

Local regional therapy

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POSTER

Lymph node metastases detection by FDG-PET and sentinel node biopsy in breast cancer patients: comparison of these different approaches

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Background: axillary dissection (ALND) for detection of metastatic involvement is used to plan adjuvant treatments for breast cancer (BC) patients. ALND is a costly procedure with various side effects. 80% or more of T1 patients are node negative and might avoid ALND. Recently, sentinel node (SN) biopsy has been suggested as reference method for the evaluation of regional nodal metastases and for the decision on the need of a ALND. SN biopsy is an invasive approach, with a not negligible risk of false negative results. Conversely, Positron Emission Tomography (FDG-PET) is a non-invasive repeatable method able to evaluate all the regional nodes in BC: our PET experience on nodal involvement in BC has given interesting data of sensitivity and negative predictive value, comparable with SN biopsy. The aim in this work is a direct comparison between the two methods in term of sensibility, accuracy and predictive value in the same series.

Methods: T1N0 BC patients were studied. FDG-PET has been performed no later than 48 hours before surgery. Lymphoscintigraphy has been performed within 6 hours before surgery. After breast surgery, radio-guided biopsy of the SN has been performed followed by a complete ALND. Metastatic involvement of the SN and the other non-SN has been evaluated on definitive sections and represented the basis of the comparison between the two methods.

Results: Until now 28 patients have been studied. The average age was 56 years (range=39-70). All patients had pT1 BC except 3 pT2 (size less than 2.5 cm). The average histological tumor size was 13 mm (range=2-23 mm). All lymph nodes detected by lymphoscintigraphy were in axilla, and detection rate was 100%. All SN were identified with intra-operative gamma probe, then biopsied. All patients underwent ALND (on the average, 17 lymph nodes surgically removed). 10 patients of 28 showed nodal metastases. The SN biopsy results showed 3 false-negative (2 partial and 1 embolic involvement detected in non-SN), whereas FDG-PET failed to detect 4 axillary nodal involvement (2 microembolic, 1 partial and 1 pluriembolic); one patient with partial nodal involvement was undetected both the methods. No false positive FDG-PET scan was registered.

Conclusions: This is the first study comparing these two different methods on the same series. The preliminary results suggest a similar sensitivity, thus giving a contribution to a further statement on validity of FDG-PET for evaluation of BC regional node involvement.

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Influence of systemic therapy on pulmonary function tests in breast cancer patients irradiated to the internal mammary and medial supraclavicular lymph node chain

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Purpose: To evaluate the changes in lung function in breast cancer patients irradiated on the internal mammary and medial supraclavicular (IM-MS) lymph nodes with the standard irradiation technique as described in EORTC protocol 22922.

Materials and methods: Between 2/1998 and 2/2000, 75 breast cancer patients with almost normal baseline lung function values have been prospectively followed with lung function tests. All were concomitantly irradiated to the IM-MS lymph nodes and the breast or thoracic wall to a dose of 50Gy/2Gy. Spirometry (FEV1 and VC), total lung capacity (TLC) and carbon monoxide transfer factor (TLCo) were measured before and 3, 6 and 12 months after the start of radiotherapy.

Results: The data after one year of follow-up have been analysed in all 75 patients. Adjuvant chemotherapy was administered in 24 patients and hormonal therapy (tamoxifen) in 30. Twenty-one patients either received no adjuvant treatment or underwent radiocastration and were analysed together.

Dunnett's one-tailed T-tests were performed to evaluate the differences at the different time points as compared to baseline. For the entire patient

population a significant decrease was found for TLC at 6 months (5,2%; p=0.016) and for TLCo at 3 and 6 months (6,8%; p=0.008 and 5,5%; p=0.033). All parameters recovered to pre-treatment values at 1 year.

A MANOVA-test showed that the lung function parameters evolved differently over time in the three adjuvant treatment groups. The levels of significance were p=0.031, p=0.017, p=0.003 and p=0.0001 for FEV1, VC, TLC and TLCo respectively. Dunnett's one-tailed T-tests performed for the different groups revealed a statistically significant decrease in TLC at 6 months (12,3%; p=0.028) and in TLCo at 3 and 6 months (9,8%; p=0.006 and 9,1%; p=0.010) in the chemotherapy group. There was a trend towards a decreased TLCo at 12 months in patients receiving hormonal treatment (7,7%; p=0.072).

Conclusion: Overall decreases in lung function after radiotherapy to the breast or thoracic wall combined with standard IM-MS lymph node chain irradiation fully recover at one year follow-up. The type of adjuvant systemic treatment has a statistically significant impact on the evolution of the parameters over time. Whether the trend in decreased TLCo at 12 months in patients having received radiotherapy and tamoxifen will translate into a persistent TLCo decrease remains to be evaluated.

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Replacing axillary dissection by irradiation in cNO postmenopausal women with breast cancer: long term results in patients treated between 1986 and 1993

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Purpose: The aim of this prospective study was to evaluate whether in breast cancer patients irradiation of the clinically uninvolved axilla (cNO) can obtain similar good local control rates, equal overall survival and less axillary morbidity as seen with axillary dissection.

Methods: Between 1986 and 1993 a total of 660 women with breast cancer after breast conserving surgery (BCS) have been irradiated in our institution, 294 of them were postmenopausal and had a clinically negative axilla at the time of diagnosis. 166 women had been referred from other hospitals after BCS including axillary dissection of level I and II, they got radiotherapy to the breast only (AxS-group) and were compared to the 128 patients treated in our hospital with BCS alone followed by radiation to the breast, axillary and supraclavicular nodes (AxRT-group).

Results: Patients characteristics of both groups were comparable, although slightly in favor of the AxS-group with regard to age, tumor size, multicentricity and receptor status. At 10 years treatment results were nearly identical and statistically not different: the incidence of local axillary relapses was 3% in the surgically treated, 5% in the irradiated axillae, local tumor control in the breast was 90% vs. 94% in AxS and AxRT-group, respectively; disease free survival 81 vs. 75% and overall survival 66 and 68%. No disadvantage was seen for the irradiated patients. In contrast, the treatment induced severe morbidity like permanent lymph edema of the breast or arm, pain or shoulder problems were significant higher in the surgically treated group than in the irradiated pts. (26% vs. 1%, including minor sequelae 45 vs. 4%, p < 0.0001).

Conclusion: In cNO postmenopausal breast cancer patients axillary dissection can safely be replaced by irradiation without impairment of tumor control. Treatment induced morbidity is significantly lower after irradiation than after surgery.

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The early treatment of radiation pneumonitis in patients after adjuvant radiotherapy for breast cancer

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We aimed to investigate the incidence rate and treatment results of radiation pneumonitis (RP) in patients treated with adjuvant radiotherapy (RT) for breast cancer.

Between 3/97-7/00 180 patients were treated with postoperative RT with Linac after computerised treatment planning. 103 (57%) patients received postmastectomy (PM) RT, while 77 (43%) received breast RT as part of their breast conserving treatment (BCT). RT of the breast after BCT was performed with tangential 6MV photons. PM RT to the chest wall was given by 2 or 3 electron fields in 72 (69.9%), tangential photon fields in 22 (21.4%) and by combination in 9 (8.7%) patients. Patients with axillary metastases