

## 2045

## POSTER

**The thioredoxin system is of interest in conservative breast cancer treatment**

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**Background:** It is well established that local recurrence after conservation treatment for breast cancer occurs more frequently in younger patients (especially those aged under 40) than older ones, and the effect of age is independent and more powerful than other factors, yet the reason for this increased risk in younger patients is not known.

The thioredoxin (Trx) system represents a novel target for anticancer therapy. To evaluate the suitability of targeting the thioredoxin system in breast cancer treatment, Thioredoxin (Trx1), Thioredoxin Reductase (TrxR1), and Peroxiredoxins1 (Prx1) were stained on breast tumour tissue.

**Materials and Methods:** Trx1, TrxR1 and Prx1 expression were examined in a cohort of 79 early stage breast cancer patients age less than 40, who were treated with radiotherapy after wide local excision and had been followed-up for 10 years, or until death. The patients were divided into two groups, depending on whether the staining levels were above or below the median for the whole group, and this grouping was performed for each of the three thioredoxin-system molecules.

**Results:** No significant differences in local control rates were seen for different levels of Trx1 and Prx1, but the tumours expressing higher levels of TrxR1 had a much higher rate of local (within breast) recurrence, than those with lower levels. The ten-year recurrence rate in the former group was 36%, for the latter 8% ( $p < 0.01$ ).

**Conclusions:** These findings may enable the young patients at highest risk of local recurrence to be identified at an early stage, and alternative therapeutic strategies to be considered. These might include mastectomy with reconstructive surgery, or possibly exploration of the use of quinol compounds that inhibit Trx1.

## 2046

## POSTER

**Helical tomotherapy for difficult cases of breast cancer with anatomic variations and challenging location**

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**Background:** Helical tomotherapy is a new form of intensity modulated radiotherapy with an integrated megavoltage CT scanner. This work intends to analyse experience and possibilities of helical tomotherapy in the treatment of breast cancer in difficult cases of anatomic variations like a funnel chest or complex tumor locations.

**Materials and Methods:** Between July 2006 and March 2007 seventeen patients with breast cancer were treated with helical tomotherapy in the University Hospital of Heidelberg to a total dose of 50.4 Gy after breast conserving surgery. The reason for the use of helical tomotherapy were bilateral carcinoma ( $n=6$ ), parasternal localization and high dose to the heart or lung in conventional planning ( $n=9$ ) or funnel chest ( $n=2$ ). Target coverage and sparing of organs at risk were analysed. Breathing motion was assessed using 4D-CT or surface scanning with the Vision RT system. Surface dose was measured with thermo luminescence dosimetry.

**Results:** The patients could be treated without severe side effects. One 54 year old patient showed a CTC II skin toxicity, the rest of the patients I. The mean dose of the ipsilateral lung was 9.6 Gy in average for all patients, the V20 Gy 10.3%. The heart received an average V20 Gy of 10.3%, the contralateral breast a mean dose of 8.6 Gy. A target coverage with an average V95% of 91.9% could be achieved. Surface dose was analysed with TLDs for every patient and was measured between 1.6 and 1.8 Gy. Mean radiation time was 13.2 minutes, mean time on table 24.4 minutes.

**Conclusions:** Helical tomotherapy is an excellent option for the radiation of breast cancer in difficult localisation or when anatomic variations are present. Great care has to be taken to keep the dose to the contralateral breast low. In these special cases the advantages of an optimized target coverage with improved sparing of organs at risk outweigh the increased planning and treatment time and increased low dose area of the contralateral breast and axillary and supraclavicular region compared to conventional techniques.

## 2047

## POSTER

**Promoting best practice in the management of breast cancer using the Cancer Specialist Library website**

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**Background:** The Cancer Specialist Library, part of the UK National Library for Health, provides high quality cancer knowledge, in an accessible format, and aims to promote best practice in the management of breast cancer. In addition to the resources currently available, there is a growing interest and support for the development of e-learning opportunities for doctors, nurses and other health professionals in the form of one and five minute on-line learning modules. Knowledge from the Library will be utilised for such modules and this initiative will be aligned to 'Supporting best Practices in E-learning across the NHS' [http://www.osha.nhs.uk/document\\_store/11689612182\\_national\\_e-learning\\_bridging\\_document.doc](http://www.osha.nhs.uk/document_store/11689612182_national_e-learning_bridging_document.doc).

**Methods:** The Cancer Specialist Library was launched in April 2005, and is freely available to all internet users. The Library focuses primarily on the evidence from research, in particular guidance and systematic reviews. Well-performed systematic reviews provide the most reliable answers to health care questions and the Library uses a rigorous, transparent methodology to identify all relevant cancer systematic reviews (including Cochrane) published since 2000. Where available, the Library links to high quality published appraisals. To ensure collections remain current, regular monthly database 'alerts' are received when new systematic reviews are published.

**Results:** Information is presented in a variety of ways:

- Core information; assembled for each cancer site and organised into 'Guidelines', 'Evidence', 'References' and 'Patient Information' sections.
- Knowledge Updates and maps; collections of current, reliable, high-level evidence relating to clinical activities e.g. hormone therapy for breast cancer. 'Knowledge maps' are provided to highlight where current knowledge exists and where gaps remain.
- National Knowledge Weeks; using an expert Advisory Panel, displays best current knowledge and current issues for specific cancers during one week of the year e.g. breast cancer National Knowledge Week – October 2006

Future development of the Library will see links to other types of knowledge:

- Knowledge from the analysis of data (statistics)
- Knowledge from experience (clinicians and patients)
- Knowledge about service provision (cancer services)

**Conclusion:** The Cancer Specialist Library currently holds a comprehensive and easily accessible range of high quality documents relating to all aspects of the treatment and management of breast cancer. The annual National Knowledge Weeks, and the development of e-learning modules, based on best current knowledge, has the potential to be used by health professionals to support continuing professional development. This in turn will promote best practice in the management of breast cancer.

## 2048

## POSTER

**Boosting the tumor bed with radiotherapy in early-stage breast cancer after lumpectomy: potential role for stereotactically guided dynamic conformal arc therapy versus electron beams**

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**Background:** To assess the potential role of stereotactically guided 6 MV dynamic conformal arc therapy (DCAT) X-ray beams (Novalis?, BrainLAB), to boost the tumor bed of patients with early-stage breast cancer after tumorectomy and to dosimetrically compare this technique with a standard electron beam boost (EBB) for different tumor sizes and locations.

**Material and Methods:** Planning CTs of 10 women (median age, 54 years) with early-stage breast cancer treated with adjuvant radiotherapy after lumpectomy were selected. The boost volume (tumor bed, CTV) was defined as the area of architectural distortion surrounded by surgical clips. PTV margins resulted of expanding the CTV 1.0 cm in all directions. The prescribed dose was 16 Gy in 8 fractions. The following organs at risk (OARs) were outlined: the heart, both lungs, the ipsilateral breast, and