

report the second phase of a study exploring two alternate schedules of accelerated E-CMF having previously reported the first phase [Rea ASCO 2007].

**Methods:** A non-randomised, multicenter trial to explore the feasibility and tolerability of accelerated E-CMF chemotherapy for women with EBC. The primary endpoint being delivered dose intensity (DDI). The accrual target was 40 patients (pts). Pts were treated with 4 cycles E (100 mg/m<sup>2</sup>) q 14d, with Pegfilgrastim (PF) (6 mg sc) d2, followed by 6 cycles of cyclophosphamide, methotrexate, and 5-fluorouracil (800/50/600 mg/m<sup>2</sup>) administered intravenously d1, with PF d2, q 14d. This schedule is designed to achieve similar DDI to the d1&8 accelerated q 21d CMF regimen previously reported.

**Results:** 41 pts were enrolled. Complete dose information from 36 pts and toxicity data from 360 cycles (41 pts) has been analysed. Median DDI was 98.8% of target. Delays of >2d were recorded for 5% of cycles. Dose reductions were recorded in 8% of cycles. Percentage grade 2 and 3/4 toxicity reported per cycle were respectively: all infections 4/2; bone pain 9/3; constipation 10/1; diarrhoea 1/2; dyspnoea 19/1; emesis 17/2; fatigue 32/6; febrile neutropenia not applicable (na)/1; mucositis 9/1; and phlebitis 7/na. Hospitalisation occurred in 6% of cycles.

**Conclusions:** Accelerated E-CMF with PF is feasible achieving high DDI in a majority of pts. Non-haematological toxicity was responsible for the majority of hospital admissions. We have established two alternative accelerated E-CMF schedules that achieve similar DDI. The marginal differences in toxicity profiles tend to favour the q 14d CMF reported here, rather than the d1&8 q 21d CMF schedule previously reported. Either schedules could be considered but to establish efficacy in comparison to conventional E-CMF requires phase III evaluation.

## 2036

## POSTER

### Prone position breast irradiation; an intensity modulated radiotherapy (IMRT) planning study

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**Background:** Supine position breast radiotherapy is most commonly used for radiotherapy of the whole breast in patients treated with breast-conserving therapy for early breast cancer. In women with larger and/or pendulous breasts, this technique can cause increased dose inhomogeneity and hot spots to skin fold areas, with, as a result, increased skin toxicity and impaired cosmetic outcome. In prone position, with the breast hanging free from the thoracic wall, skin folds could be eliminated and field separation could be reduced. We aimed to evaluate prone position breast radiotherapy by means of a CT planning study.

**Materials and Methods:** A pilot study was performed including 15 women with large or pendulous breasts. All women had a CT scan in supine and in prone position. The patients were treated conventionally, in supine position. Opposed tangential beam arrangements were set up in both positions. For each position, both a conventional 3D plan and an IMRT plan was developed. Breast coverage, dose homogeneity, and dose to the lung and heart were compared.

**Results:** The mean field separation in supine position was 24.7 cm (range 21.5–28.2 cm); this was reduced to 20.8 cm (range 16.2–24.6 cm) in prone position. In prone position, the breast tissue could be adequately covered. The maximum relative dose was 109%, 108%, 111% and 107% for supine conventional, supine IMRT, prone conventional and prone IMRT plans, respectively. In prone position, the conformal radiotherapy plan caused underdosage in the medial part of the breast, whereas with IMRT, a homogeneous dose could be obtained. In prone position, the dose to the ipsilateral lung was reduced compared with the supine position (average dose 6.02 Gy, 6.47 Gy, 1.20 Gy, 1.46 Gy for supine conventional, supine IMRT, prone conventional and prone IMRT plans, respectively). The dose given to the heart in prone was similar to that in supine position.

**Conclusions:** Prone position breast radiotherapy is a feasible technique, if IMRT is used. With this technique a homogeneous dose to a larger breast can be given, and skin folds are eliminated thus reducing the risk of skin epidermolysis. Also, the irradiated lung volume is reduced compared with supine breast irradiation.

## 2037

## POSTER

### The effect of hypofractionation and radiation dosimetry on the incidence of symptomatic rib fractures in women treated with radiotherapy for early breast cancer in the UK standardisation of breast radiotherapy (START) Trials

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**Background:** Symptomatic rib fractures (SRFs) are an uncommon but painful late normal tissue reaction following radiotherapy (RT) for breast cancer. The effect of fraction size (Fr) and radiation dosimetry on the incidence of SRFs was examined in the Phase III randomised START Trials of breast radiotherapy.

**Methods:** The incidence of SRFs was recorded prospectively in the START Trials (ST-A and ST-B) which tested hypofractionated post-operative RT in women with completely excised invasive breast cancer (T1–3, N0–1, M0). ST-A compared 50 Gy in 25 Fr (5 wks) vs 41.6 Gy vs 39 Gy, both in 13 Fr (5 wks). ST-B compared 50 Gy in 25 Fr (5 wks) vs 40 Gy in 15 Fr (3 wks). An extensive quality assurance (QA) programme was conducted as part of these trials with treatment plans collected from 1 in 3 patients.

**Results:** 4451 patients were recruited from 35 UK centres during 1999–2002, with a median follow-up of 5.1 years for ST-A and 6.0 years for ST-B. SRFs were reported in a total of 61 of 4451 patients (1.4%) entered into the trials [27/2236 (1.2%) in ST-A and 34/2215 (1.5%) in ST-B]. The mean age of patients who developed SRFs was 65.7 years (range 51.9–84.1) in ST-A and 62.9 years (range 43.7–84.2) in ST-B and the median time to first reporting SRFs was 3 years in both trials (range 1–7 years). In ST-A the numbers of SRFs reported were 8, 9 and 10 for the dose schedules of 50 Gy, 41.6 Gy and 39 Gy respectively. In ST-B the numbers of SRFs reported were 18 and 16 for 50 Gy and 40 Gy respectively. Overall, 161/1421 (11%) RT treatment plans reviewed by the QA team were described as posterior border hot with higher doses in ribs. For patients with treatment plans available to the QA team, higher rib doses were seen in 3/7 (43%) patients who developed SRFs in ST-A and 1/9 (11%) SRF patients in ST-B. A review of all treatment plans of patients who developed SRFs has now commenced.

**Conclusion:** Hypofractionated radiotherapy for early breast cancer was not associated with an increased incidence of SRFs in the START Trials. Dose inhomogeneity with higher rib doses did not account for all the cases of SRF. Avoidance of hot spots in ribs may reduce the incidence of SRFs but planning techniques which significantly reduce the total dose to ribs may be needed to avoid this side-effect in all patients.

## 2038

## POSTER

### Personality predicts quality of life in breast cancer patients, not type of surgery

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**Background:** Quality of Life (QoL) is an important outcome measure in oncology. In breast cancer, QoL is influenced by surgical treatment. Women who are treated with breast conserving therapy (BCT) report a better QoL compared with women treated with mastectomy (MTC). Another factor of influence on QoL is personality. So far, only one study has assessed the relationship between personality and QoL in breast cancer patients but this study did not look into the possible influence of type of surgery. To assess the influence of both surgical treatment and personality on QoL a longitudinal prospective cohort study was done. Based on the previous study it was hypothesized that women with a high score on trait anxiety would experience a poor QoL, especially women treated with BCT since they would worry about the remaining breast.

**Methods:** Between September 2002 and December 2005 women with a first presentation of a palpable lump in the breast or an abnormality on the mammography were asked to participate in the study. A set of questionnaires was completed by 337 women prior to diagnosis and 1, 3 and 6 months after diagnosis and possible treatment. Of the 131 women that were diagnosed with breast cancer, 53 women were treated with BCT and 78 women received MTC. Personality was assessed using the