTV30Gy received the prescription dose (95-100%) with a mean maximum dose of 36 Gy (34.5-40Gy). The mean ipsilateral breast V30Gy and V15Gy were 12% (3-26%) and 30% respectively (8-58%) sparing significant amounts of normal breast tissue. Patient tolerance was excellent and acute toxicity was rarely observed. 2 patients experienced grade 1 localized dermatitis at the initial 4 week follow-up visit.

Conclusions: CyberKnife stereotactic accelerated partial breast irradiation is a suitable radiotherapy technique for the delivery of partial breast irradiation. The CK platform produces highly conformal treatments with excellent normal tissue sparing and offers improvements over existing PBI techniques. Our experience indicates that CK-SAPBI delivered in five fractions is well tolerated with excellent short term local control and breast cosmesis. Longer follow-up is needed for assessment of late toxicity and oncologic outcomes.

EP-1163

Selection of patients with left breast cancer for Deep-Inspiration Breath-Hold Radiotherapy Technique

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Purpose or Objective: The voluntary deep-inspiration breath-hold radiotherapy technique (DIBHRT) in the treatment of left breast cancer has the ability to reduce doses to heart left anterior descending coronary artery (LAD) and lung. Before introduction of DIBHRT into routine clinical practice, we conducted a prospective study to assess the extent of dosimetric benefit of this technique in order to select a group of patients for whom this technique should be routinely applied

Material and Methods: Thirty one consecutive patients qualified for whole breast irradiation (WBI) with tangential fields following breast conserving surgery for left-sided early breast cancer were included. All patients underwent breath-hold training, free-breathing (FB) and DIBH planning-CT. Separate radiotherapy treatment plans for WBI in total dose of 39.9Gy in 15 fraction were prepared based on both planning-CT. Doses like mean heart, heart V20Gy, maximum LAD, left lung V20Gy were calculated for each plan and the difference of respective values (delta) for FB and DIBH were calculated. If relative improvement of at least 20%for any evaluated dosimetric parameter were found for DIBH plan without significant worsening of other measures, this plan was selected for treatment. Daily tree-dimensional surface imaging (VisionRT) and weekly electronic portal imaging were performed. The data distribution were assessed using chi^2 test, correlations were analyzed using the Pearson test. Furthermore, receiver operating characteristic (ROC) analysis was performed.

Results: In 30 of 31 patents a reduction at least 20% in one or more evaluated parameters (i.e.mean heart, heart V20Gy, maximum LAD and left lung V20Gy in 29, 29, 26, and 7 patents respectively)was achieved. The relative worsening of left lung V20Gy was found for in 10 and cases and of maximum LAD in 2 cases. Eventually 25 patients were qualified to DIBHRT. Mean delta(Gy) were:mean heart 1.51 (range:0.06-6.45),heart V20Gy:3.0 (range:0.0-6.59),maximum LAD:18.5(range:-3.29-36.68), left lung V20Gy:1.7(range:-2.71-8.7). Correlations between delta values of mean heart, maximum LAD, heart V20Gy with length of cardiac contact distance (CCD) ($p< 0.05$, AUC>0,6) and maximum LAD, heart V20Gy with Body Mass Index (BMI)($p<0.05$;AUC>0.6) were found. ROC analysis showed that a 2.5 cm of CCD is a threshold for reduction at least 20% in one or more parameters. For BMI no specific threshold for predefined improvement of any dosimetric parameter was identified, which means that despite correlation of dosimetric cardiac benefit with higher BMI, some patients with low BMI may also have cardiac doses reduced with DIBHRT.

Conclusion: In our center we have prospectively confirmed an ability of DIBHRT for heart and LAD but not for lung-sparing. We are going to use this technique routinely for left-sided breast cancer patients with CCD above 2.5 cm

EP-1164

Outcomes of postmastectomy radiotherapy in patients with 1 to 3 positive nodes in single institute

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Purpose or Objective: Post-mastectomy radiation therapy (PMRT) is standard care for breast cancer patients with high risk for locoregional recurrence after mastectomy. The indication for PMRT in patients with 1 to 3 positive nodes has been in discussion. We reported that patients concomitantly with 1 to 3 positive nodes and extensive lymphatic invasion, who had not been treated with PMRT from 1990 to 2000, had 13.1% (12/92) of locoregional recurrence rate. Since then we have performed PMRT for patients with 1 to 3 positive nodes and extensive lymphatic invasion.
To investigate the effectiveness of PMRT for patients with 1 to 3 positive nodes and extensive lymphatic invasion.

Material and Methods: Between 2005 and 2013, 639 patients were treated with PMRT and 277 patients of those have not been without neoadjuvant chemotherapy until the lymph node dissection. Among these patients, 81 were diagnosed with 1 to 3 positive nodes pathologically, 65 were with 1 to 3 positive nodes and extensive lymphatic invasion. The 3-D conformal RT, using the partial wide tangent technique to the chest wall, internal mammary lymph nodes and supra-clavicular nodes, was applied for all patients, delivering 50 Gy in 25 fractionation over 5 weeks. In the patients with positive surgical margin, 10 Gy of electron boost to the tumor bed was added. We retrospectively reviewed and compared locoregional recurrence rates of 65 patients with 1 to 3 positive nodes and extensive lymphatic invasion treated with PMRT and that of 92 patients without PMRT.

Results: Baseline patient characteristics; the median age of these patients was 47 years old (range; 34-76). Survivals; the median duration of overall survival was 114 months (30 to 121 months), the five-year survival rate is 97%, and the median progression-free survival time after PMRT was 93 months (7.0 to 110 months). Of the 65 patients in the current analysis, 58 patients (89%) were alive and free of cancer. Initial failure patterns; the locoregional recurrence was observed in 3 patients (4.6%), classifying into 1 chest wall, 1 regional lymph node, and 1 both. All patients with locoregional recurrence were developed the distant metastases then after. As toxicity; radiation induced pneumonitis graded 1 was observed in 9 patients, nor been graded 2 or more observed. Acute radiation induced dermatitis was observed almost all patients at least grade 1, grade3 was observed in 9 patients. One patient denied continuing PMRT at dose of 46Gy, 7 months later her chest wall recurrence was observed.

Conclusion: The 4.6% of local recurrence rate of PMRT cohort registered from 2005 to 2013 was lower than 13.1% (12/92) of non-PMRT cohort registered from 1990 to 2000.

EP-1165

Impact of nodal status on clinical outcome of breast cancer patients: a monoinstitutional experience

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Purpose or Objective: The aim of our study was to determine the impact of nodal status and other prognostic factors on clinical outcome of patients with breast cancer treated with surgery and adjuvant radiotherapy.

Material and Methods: A total of 774 breast cancer patients treated between 2001 and 2013 were retrospectively analyzed. Qualitative and quantitative characteristics were summarized as frequencies and percentages, average and standard deviations. The rates of Overall Survival (OS), disease free survival (DFS), and loco-regional recurrence (LR) were calculated at 36 and 60 months with the Kaplan-Meier method. Multivariate analysis was also performed and a p value of 0.05 was considered statistically significant.

Results: We identified 774 patients treated with adjuvant RT of which 595 patients (75.4%) without nodal involvement (pN0), 118 (14.9%) pN1-3 and 61 (7.75%) with more than 3 positive lymph nodes (pN>3). In our sample, supra-clavicular region was irradiated in 62 patients (13 pN>3, 17 pN1-3, 32 pN0). Median follow-up was 36 months (range 1-144 months). There were 14 cases of LR, of which 13 in pN0 and 1 in pN1-3 patients. A total of 31 patients developed distant metastases (48.4% in pN0, 19.4% in pN1-3, 32.2% in pN>3 group). The mortality rate was of 2.8% (68.1% pN0, 18.2% pN1-3 and 13.6% pN>3). There were no statistically significant differences in terms of OS, DFS and MFS among the three treatment groups. Multivariate analysis showed that clinical outcomes were significantly correlated with margin status (p-value: 0.00), T-stage (p-value: 0.053), Her2-neu gene amplification (p-value: 0.00), Ki-67 (p-value: 0.00) and SCRT (p-value:0.00). Variables such as age, surgery, ER and PgR expression and grading, were not significant.

Conclusion: In our study we observed higher rates of events in pN0 and pN1-3 patients, but none statistically significance was demonstrated between pN0, pN1-3 and pN>3 in terms of OS, DFS and MFS. Furthermore pN0 was in this experience the bigger group and this certainly influenced statistical analysis. In breast cancer, nodal status plays a key role both in the prognostic evaluation and in the therapeutic choice, and the clinical outcome of patients pN1-3 is comparable to pN>3 patients; so in this group (pN1-3) it is also necessary the evaluation of other prognostic factors such as receptor status, Ki 67 and surgical margins. Nodal status alone seems incapable to really guide treatment choice, with particular regard to the SCRT appropriateness.

EP-1166

Management of chest wall irradiation in patients with breast reconstruction

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Purpose or Objective: The aim of this study was to evaluate treatment related complications and patient satisfaction in women with locally advanced breast cancer who received post-mastectomy radiation therapy after breast reconstruction.

Material and Methods: Between 2009 and 2014, 65 patients, median age 48 years, with locally advanced breast cancer who underwent mastectomy with breast reconstruction in the same time, received post-mastectomy radiation therapy. Two patients received excision of local recurrence, 46 patients nipple sparing mastectomy, 10 skin sparing mastectomy and 7 modified radical mastectomy. Post-mastectomy radiation therapy was delivered to the chest wall with a dose of 50 Gy in 25 fractions over 5 weeks (57 with 3Dconformal RT and 8 with tomotherapy).

Results: A patient interrupted radiation therapy to 20 Gy for severe acute toxicity with rejection of implants (delayed removal of the prosthesis). Acute dermal toxicity G2 for erythema, telangiectasia (1 patient) and edema was relieved in 26 patients, G1 toxicity in 36 patients, G0 in 2 patients and G3 in 1 patient. Two patients in systemic progression were not considered for local evaluation. At median follow-up of 35 months: 43 patients presented late toxicity G1 due to hyperpigmentation, edema, periprothetic fibrosis. 7 patients referred sense of tension or pain and not satisfaction about the final aesthetic result. Two patients presented arm lymphedema. Two patients received replacing of the implants after 36 months due to contraction, encapsulation, dislocation, swelling.

Conclusion: Radiotherapy can be safely delivered after breast reconstruction, with a low complication rate and good patient satisfaction. Further randomized studies are needed to better define the optimal management of breast reconstruction and post-mastectomy radiation therapy.

EP-1167

Radiation therapy and breast reconstruction: outcomes and complications in our experience

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Purpose or Objective: The impact of adjuvant therapy on the surgical outcomes following breast reconstruction is poorly understood. The purpose of this work is to evaluate surgical outcomes following autologous and prosthetic reconstruction in the setting of post-mastectomy radiation therapy (PMRT) and adjuvant chemotherapy. We assessed the outcome and complications of irradiated patients in our department.

Material and Methods: From May 2015 to July 2015 we analyzed acute, late toxicity and cosmetic results of 76 patients with a median age of 50 ± 10 years undergoing mastectomy with immediate recostruction with prosthesis (79.7%), autologous technique (7.2%) or expander-implant (13%) following adjuvant radiotherapy. 24 patients underwent to Nac- Sparing Mastectomy, 10 of witch with periareolar pexy. 31 patients underwent to Skin reducing Mastectomy and 5 patients to Skin Sparing Mastectomy. The radiotherapy dose was 50 Gy to chest wall and supraclavicular limphnodes when indicated with 6 MV X-ray delivered with Linac (60pt), or with tomotherapy (16pt).

Results: With a median follow-up of 25±24 months utilizing RTOG toxicity scale we observed a grade I acute toxicity in 74.6% of patients, grade II in 6% of patients while in 19.4% of patients was not observed any sign of toxicity. Late toxicity was not observed in 68.7% of patients while in 28.4% of patients a grade I late toxicity was noted. No post-operative complications was observed in 62.3% of patients while in 15.9% a capsular contracture was responsible in 20.3% of patients of explantation of prosthesis. None of patients developed post-operative skin ulcers. Cosmetic results was analyzed with Harvard Scale and was excellent in 4.5% of patients, good in 32.8%, fair in 16.4% and poor in 46.3%. The chi-test showed no correlation between early or late toxicity or cosmetics results with type of surgery (p>0.1). Univariate