

concentration during NAC, while no trend was observed in oxyhemoglobin, deoxyhemoglobin, and bulk lipid. The percent change in water after two to three months of chemotherapy correlates strongly with age ($r=0.752$, $p=0.0019$).

Conclusion: Water concentration correlated with the MRI fibroglandular density. Ovarian suppression induced by NAC may be responsible for the reduced breast density, explaining the significant water concentration reduction in premenopausal subjects. No significant changes were noted in bulk lipid in any subject. This suggests that relatively fast changes in breast density induced by NAC occur due to the reduction of fibroglandular tissue rather than by increases or replacement by bulk lipid. These results suggest that DOSI is a low-cost, bed-side imaging modality capable of monitoring breast density as a prognostic marker.

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Poster

A Retrospective Analysis of Follow-up in Patients with Suspicion of Breast Tissue Superposition in Digital Screening Mammograms

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Background: Superposition caused by overprojection of breast tissue in screening mammograms might cause unnecessary anxiety and additional imaging or follow-up. When the clinical repeated mammogram shows no abnormalities of the breast, follow-up at the outpatient clinic after 6 months with mammography is common policy in Maastricht University Medical Center and Antwerp University Hospital. A breast MRI can be a short-term alternative. Breast MRI has the advantage of high sensitivity for detecting breast cancer, but only moderate specificity. No evidence regarding the necessity and type of follow-up is available. This study retrospectively analyzed the results of 6 month follow-up versus single breast MRI in case of suspicion of breast tissue superposition.

Material and Methods: From October 2009 till August 2011 418 women were referred from the breast cancer screening program. Of these, 70 patients were diagnosed with suspicion of breast tissue superposition on the digital mammography by using repetition of the mammogram, special views and ultrasound. Patients were divided into three groups; they received 6 month follow-up with mammography, single breast MRI or no follow-up. Final follow-up results were analyzed for the occurrence of malignancy in these groups.

Results: Of the patients with suspicion of superposition ($n=70$), 62 (88.6%) were referred with BI-RADS 0, and 8 (11.4%) with BI-RADS 4. Follow-up consisted of mammography in 6 months, single breast MRI, or no follow-up, in 34 (48.6%), 33 (47.1%) and 3 (4.3%) patients, respectively.

In the '6 month follow-up' group, no malignancies were found. In the 'single breast MRI' group, only 1 malignancy was found (3.0%). The pathology results after surgery showed an invasive ductal carcinoma grade 1, with a size of 0.5 cm and estrogen positive receptors. The 'no follow-up' group is too small to make assumptions.

Conclusions: If superposition of breast tissue is suspected in patients referred from screening, 6 month follow-up with mammography would probably suffice, whereas performing single breast MRI as problem-solver is mostly likely cost-ineffective.

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Poster

Nipple Discharge – Does It Matter?

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Nipple discharge (ND) is the third most common complaint received at breast cancer clinics and an alarming symptom for many women. In various guidelines a distinction is made between physiological and pathological ND. However, the meaning of ND as a primary complaint for breast cancer is unknown. The value of additional cytological examination for ND, aside from imaging, has also not been investigated extensively.

We retrospectively reviewed medical charts of all women that visited our breast cancer clinic between 2003 and 2009 with ND as their primary complaint. All underwent medical history, physical examination, imaging, cytological and/or histological examination, if necessary, and follow-up.

The group consisted of 140 women with an average age of 46 years (13–91 years). A malignancy was found in 9 patients (6.4%). In two of these cases, DCIS was found. Women with a malignancy were generally older (median 59 ± 21) than women without a malignancy (45 ± 15) ($P=0.03$).

Other risk factors for having breast cancer were a palpable mass (6/9 (67%) vs. 25/131 (19%); $P=0.004$), a BIRADS 4/5 mammography (4/9 (44%) vs. 1/131 (1%); $P<0.001$) or ultrasonography (4/9 (44%) vs. 5/131 (4%); $P=0.001$).

Pathological ND (persistent, spontaneous, unilateral nipple discharge with a bloody, purulent or clear aspect) was found in 94 patients (67%), of which 8 (8/9 (89%)) exhibited a malignancy. Physiological ND ($n=29$, 21%) was not associated with breast cancer in any of these patients. ND of 17 patients was unclassifiable. Pathological ND was not an indication of a malignancy ($P=0.196$), neither was ND with a bloody aspect ($P=0.5$). The negative predictive value of pathologic ND for a malignancy was 98%. Cytology of ND was performed 73 times (52%); in 13 cases atypia was found. Only one of these patients had breast cancer ($P=0.3$).

Conclusion: The incidence of breast cancer for patients that visit a breast cancer clinic with complaints of ND is low (6.4%). A non-pathological classification of ND is reassuring. Neither pathological ND, nor abnormalities found in cytological examination were found to be important for the diagnosis of breast cancer in this study. Valuable factors for predicting breast cancer were the familiar elements of the 'triple diagnostics': a palpable mass found in physical examination, imaging and, if necessary, additional cytological or histological examination of the lesion.

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Poster

Incidental Breast Lesions Detected on CT Scans, Mammograms & Ultrasonograms – a Secondary Extension of National Health Service Breast Screening Programme in UK?

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Background: Incidental breast lesion detection is increasing with growing usage of diagnostic cross sectional radiology tests. Also, patients presenting to symptomatic breast clinics may have incidental breast pathologies detected by mammography or ultrasonography.

Methods: A 3-year prospective study, including patients with incidental breast abnormalities detected by Computerized Tomography (CT) scans done for various reasons. Also, patients presenting to breast symptomatic clinics and subsequently diagnosed to have incidental breast pathologies were also included.

Results: A 169% increase has been seen in the total number of thoracic CT scans done over 3 years. 26 out of 14718 patients having CT scans during this time had incidental breast lesions.

55 out of 3643 patients (1.5%) over the same time period had incidental breast pathologies picked up on mammograms or ultrasonograms through symptomatic breast clinics.

Diagnoses	Incidental findings on CT scans n (%)	Incidental findings in symptomatic patients n (%)
Breast cancer	13 (50)	27 (49)
Benign breast pathologies	12 (46)	28 (51)
Lymphoma	1 (4)	0

Out of 956 breast cancers diagnosed over this three-year period, 13 (1.36%) were identified by CT scans, whereas 27 (2.84%) were incidentally detected in symptomatic clinics. Both groups combined produce 4.2% (40/956) of all breast cancers diagnosed.

Conclusions: A significant number of breast lesions are incidentally found on CT scans as well as mammograms/ultrasonograms of symptomatic patients. They could be regarded as secondary extension of National Health Service Breast Screening Programme. This also signifies why every single radiological test should be thoroughly assessed for any unexpected abnormalities.

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Poster

Free Hand Breast Core Biopsies in a Selected Group Are as Good as Image Guided Biopsies

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Background: There has been an increasing trend towards image guided core biopsy than free hand biopsy for symptomatic breast lesions. We aimed to study our own practice.

Methods: All patients presenting to one stop breast clinic needing core biopsies over an 18 month period under a single consultant were prospectively included in this study. Information was collected regarding method & number of biopsies, time delay between patient initial assessment, core biopsy and results given.