

phoscintigraphy and gamma probe is used. In our series 91 consecutive patients with invasive breast carcinoma were operated by a single surgeon, using lymphoscintigraphy, gamma probe and Blue Dye. The sentinel nodes (SLN) were histologically examined by HE and immunohistochemistry.

Lymphoscintigraphy was successful in 81 patients (89%). After the injection of Blue Dye, SLN could be identified in all 91 patients. Metastases in the SLN were present in 35 patients. We retrieved 128 SLN, of these were 93 hot and blue, 19 only hot and 16 only blue. The distribution of metastatic and nonmetastatic SLN between these three labelling groups was not different ($P=0.9361$). We could not show any difference in the metastatic involvement of SLN in the patients in whom preoperative lymphoscintigraphy could visualise the SLN preoperatively compared to those in whom it could not ($P=0.7315$). False negativity calculated in our initial series of 36 patients was 0%.

Our study showed added value of Blue Dye in detection of metastatic and nonmetastatic SLN.

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POSTER

The evaluation of early regional recurrence using clinical examination and ultrasonography of the axilla after omitting axillary clearance in patients with tumour negative sentinel nodes

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Background: According to the previous reports, axillary recurrence rate has been practically zero after omitting axillary clearance in breast cancer patients with tumour negative sentinel nodes. However, the findings have been based mainly on the clinical examination of the axilla and the low axillary recurrence rate may thus be an underestimation. We aimed to evaluate the regional recurrence rate one year after the operation by clinical examination and ultrasonography of the axilla. The other purpose was to evaluate the rate of false positive findings in the ultrasonography of the axilla.

Methods: Altogether 189 breast cancer patients, who underwent sentinel node biopsy without axillary clearance between 06.06.2000- 28.12.2001, were enrolled in a prospective study. Clinical examination, mammography as well as ultrasonography of the breast and the axilla were performed one year after the operation. One patient had deceased due to non-breast cancer related cause. Three patients (2%) did not show up for the follow up appointment.

Results: One patient underwent mammography and ultrasonography but did not attend the clinical examination and 15 patients (8%) underwent clinical examination and mammography but not ultrasonography. No findings suspicious for local or regional recurrences were detected in these 16 patients.

The remaining 165 (87%) patients underwent mammography, clinical and ultrasound examination without findings of regional recurrence. However, two patients (1%) had enlarged but not clearly suspicious lymph nodes in the ultrasonography of the axilla and a fine needle aspiration cytology was performed. The cytological finding was benign in both cases. A control ultrasound without abnormal findings was performed after three or six months in these patients.

Conclusions: The risk for early regional recurrence when omitting axillary clearance in patients with tumour negative sentinel nodes seems low when evaluated by clinical examination and ultrasonography. Additionally, the ultrasonography of the axilla may be useful in the follow-up of these patients with a negligible false positive rate.

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POSTER

Shift in pattern of care for breast cancer by sentinel node biopsy

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Background: Many studies describe the advances of the sentinel node (SN) biopsy. This less mutilating technique causes less morbidity resulting in faster recovery. Still, there are some adverse effects of the SN procedure, including the chance of more operations possibly resulting in longer overall hospital stay and higher costs. In our clinic we started using the SN technique as operation of choice since January 2001. We investigated the impact on number and kind of operations, days in hospital and overall costs.

Patients and methods: All patients treated operatively for primary breast cancer in our clinic in 2000 ($n=106$) and 2001 ($n=134$) were included. All

patients in 2000 underwent axillary lymph node dissection (ALND), and all patients in 2001 suited for this technique underwent SN biopsy. We perform SN biopsy using a preoperative lymphoscintigram in combination with peroperative use of Patent Blue V and the gamma probe.

Results: There were no significant differences between the patients in both groups. In 2000 all patients underwent ALND, whereas in 2001 patients underwent SN biopsy when suitable (83%). Reasons not to perform a SN procedure were tumour size or palpable lymph nodes. SN biopsy was successful in 94% and revealed metastasis in 34 cases (33%). In 15 patients (44% of positive SNs) this was the only site of metastasis. 70 patients (67%) had a negative SN and needed no further operative treatment. But, because of the SN procedure, patients were operated more often in 2001 than in 2000: In 2001 47% had two operations and 9% had three operations, compared to 2000 when 32% had two operations and 2% had three operations. Note that 25 patients (24%) in 2000 and 45 patients (33%) in 2001 had a first operation for diagnosing malignancy, without SN or ALND procedure. In 2001 more operations were performed in an out-patient setting (24% vs 15%, $p=0.011$), and overall hospital stay was significantly shorter than in 2000 (5.7 days vs 6.7 days, $p=0.045$). As well, overall costs per patient were lower in 2001 (* 3.325 vs * 3.896, $p=0.046$).

Conclusions: Since the introduction of the SN biopsy: 1) ALND can be avoided in 67% of patients suited for this technique. 2) Patients undergo significantly more operations, but overall hospital stay is significantly shorter, with significantly reduced costs.

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POSTER

Breast cancer in the elderly: a 20 years audit

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Breast cancer is a disease that affects women > 70 years of age much more frequently than other age groups. Epidemiological data show that more than 40% of breast cancers occur in the elderly.

We analyzed a database of 1950 breast cancer cases treated in UCHG, between 1982 and 2002. This yielded 384 cases (20%) of >70 with breast cancer. We achieved complete data only on 279 patients. The median age was 77 years (range 70-93). The most common type of tumour was ductal carcinoma (74.5%) and 51.5% were high grade tumours. The average pathological diameter was 30mm (range 5-90). Surgical management consisted of mastectomy in 87% and wide excision in 12% depending on histological features, size and co-morbidity. Axillary surgery done on 63.5% of cases where clinically indicated and 58% of them showed pathologically positive nodes. 45% of cases were stage II at diagnosis. 71.8% of tumours were oestrogen receptors positive.

From our data 9% of these women received adjuvant radiotherapy and non received adjuvant chemotherapy. Overall, locoregional recurrences developed in 7% and there was no association between type of surgery and the risk of recurrence. Distance metastasis observed in 0.4% of cases and all when more than 3 nodes involved. We reported 6% incidence of bilateral breast cancer.

The disease-free and overall survival mean was 32, 37 months respectively for all women over 70 years.

The optimal treatment for older women is definitive surgery to guarantee local control and thus improve the quality of life.

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POSTER

Basal and retinoic acid-stimulated sodium-iodide symporter expression in breast cancer

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Tissue-specific sodium-iodide symporter (NIS) gene expression may allow for a new approach in anti-cancer therapy. In thyroid cancer NIS expression is retained, like in normal thyroid – this makes the tissue concentrating iodides and enables efficient therapy of thyroid malignancy with radioactive ¹³¹-iodine. In some cases of thyroid cancer radioiodine uptake may be enhanced by re-differentiation therapy with retinoic acid. As suggested previously, NIS protein is present in some cases of breast cancer, but it is still not clear, what is the basal level of gene expression and if it could be stimulated to amount sufficient for therapy.

The aim of the study was to analyze the basal NIS expression in primary cultures of breast cancer cells and to stimulate it by *all-trans* retinoic acid

(ATRA) and compare NIS gene expression to established breast cell lines MCF-7 (breast cancer) and MCF-10A (normal breast).

Material and methods: Cells for primary culture were obtained from human tumors and surrounding tissues, excised routinely during mastectomy, fragmented, digested and purified by lymphocyte and fibroblast depletion. Cells were cultured for 2-5 days and stimulated by ATRA (12 hours, 1 micromole/L). NIS expression was quantified by real-time PCR. Simultaneously, analysis in MCF-7 and MCF-10A cell lines was performed, we also compared the obtained NIS expression to a panel of 5 papillary thyroid cancer tissues, which exhibited iodine uptake.

Results: The mean basal NIS expression in analyzed breast cancer specimens was approximately 74% of the level observed in MCF-7 cell line. In 5 cases, where we obtained growth of normal breast cells, the basal NIS expression was lower than in tumor tissue, mean NIS expression in those cells was 86% percent of the level in MCF-10A cell line. After stimulation with ATRA, 3 of 12 tumors (25%) exhibited pronounced increase in NIS expression, up to 55%, 44.1% and 20.9% of NIS expression in MCF-7 stimulated cells. This level of expression was approx. 27% of value observed in a panel of papillary thyroid ca. Stimulation of normal breast tissue with ATRA did not induce increase of NIS expression above the level in MCF-10A stimulated cells.

Conclusion: There is basal low-level NIS expression in analyzed breast cancer primary cultures, reaching 74% of expression in MCF-7 line. This low-level expression could be further stimulated in certain cases, with NIS expression comparable to the level observed in tissues exhibiting iodide uptake sufficient for therapy.

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POSTER

Stage and survival in breast cancer in Estonia: the EUROCARE high-resolution study

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EUROCARE-2 study revealed low survival rate of breast cancer (BC) patients in Estonia compared to the more affluent European countries: the age-standardised 5-year relative survival rate was 60% in Estonia in 1985-1989 (the weighted European average 73%). To find out the reason for the differences, the EUROCARE-2 High-Resolution Study was carried out. Purpose. The aim of our study was to evaluate the stage distribution, diagnostic and treatment methods, and survival of the BC patients in Estonia.

Material and Methods: 224 BC cases, diagnosed and treated in the area of the Estonian Cancer Centre between 01.01 and 31.08.1991, were included. The case selection based on the Estonian Cancer Registry. Patients were followed-up until 31.12.1996. Clinical data were retrospectively collected by the EUROCARE protocol.

Results: The median age of patients was 59 (range 30-95). The diagnosis was proved by histology in 76% and by cytology in 21% of patients. The stage distribution of cases according to TNM: Stage I – 8%, stage II – 51%, stage III – 22% and stage IV 8%; the stage was not determined for 11% of patients. Surgical treatment was performed for 75% of patients. From those, mastectomy by Madden was made for 77%, by Halstead for 14% and simple mastectomy for 10% of the patients. The axillary lymphadenectomy was performed in 71% of patients. The chemotherapy was given to 47% of patients (21% in stage I, 41% in stage II, 71% in stage III and 76% in stage IV). The radiotherapy was performed in 32% of patients, and hormonal therapy was used in 77% of patients. The 5-year relative survival was 64% and varied by stage (97% in stage I, 83% in stage II, 48% in stage III and only 12% in stage IV).

Conclusion: The survival of patients with BC diagnosed in Estonia in 1991 has been slightly increased, compared to the EUROCARE-2 period (1985-1989). However, the proportion of small tumours (T1N0M0) was lower, and the proportion of advanced tumours was higher in Estonia than in many other European countries.

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POSTER

Effect of anastrozole therapy on bone: preliminary results of digital radiometrical analysis of clavicle and rib.

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Background: Anastrozole (ANS) is a potent aromatase inhibitor used in the treatment of advanced breast cancer (BC) and being investigated as

an adjuvant or chemopreventive agent. The concerns exist that ANS as a potent estrogen suppressor may increase the risk of disorders related to hypoeostrogenemia, such as reduction in bone mass.

Material and methods: Estimation of ANS effects in skeleton was performed using the modified method of radiometrical digital analysis of clavicle and II-nd rib described before (*Breast Cancer Res Treat* 2002;73,189). We report pilot results obtained from 20 women with ER/PR-positive or ER/PR-unknown BC (median age: 64 yrs, range: 55-80) being postmenopausal for 5-26 yrs (median: 15). All the patients previously received tamoxifen (median: 24 months, range: 5-60) in adjuvant setting (N=15) or for advanced disease (N=5) and were converted to ANS due to cancer progression (N=17) or tamoxifen-related side-effects (N=3). The radiometry of clavicle and rib was done on routine chest P-A radiograms taken in each patient before and at least 6 months of ANS treatment afterwards (median: 12, range: 7-27) and digitally processed using image analyser. The quantitative analysis was performed in the digital profiles of grey levels plotted perpendicularly to the axis of the bone shadow.

Results: The comparative analysis of the pairs of radiometric data taken before and after treatment reveals that the linear spongy/cortical width ratio (S/C) increases significantly after ANS treatment. Another typical features observed after ANS were the increase of the contrast between cortical and spongy part of bone shadow as well as the increase of coefficient of variance (CV) of grey levels profile. All the above mentioned phenomena were observed in clavicle and rib profiles (Table).

	Clavicle				II-nd rib			
	mean (before ANS)	mean (after ANS)	t-Student for pairs (p)	sign test (p)	mean (before ANS)	mean (after ANS)	t-Student for pairs (p)	sign test (p)
CV	8.23%	9.20%	0.40	0.18	10.78%	11.52%	0.61	0.61
contrast	1.13	1.15	0.49	0.42	1.18	1.22	0.45	0.12
S/C	0.53	0.59	0.0006	0.0005	0.61	0.67	0.01	0.12

Conclusion: The radiometric data suggests that ANS therapy enhance the radiological signs of bone mass loss. The study is going on and the updated results will be presented at the conference.

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POSTER

Survival and quality of life in breast cancer patients

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This was a prospective investigation to study the contribution of quality of life in relation to survival in breast cancer patients. In all, 128 breast cancer patients were followed up for five years. At five years 79 patients were alive and 49 patients were dead, given an overall survival rate of 62%. Quality of life was measured using the EORTC QLQ-C30 and its breast cancer questionnaire (QLQ-BR23) after completion of the initial treatment. Data for 116 patients were available for analysis. Of these, 44 patients presented with metastatic disease, and 95 patients went under mastectomy. Using the Cox regression model after adjusting for age at diagnosis and the disease stage, the results showed that receiving neo-adjuvant therapy as initial treatment and the lower global quality of life were independent predictors of poorer survival (Hazard ratio for neo-adjuvant therapy = 12.4, 95% CI = 4.9 to 31.0, P

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POSTER

Is health insurance coverage a major determinant of breast cancer screening practice?

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Breast cancer screening practice (BCS) is a helpful measure to reduce breast malignancies morbidity and mortality. However BCS rates in Greece are not satisfactory. Considering the cost of early diagnostic procedures, the presence and type of health insurance may constitute an important determinant of screening practice.

Purpose of the study: To evaluate if patients' health insurance coverage plays a role on BCS.