

(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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### 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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### 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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### 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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### 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.