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POSTER

Treatment-induced early menopause in very young (age under the 35 years old) breast cancer patients

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Purpose: A retrospective study was performed to evaluate the treatment-induced early menopause in very young (age under the 35 years old) breast cancer patients.

Methods and Materials: Total 160 patients (pts) between Jan. 1992 and Dec. 2002 were available for analysis. Patients' median age was 32 years old (range, 18–34). One hundred twenty pts were practiced with mastectomy and 40 were underwent breast conservation surgery. Postoperative chemotherapy was following; 80 pts with alkylator-based regimen (CMF), 80 pts with anthracyclin-based regimen (ADR). Adjuvant radiotherapy was practiced in 57 pts. Total 77 pts received anti-estrogen therapy. Treatment-induced early menopause and present menstrual status was evaluated from hospital records and by telephone interview. Median follow-up period was 54 months (range, 29–156).

Results: Treatment-induced early menopause (M) was occurred in 36.9% (59/160); 31.3% (25/80) pts with CMF, 42.5% (34/80) pts with ADR ($p = 0.142$). M was happened after median 2nd cycle chemotherapy (range, 1st–6th cycle). Patients' M was recovered in 83.1% (49/59); 80% (20/25) with CMF, 85.3% (29/34) with ADR ($p = 0.6$). Median time to recover pts' menstruation was median 3.5 months (range, 1'–18 months) after M. Disease was recurred in 16.9% (10/59) and 17.8% (18/101) in patients with M and without M, respectively ($p = 0.89$).

Conclusion: Overall incidence of M in very young breast cancer patient was similar with reported rates. But, the incidence of recovery from M is higher than reported rates and there is no difference between CMF and ADR regimens in very young breast cancer patients.

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Impact of preoperative Magnetic Resonance Imaging on the operative management in breast carcinoma

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Background: Breast Magnetic Resonance Imaging (MRI) has been focused due to its high sensitivity in the detection of a breast carcinoma, especially in multifocal and multicentric malignancy. The authors reviewed the rate of change in operative management depends on the MRI result and assessed the diagnostic accuracy of preoperative MRI.

Materials and methods: A total of 148 patients with a primary breast carcinoma underwent preoperative MRI and surgery at our institute between January 1, 2002 and January 31, 2005. Their clinicopathological data and radiological findings were reviewed.

Results: Thirty-eight patients who were unavailable for the conventional radiological imaging (mammography, ultrasonography) were excluded. MRI detected additional lesions that had not been detected in conventional imaging modality were in 55 patients (50%). Planned surgical management was altered in 34 out of 110 patients (30.9%). Twenty-three out of 110 patients (20.9%) had a conversion of planned breast conservation to a mastectomy and there was a pathologic correlation of malignancy in the surgical specimen in 17 of those patients (73.9%). Eleven out of 110 patients underwent a wider excision or an additional, separate excisional biopsy to evaluate the area of MRI detected abnormality: only 2 out of 11 patients had a pathologic correlation. The additional lesions of 19 patients who had a pathologic verification were 12 multiple lesions and 5 more extensive and subareolar extensive lesions and 2 contralateral breast additional malignant lesions. In the 29 patients who had pathologically proven multiple breast cancer, the sensitivity of MMG, Breast USG, MRI was 17.2%, 58.6%, 89.7% and specificity of each modality was 87.7%, 71.6%, 59.2%, respectively. Breast MRI had a high sensitivity and a low specificity in detecting multiple breast carcinomas.

Conclusions: In 34 patients who had a change in surgical management due to MRI additional lesion, 19 patients had a pathologic verification and in 12 of the patients had a multiple lesion that had not been detected in conventional imaging modality. Preoperative MRI may be useful for the detection of concealed malignancies in patients who are planned for breast conservation surgery.

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Second conservative treatment for locally recurrent early breast cancer: fourteen-year results of a non-randomized comparison with mastectomy

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Aim: To report the long term results obtained in a prospective group of patients treated for local recurrence after conservative treatment of breast cancer treated by a second conservative surgery and brachytherapy or by total mastectomy.

Methods: Between 12/1990 and 04/2003, 81 patients with small size, low-risk local recurrence after conservative treatment for breast cancer were offered total mastectomy as salvage treatment. 44 of them refused mastectomy and were treated by a second lumpectomy followed by HDR brachytherapy implant to the tumor bed plus a 3 cm safety margin. Brachytherapy was given between 1 and 3 weeks after excision. Implants were done at the time of surgery in 38 cases and in the remaining 6 patients at the time of beginning treatment. The average number of implanted tubes was 8 (range 4–16) and the average volume of the reference isodose curve was 56 cc. HDR brachytherapy doses were 30 Gy in 12 fractions in 5 days. Patients treated by mastectomy had no further radiotherapy treatment.

Patients with positive oestrogen receptors were treated with tamoxifen for 2–5 years, premenopausal patients with negative receptors had chemotherapy and postmenopausal patients with negative receptors had no systemic treatment. No patient was lost for follow-up. Special attention to local, regional or distant recurrence, survival, fibrosis, late effects and cosmesis was done during the follow-up period.

Results: All patients completed treatment. During the 14-year, 1-year minimum follow-up, in the 2nd conservative group there were 8 patients who had regional (2 cases) or distant metastases (6 cases) as their first site of failure. Three of them experienced a differed local recurrence and 1 of them died from the disease. In the total mastectomy group, there were 2 local recurrences, 1 regional recurrence and 5 distant metastases as first site of failure. One patient died from the disease. Actuarial results at 14-year for 2nd conservative and total mastectomy were respectively: local control 84.2% and 71.7%; disease free survival 65.4% and 63.8%; and survival 90.7% and 88.2%. Cosmetic results were satisfactory in 89.4% treated conservatively. No patient experienced arm edema or grade 3–4 early or late complications. Between the 14 patients that were followed-up for at least 10-years, 13 of them were with their breast still in place.

Conclusions: Second conservative treatment by HDR brachytherapy was a safe and effective method of treatment for small-size, low-risk, local recurrence after local excision in conservatively treated patients. The dose of 30 Gy given in 12 fractions along 5 days at 2.5 Gy/fraction, 2–3 times every day was safe in patients previously treated. The good results achieved justifies the initiation of randomized trials exploring its use as standard treatment in selected patients with low-risk recurrent breast tumors.

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Acute skin toxicity in post-mastectomy radiation

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Background: The role of post-mastectomy radiation (PMR) remains a subject of debate. Trials have addressed for whom it is indicated and which nodal groups should be treated, but there is little data on its impact relating to acute toxicity. The goal of this study was to determine the rate of acute skin toxicity in patients receiving PMR and to evaluate which clinical and treatment-related factors are associated with severe toxicity.

Methods: This prospective cohort study opened in November 2004 and included patients referred to our center for radical PMR. Assessment was done weekly during treatment and at one, two and four weeks post-treatment. Pain and radiation dermatitis were scored using the NCI Common Toxicity Criteria scale. The factors studied were: age, comorbidities, skin type, body mass index (BMI), regimen of hormone therapy and chemotherapy and timing to radiation, radiation dose and dose/fraction, energy, inhomogeneity of isodose distribution and use of bolus (a tissue equivalent material). Univariate and multivariate logistic regression analysis were used for statistical analysis.

Results: To date, 77 patients have been assessed, with a median age of 54. 85% were stage T2 and/or node-positive. 80% received anthracyclin-based chemotherapy (all neo-adjuvant to radiation) and 40% received hormone therapy concurrently with radiation. All were treated using photons, half with 6 MV and half with 6+18 MV. All received 50 Gy in 25 fractions to the chest wall and 14% received a boost to the chest wall to 66 Gy. 90% received nodal radiation, also to 50 Gy. For 93% of patients, a 1 cm bolus was applied every day during radiation. The use of bolus

was left to the discretion of the treating physician. Overall, 39% of patients experienced grade 3–4 pain and 46% grade 3–4 dermatitis. On univariate analysis, there was a significantly increased risk of grade 3–4 dermatitis for smokers, with higher BMI and chest wall separation >20 cm. On multivariate analysis, grade 3–4 dermatitis was significantly associated with higher BMI ($p = 0.007$), smoking ($p = 0.04$) and the use of boost ($p = 0.04$).

Conclusion: Severe acute skin toxicity and pain occur in a significant number of women receiving PMR with chest wall bolus. This study continues to accrue patients and a more detailed analysis of the factors influencing skin toxicity is pending. Identification of the factors associated with severe toxicity will help in defining preventive measures.

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Isocentric shift in tangential field breast irradiation for three different breath-hold conditions and its impact on surrounding critical structures

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Background and purpose: Treatment of early breast cancer by radiotherapy after breast conservative surgery improves the local control, however improvement in treatment outcome must always be balanced with the potential risk of long-term complications such as late cardiac mortality and radiation-induced pneumonitis. The challenging parameters, which interfere in achieving the treatment outcome and complications are organ motion and setup-errors. In this study, an effort has been made to study the planned isocenter for three different breath-hold techniques and its impact on cardiac, lung and other normal structures during the treatment of tangential field radiotherapy.

Materials and methods: Twelve patients with early breast cancer who underwent conservative surgery (eight left-sided and four right-sided) were selected in this study. Prior to imaging, the patients were trained to hold their breath in deep inspiration and deep expiration. Thin Copper wires were placed along the medial and lateral field borders during the time of image acquisition, serving as guiding tools for field placement. Spiral CT scans were performed in Siemens Volume Zoom CT for all the three breathing conditions viz. Deep inspiration breath-hold (DIBH), normal breathing (NB) and Deep expiration breath-hold (DEBH). The average time for which the patients were asked to hold their breath was 18 sec. The CT image data sets were pushed to the Eclipse treatment planning through network. For each patient, simple tangential field plans were created for the three different CT data sets and DVH analysis were performed for the following structures: CTV, heart, ipsilateral lung, contralateral lung, liver and contralateral breast.

Results: The median cardiac volumes covered by the 50% CTV dose were 10.05 cc, 2.18 cc and 14.84 cc for NB, DIBH and DEBH respectively which clearly states that the cardiac dose was significantly reduced in DIBH. Similarly for ipsilateral lung, DIBH resulted in reduced dose. For right breast cancer, DIBH resulted in excellent liver sparing. The maximum 3D isocentric shift between NB and DIBH was 2cm with a median value of 1cm, which correlated with the cardiac dose.

Conclusion: Our results indicate that in carcinoma breast patients, delivering radiation in inspiration breath-hold condition can considerably reduce the dose to the surrounding normal structures, particularly heart and liver with a good correlation with isocenter shift between the three breath-hold conditions.

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Value of fine needle aspiration as a rapid diagnostic tool in a one-stop breast clinic

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Background: Breast cancer screening in the general population has been extensively studied. However, methods used in order to establish a definitive diagnosis once a breast abnormality has been described, remain highly variable. We have developed a one-stop diagnosis clinic that relies on fine-needle cytology for the immediate diagnosis of solid lesions. We therefore aimed at evaluating the value of cytology as a rapid diagnostic tool in this setting, with the expectation to be able to provide immediate diagnosis in more than 80% of such lesions, with a high reliability.

Methods: A median of 33 new patients with breast cancer abnormalities are seen during a dedicated day once a week at the one-stop breast

diagnosis clinic of our institution. A multidisciplinary team takes care of them during that day, which comprises four breast specialists (surgeon, oncologist, cytopathologist, radiologist). All decisions taken are concerted. Data regarding patients and lesions characteristics, as well as results of explorations performed are prospectively recorded. For the purpose of this study, cytological diagnoses given during the one-stop were compared to final consolidated diagnoses obtained either through surgery, complementary biopsy or further surveillance of benign lesions.

Results: During the first 12 months of the one-stop clinic, 697 fine-needle aspirations were performed for suspect solid lesions. Two thirds of them were ultrasound-guided. Median age of the patients was 56 (16–92). Median tumour size was 15 mm (2–20). Cytological diagnosis was cancer in 369 (53%), suspect in 59 (8.4%), benign in 247 (35%), and non significant in 22 (3%). Among patients with cytological diagnosis of cancer, only one appeared not to have cancer but a pseudo-tumoural adenosis (correct diagnosis 99.7%). Among patients with suspect diagnosis, 69% had cancer and 7% atypical hyperplasia. Among patients with a benign cytology, 8 had a final diagnosis of cancer (3%), as assessed rapidly because of discordance between cytologic result and clinico-radiologic features. 0% of 14 patients with Birad ACR2, 3.2% of 152 with ACR3, 43% of 171 with ACR4 and 97% of 353 with ACR5 lesions were cancers. The negative predictive value of cytology was 96.3%, while the positive predictive value was 99.7%. An exact definitive diagnosis could be given within the same day in 87% of the patients.

Conclusion: Fine needle aspiration appears as a very efficient diagnostic tool for use in one-stop breast clinic.

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The prognostic value of lymph node micrometastasis in patients with breast cancer

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Background: Since the introduction of the Sentinel Lymph Node (SLN) biopsy for management of breast carcinoma, lymphogenic micrometastases are diagnosed in 15–20% of the patients. These small amounts of tumour in the affected lymph node create confusion due to their unclear prognostic meaning. Is the prognosis comparable to patients with N1 disease and are micrometastasis thus an indication for adjuvant systemic therapy or should patients with micrometastatic tumour deposits be considered as N0-patients?

Method: Between 24–06–1999 and 12–09–2003 300 consecutive patients with a cT1/2 N0 breast carcinoma underwent surgery. The presence of lymphogenic node metastasis in the SLN was determined by H&E and immunohistochemistry staining following serial sectioning on the sentinel node with 250 micrometer intervals. Based on the presence of tumour in the SLN patients were divided in to three groups: N0: no metastasis ($n = 167$), N1micro: 1 micrometastasis <2 mm ($n = 50$) en N1: metastasis >2 mm ($n = 83$). The median follow-up was 3 years.

Results: At the end of follow-up 16 patients had died and 26 had developed breast cancer recurrence: distant metastasis ($n = 20$), a contralateral breast carcinoma ($n = 3$) and locoregional relapse ($n = 6$). The cumulative 1- and 3-years disease free survival was 97%, and 93% respectively. The 1- and 3-years disease free survival was 99% and 95% in patients with N0 disease, 100%, and 97% in the N1micro group and 91% and 86% for patients with macrometastasis ($p = 0.008$).

Conclusion: After a limited follow up, it appears that disease free survival for patients with micrometastasis is comparable to patients without lymphogenic metastasis and consequently more favourable than patients with macrometastasis. The presence of micrometastatic disease in the SLN is in itself no indication for adjuvant systemic therapy.

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Outcome of early breast cancer (EBC) after conservative surgery and radiotherapy: a multicenter, observational study on 1176 patients treated in Lombardy (Italy) in 1997

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Background: A survey performed in 1996 showed that clinical practices concerning radiotherapy for EBC varied significantly across Lombardy.