comparison of the microarray based TargetPrint with IHC and fluorescent in situ hybridization (FISH) assessments generated by local standards in 11 hospitals.
Material and Methods: The mRNA level of ER, PR and HER2 was assessed retrospectively on 144 breast tumor samples containing sufficient tumor cells, collected by a German tumor bank. The patients were diagnosed in 7 different hospitals. Prospective tumor samples with sufficient tumor cells were collected for 27 patients presenting to 4 different hospitals between November 2008 up to present. The results of the IHC/FISH assessments performed according to the local standards of the hospitals were compared to the quantitative gene expression readouts.
Results: Sufficient RNA for microarray analysis was obtained from 140 (97%) retrospective samples and from 26 (96%) prospective samples. Comparison of IHC and microarray readout indicated a very high concordance of 97% for ER, 86% for PR and 94% for HER2 on the retrospectively analyzed samples (Table 1). The prospectively collected samples indicated a 100% concordance for ER and HER2 and 77% for PR (Table 1). All PR discordant cases (n = 6) originated from a single centre. Three samples (2 retrospective, 1 prospective) were excluded from concordance analysis as they were scored HER2IHC 2+ without additional FISH analysis. All three HER2 IHC 2+ samples were classified HER2 negative by TargetPrint. Prospective data collection is ongoing and more data will be presented at the meeting.

Table 1.

	ER	PR	HER2
7 centers retrospective	97% (n = 140)	86% (n = 140)	94% (n = 138)
4 centers prospective	100% (n = 26)	77% (n = 26)	100% (n = 25)

Conclusion: Microarray based readout of ER, PR and HER2 status using TargetPrint is highly comparable to local IHC and FISH analysis on retrospectively and prospectively analyzed samples in various hospitals. Using TargetPrint microarray readouts for hormone and HER2 receptor status in addition to standard IHC will improve the molecular characterization of breast cancer tissue.

5166 POSTER

The prognostic significance of age at diagnosis in patients with breast cancer younger than 35 years

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In breast cancer patients, age below 35 years (yr) is an independent risk factor of recurrence and death, even after correction for disease stage. However, as breast cancer (ca) occurs rarely in the mentioned age group (2–4% of all patients), prognostic factors for this population are not well understood.
It has been estimated that in general breast ca population the hazard of recurrence decreases with age by 4% per year of life. The aim of our study was to assess the association of age at diagnosis with disease outcome in women with breast cancer, aged 35 years or less.
Methods: The analysis was carried out retrospectively in 190 patients (pts) with breast cancer aged 35 years or less, referred to our Clinic between 1997–2006 (after exclusion of 10 patients with stage IV, 8 patients not treated surgically and 9 patients with incomplete clinical data). For all 190 patients the time to relapse (DFS, disease-free survival) was assessed. The median follow-up time was 47.7 months. Among this group there were 21.6% patients aged 34–35 years, 44.2% 30–33 yr, 25.2% 26–29 yr and 6.4% 25 yr and less.
Results: Relapse occurred in 36.6% of pts (20.5% distant metastases and 16.1% local recurrence only). 5-year recurrence-free survival was 57.2%, with estimated median survival time 10.9 yr. In univariate Cox analysis the most notable prognostic factors were nodal status (the most significant, both by clinical assessment and pathological analysis, $p < 0.005$), positive HER2 and negative ER/PR ($p < 0.05$). In the analyzed cohort of patients below age of 35 years, older patients showed poorer prognosis compared to very young women: patients aged 34–35 showed significantly worse 5-yr survival (41.9%), compared to younger patients (78.4%, $p = 0.004$). In Cox regression modelling, age at diagnosis increased the relapse risk by 7.6% per each year ($p = 0.07$), within the moderately narrow age frame assessed in our study. The effect of age group (34–35 vs younger) was significant also in multivariate analysis, in the context of nodal and hormone receptor status, with hazard ratio of 1.93 ($p = 0.016$).
Conclusions: In women below the age of 35 years, the increase of age seems to elevate the risk of disease relapse. This finding, contradictory to the generally observed poor risk in patients below 35 years and age-related decrease of risk in the whole population, warrants further investigation.

5167 POSTER

French cost effectiveness study of the MammaPrint 70-gene signature in early stage breast cancer patients

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Background: In early breast cancer, adjuvant chemotherapy increases the life expectancy of patients with high risk of developing metastases. However, for the other patients, chemotherapy-associated adverse effects outweigh the benefits.
Compared to clinicopathologic risk assessment, the MammaPrint 70-gene test has been shown to provide additional prognostic information for early stage breast cancer patients. However, the cost-effectiveness of this strategy is not well understood.
Materials and Methods: The budgetary impact of Mammaprint was studied using a Markov model. In France the initial target population for Mammaprint are stage I and II node negative breast cancer patients. Every year approximately 37,000 patients meet these criteria.
It has been demonstrated that Mammaprint can reduce the amount of unnecessary chemotherapy by 11% compared to Adjuvant!Online and by 27% compared to the St-Gallen criteria.
Results: In economic terms, we now show that the cost of MammaPrint was offset by the savings, due to a lower number of administered chemotherapies. The model estimates mean savings to be € 9,043 per 100 patients per year in the base case scenario. These results are sensitive to chemotherapy price, to relative usage of St-Gallen and Adjuvant!Online and to risk reduction associated with chemotherapy.
Conclusions: In summary, MammaPrint is a gene expression profiling test that has proved to be more accurate than current risk assessment tools. It helps oncologists to identify patients who may forgo unnecessary adjuvant chemotherapy in comparison to Adjuvant!Online or stGallen criteria. As patient's quality of life and rational use of resources are key factors in decision-making process, Mammaprint can be considered to be an efficient tool. As more costly systemic therapies are likely to become standard in the future, the economic advantages of Mammaprint might become even more apparent.

5168 POSTER

Circulating tumor cells (CTCs) in peripheral blood of breast cancer (BC) patients two years after primary diagnosis – Results from the German SUCCESS trial

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Background: While CTCs have shown promising results as marker of treatment efficacy and early recurrence in MBC, there is a lack of data in the adjuvant setting. The SUCCESS trial evaluates the role of persisting CTCs at primary diagnosis and after chemotherapy as well as two years after diagnosis in primary BC patients treated with zoledronate.
Methods: We analyzed 23 ml of peripheral blood in N+ and high risk N− primary BC pts receiving 3×FEC(500/100/500)-3×Doc100 q3w vs. 3×FEC(500/100/500)-3×DocGemcitabine(75/1000 d1+8) chemotherapy followed by 2 yrs (4 mg q3m×24 m) vs. 5 yrs (4 mg q3m×24 m followed by q6mx36 m) of zoledronate. CTC results after two years are shown. CTCs were assessed with the CellSearchSystem (Veridex, Warren, USA). After immunomagnetic enrichment with an anti-Epcam-antibody, cells were labelled with anti-cytokeratin (8, 18, 19) and anti-CD45 antibodies.
Results: The data of 579 pts at the mean of 29 months (range 20–43) after diagnosis are available. 4.3% of pts (n = 25) presented with >1CTC in peripheral blood. In pts with the detection of CTCs, the mean number of cells was 1 (range 1–29). While we found 1 CTC in 5.9% and 2 CTCs in 1.6% of pts, 1.5% had 3–5 CTCs, 1.2% >5 CTCs. We found no correlation between the presence of >1CTC with tumor size ($p = 0.41$), nodal status