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### Radiation Induced Skin Toxicity Following Hypofractionated Radiotherapy Treatment in Early Breast Cancer: Single Institution Experience

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**Background:** this study aims to assess differences in incidence of radiation-induced skin toxicity between conventional and hypofractionated radiotherapy in early breast cancer patients.

**Materials and Methods:** Between 2008 and 2009, 61 women with early breast cancer received radiotherapy, after conservation surgery in our institution. Women were randomized in two groups based on the radiotherapy regime. Group A received conventional radiotherapy with 50 Gy/25f/5w plus boost 10 Gy/5#/1w, whereas Group B received hypofractionated radiotherapy with 43.2 Gy/16#/22d plus boost 10 Gy/5#/1w. All patient underwent clinical assessment and skin toxicity was monitored and recorded before beginning of radiotherapy, during treatment (7th and 21st day), day of treatment completion, 1 month and 3 months following treatment completion. Medical photographs were taken during the above patients visits.

**Results:** our results showed no significant difference between the two groups with regards to radiation-induced skin toxicity. Incidence of skin toxicity was 16% and 18% in Group A and in Group B respectively. In more detail, 5 patients in Group A developed Gr 1 RTOG skin toxicity, from whom 2 developed Gr 2 toxicity during treatment. In Group B, 7 patients presented with Gr1 toxicity during treatment, from whom 3 developed Gr2 toxicity.

**Conclusions:** the use of hypofractionated radiotherapy causes minimal toxicity to the skin, within the acceptable limits. Therefore it consists a safe treatment option for breast cancer patients eligible for this type of treatment.

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### Regret and Quality of Life After Mastectomy: We Need to Do Better

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**Background:** Mastectomy represents a deep burden for women with breast cancer, but it is still required in approximately 20–25% of cases. Very little is known on the psychological consequences over time and quality of life (QOL) of women so treated, with or without breast reconstruction (BR).

**Materials and Methods:** 709 patients underwent mastectomy with or without BR between 2001 and 2011 at one institution. Among 468 surviving patients a 60-queries QOL questionnaire on personal issues including some EORTC QLQ C30 items was presented either by email, letter or telephone interview. Logistic and linear regression and nonparametric Wilcoxon tests were used for statistical analyses on the functioning scales.

VARIABLE (A vs. B)	A (%)	B (%)	P value
Age (<50 vs. >50)	54/62 (87)	112/266 (42)	<0.0001
Civil Status (widow vs. not)	18/75 (24)	148/253 (58)	0.0001
Income (High vs. Lower)	10/14 (71)	145/314 (46)	<0.0001
Education (College or higher vs. lower)	118/172 (69)	48/156 (31)	<0.0001
Body Mass Index (<25 vs. >25)	48/156 (31)	118/172 (69)	0.0006
Co-morbidity (0 vs. >1)	98/151 (65)	68/177 (38)	<0.0001
Tumor Stage (0–1 vs. >1)	57/112 (51)	108/216 (50)	0.8
Chemotherapy (Yes vs. No)	119/189 (63)	47/138 (34)	<0.0001
Radiotherapy (Yes vs. No)	31/83 (37)	135/244 (55)	0.005
Plastic Surgery Consult (Yes vs. No)	136/166 (82)	30/161 (19)	<0.0001

**Results:** 328 patients participated, while 140 declined invitation or were unavailable (30%). Median age was 63 years (30–93). 73% of patients had either stage I or II disease. 168/328 patients (51%) underwent immediate BR. Of the remaining patients only 7/160 (4%) proceed to delayed BR. Younger women had significantly worse Emotional Functioning (EF) and

Social Functioning (SF) ( $p < 0.001$ ), independently of tumor stage, and BR or psychological intervention improved that ( $p = 0.02$ ). SF was also worsened by chemotherapy ( $p = 0.03$ ). Cognitive Functioning (CF) was independent of age, BR, stage or adjuvant therapies. Longer time from intervention was associated with decreased SF ( $p = 0.02$ ), but not EF or CF. Body Image and Sexual Functioning improved with BR ( $p < 0.03$ ), and age of patients was a strong co-variable ( $p < 0.001$ ). Immediate BR was correlated with several variables (Table).

68/328 patients (21%) regret their decision or were disappointed with their choice regarding BR.

**Conclusions:** Younger patients with breast cancer suffer a worse impact on their EF and SF after mastectomy, both of which are improved by BR. Reconstructing the breast at the time of mastectomy has a significant impact on Body Image and Sexual Functioning. A pre-operative plastic surgeon consultation improves rate of immediate BR, while delayed reconstruction is rarely adopted. Some 20% of patients are disappointed or regret their final decision on BR. We need to improve our management in consideration of these findings.

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### Reirradiation and Hyperthermia for 36 Radiation-associated Sarcomas of the Chest Wall

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**Background:** Radiation-Associated Sarcoma (RAS) is a rare entity with a poor prognosis. As a result of a rising prevalence of breast cancer and an increasing percentage of patients treated with irradiation as part of multidisciplinary treatment, an increase of RAS of the breast or chest wall is to be expected.

**Materials and Methods:** Between 2000 and 2011, 36 patients with RAS in the thoracic region were treated in Erasmus Medical Center (21), the Academic Medical Center (10) and the Institute Verbeeten (5) with reirradiation and hyperthermia (RHT). In 11 patients this treatment was given adjutantly after resection, and in 25 for macroscopic disease.

**Results:** Median survival after diagnosis of RAS was 16 months (range 2–204). In 11 patients the RHT was performed adjutantly after macroscopic complete resection and these were not evaluable for response. Response rate in the remaining 25 patients was 76% (13 CR, 6 PR). Fourteen patients remained in local control until death (7 patients) or last follow up (8 patients) for 1.5–68 months.

**Conclusion:** In contrast to the general assumption that RAS is radio-resistant, the combination of reirradiation and hyperthermia appears to provide a high response rate and for a significant number of patients long lasting local control. This warrants further investigation.

	n	Mean tumor size at RHT (mm)	CR rate	PR rate	Local control till death or last FUP (%)	Median survival after RHT (months)
RHT	25	122	52%	24%	8/25 (32%)	7
Resection plus RHT	11	0	–	–	7/11 (64%)	10

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### Fat Necrosis Frequency and Evaluation After Oncoplastic Surgery

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**Introduction:** Four to twenty-five percent of patients treated with breast conserving surgery and radiotherapy for breast cancer develop fat necrosis. Fat necrosis after breast conserving surgery is minor complication, but one that can induce anxiety, inconvenience and concerns about cancer recurrence to the breast cancer surgeon and the patients. We wish to assess the frequency and clinical significance of fat necrosis resulting from oncoplastic BCS.

**Methods:** The authors retrospectively reviewed the overall incidence of fat necrosis and the correlation of several risk factors in 197 patients underwent oncoplastic breast conserving surgery between Jan. 2007 and Jan. 2010. Radiotherapy was performed after surgery for all patients. Identification of fat necrosis was based on physical exam, ultrasound image, mammography, or PET/CT. Statics analysis was performed to identify risk factors for fat necrosis. The following risk factors were studied; age, body

mass index, excised volume, tumor location, operation procedure, diabetes adjuvant therapy etc.

**Results:** The overall incidence of fat necrosis in this study was 23.9 percent (47 of 197). 14 of 197 patients developed palpable mass on physical examination. Ultrasonography and mammography revealed fat necrosis 45 and 9 cases of 197 patients, respectively. 5 cases of 47 patients with fat necrosis were performed MRI and showed compatible result for fat necrosis. In 16 patients with fat necrosis, histologic confirmation is performed in order to exclude recurrent malignancy. FNA was used in 12 cases, core biopsy in 3 cases and excisional biopsy in 1 case. Tumor location or operation procedure and fat necrosis have no significant association. The incidence of fat necrosis was significantly associated with age and BMI.

**Conclusions:** The incidence of fat necrosis after oncoplastic BCS is similar to BCS only. Some risk factors (age, BMI) related with the incidence of fat necrosis. In absence of surgical excision, cosmesis rarely affected. Most of patients diagnosed fat necrosis based on the breast imaging, without the need for histologic confirmation. In uncertain cases MRI seems to be helpful but if the clarifying is not completely possible, FNA or biopsy is mandatory. Management is generally expectant observation and rarely requires invasive intervention as most patients are asymptomatic.

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### Trend in a Satisfaction Test in Chemotherapy Day Clinic Patients

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**Introduction and Objectives:** In clinical practice, in a Clinical Oncology Service, the Chemotherapy Day Clinic (CDC) is a growing modality. In our hospital, an annual test by individual telephone interview has been performed to collect information about the level of patients' (pt) satisfaction and areas for improvement. Here we explain the evolution of the data obtained.

**Patients and Methods:** During the months of May 2007, 2009 and 2011; 201, 318 and 228 pt were studied respectively in the form of CDC. Sample under study were considered valid 100, 120 and 100 tests in each year, being the main cause of non interviewing those pt who did not answer after 10 phone attempts. Results are expressed as a percentage of response to the response categories for each question, and the results were grouped as a sum of percentage of different categories in order to clarify the areas of improvement. An evolutionary comparison of the various categories of data relating to Clinical Oncology Service has been carried out in order to obtain the trend and the achievement of the goals outlined in the Strategic Plan 2008–2011.

**Results:** See the table.

		2007	2009	2011	Goal	Trend
Dimension	To increase satisfaction with the treatment provided by medical staff	MS: 97% NS: 100%	MS: 98% NS: 95%	MS: 98% NS: 100%	>95%	=
Information	To increase satisfaction with information provided by sanitary staff	MS: 94% NS: 100%	MS: 88% NS: 96%	MS: 98% NS: 100%	>95%	?
Technical quality	To increase positive valuation and technical means of sanitary professionals	MS: 100% NS: 95%	MS: 100% NS: 98%	MS: 100% NS: 99%	>95%	=
Privacy	To increase positive valuation of respect of privacy of pt	100%	95%	98%	>95%	=
Clinical effectiveness	To increase positive valuation of improvement of health status	67%	72%	87%	>65%	?
Loyalty	To increase loyalty of patient with the hospital	100%	100%	100%	>95%	=
Global valuation	To increase positive valuation with hospital	97%	100%	100%	>95%	=

MS, Medical staff; NS, Nurse staff.

**Conclusion:** The satisfaction of pt of Clinical Oncology Service treated in CDC is excellent and stable between 2007 and 2011. Objectives and areas of improvement found in the interview have provided an upward trend in satisfaction of respondents, which demonstrate that it is an effective tool for the detection of requirements and the monitoring of the compliance of objectives in the Hospital Strategic Plan.

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### Anthracyclin is Associated with Higher Rates of Grad 3/4 Neutropenia Than Docetaxel When Administered in a Sequential Adjuvant Regimen

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**Background:** The addition of taxanes to anthracyclin containing adjuvant chemotherapy regimen results in improved outcome, but it is also associated with a substantial increase in neutropenia. Due to inter-individual differences in febrile neutropenia (FN) risks and because most modern adjuvant protocols contain anthracyclines, the attributable FN risk to either one of the two drugs is difficult to assess. Therefore we have compared neutropenia rates in 86 patients who received sequential anthracyclines and taxanes.

**Material and Methods:** A retrospective chart review was performed of 86 patients who had received 4 cycles Epirubicin 90 mg/m<sup>2</sup> / Cyclophosphamid 600 mg/m<sup>2</sup> (EC) followed by 4 cycles Docetaxel 100 mg/m<sup>2</sup> (Doc) given at 21 d cycles, for early-stage breast cancer at our institution between 2009–2011.

**Results:** 86 patients (median age 54 yrs, range 25–75 yrs) received a total of 660 cycles – 344 cycles EC and 316 Doc. During 366 (55%) cycles the patients received G-CSF prophylaxis with pegfilgrastim, during 166 (27%) cycles the patients received filgrastim for secondary prophylaxis or treatment and during 113 (17%) cycles there was no G-CSF used. Altogether Grade 3/4 neutropenia developed significantly more common in 111 of 344 (32%) EC cycles, than in 68 of 316 (22%) Doc cycles (p=0.0021, Fisher's exact test). The group of patients which received pegfilgrastim prophylaxis developed significantly more grade 3/4 neutropenia: in EC 32 of 169 (19%) cycles, in Doc 19 of 198 (10%) cycles (p=0.0105, Fisher's exact test). The overall incidence of FN was 0.6%, with 2 cases observed during EC (1%) and 2 cases during Doc (1%) treatment. One FN occurred in those given no G-CSF prophylaxis and 3 occurred in those given pegfilgrastim prophylaxis. Dose reduction as a consequence of neutropenia was necessary in 4 cycles during EC and 10 cycles during Doc. Altogether 11 patients weren't able to complete their planned chemotherapy. No EC cycle and 26 Doc cycles were deleted.

**Conclusions:** The use of G-CSF is associated with a low rate of grade 3/4 neutropenias and FN. Contrary to common perception, in a direct sequential comparison, in patients who have received both EC and Doc in a sequential fashion, EC leads to significantly more grade 3/4 neutropenia than Doc.

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### Prospective Assessment of Loss of Grip Strength by Baseline BMI in Breast Cancer Patients Receiving Adjuvant Aromatase Inhibitors or Tamoxifen

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**Background:** The 3<sup>rd</sup> generation aromatase inhibitors (AIs) induce or enhance musculoskeletal problems. Underlying mechanisms are probably multiple, but remain unknown. We have previously reported that loss of grip strength together with tenosynovial abnormalities are more important in AI- than in tamoxifen-users (Morales *et al.*, JCO 2008) and that musculoskeletal changes in AI-users are more pronounced in women with extremes in baseline BMI (Lintermans *et al.*, Ann Oncol 2011). We here report preliminary results from a larger population and plan to validate findings in patients from Michigan University.

**Patients and Methods:** In this prospective observational study, postmenopausal early breast cancer patients scheduled to start adjuvant hormonal therapy with any of the third generation AIs or tamoxifen were recruited. After providing informed consent, a functional assessment test of grip strength was performed with a modified sphygmomanometer. Re-evaluation was done after 3, 6 and 12 months of therapy. BMI and waist to hip ratio were assessed and a rheumatological questionnaire was completed at each visit. Power calculation indicated a sample size of 100 patients in each of the arms (AI and tamoxifen).

**Results:** Hundred twenty-nine patients on an AI and 34 patients on tamoxifen were included in this on-going study. Twenty-one patients (17%)