than other subclasses; and gene signatures based in estrogen-related genes or proliferation are better to identify this BC subclass. Cheang et al genetically evaluated 144 luminal ER-positive HER2-negative tumours by IHC; they found a ki67 cutoff value of 13.25% to differentiate B from A subclasses. No differentiation for PR status was done.
Luminal B subgroup is usually defined as ki67 >13 if ER positive, as well as HER2+ or PR negative. The target of this abstract is to evaluate behavior of different Luminal B subsets.
Materials and Methods: We reviewed early BC cases evaluated at Hospital 12 de Octubre between 1995 and 2007 and selected 710 initially operated Luminal B BC. We divided this group in 4 subsets as shown in table 1 and analyzed their clinical- pathologic features and outcomes. Additionally, we evaluated the prognostic behavior of lowering the ki67 cutoff in the ER+PR+HER2− group (820 pts).
Results: Median Ki67 value for the ER+PR− group was 17%. ki67 cutoff at 14% discerns two groups of different prognosis inside the Luminal group (extracting HER2+ and RP−); and comparison of ki67 cutoff between 14 vs 11% found overlapped CI (Median: 6.31 (5.99–6.62) vs 6.49 (6.21–6.78). The table presents different characteristics and prognosis based on molecular features (statistical comparisons exclude ER−PR+ subgroup).

Variables	HER2+ER+	HER2−		
		ER+PR−	ER−PR+	ER+PR+ ki67 > 13
Cases	189	126	10	385
Ductal (p = 0.002)	173 (91.5%)	98 (77.8%)	10 (100%)	314 (81.5%)
III (p = 0.03)	41%	47%	40%	34.1%
Lobular	5.3%	17.5%	0	14%
Median age (p = 0.0021)	53.49	60.29	49.68	57.7
Median ER	85%	83%	0%	90%
Median PR	60%	0%	45%	80%
Median ki67	20%	17%	12.5%	20%
DFS (p = 0.001)	8.21	6.55	9.40	5.67
OS	8.7	7.22	10.53	6.4
Recurrences total (%)	52 (27.5%)	32 (25.4%)	2 (20%)	81 (21%)
LocoRegional	9 (17.3%)	3 (9.4%)	0	15 (18.5%)
Bone	6 (11.5%)	14 (43.8%)	0	25 (30.9%)
Visceral (p = 0.04)	34 (65.4%)	11 (34.4%)	0	36 (44.4%)

Conclusions: Exclusion of ER+/PR−/HER2− subgroup from the Cheang study could have led to a reduction in mean Ki 67 level as the recommended cutoff value. Subsets inside Luminal B subclass according to HER2, ER, PR and ki67 have different features and behaviors. Luminal Ki67 cutoff should be evaluated excluding RP− group.

5114 POSTER

Clinical and Histopathological Tumour Characteristics in Patients With Invasive Breast Carcinoma Receiving Metformin

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Background and Aims: Epidemiological studies show that metformin treatment is associated with a reduction in cancer risk. Metformin may exhibit inhibitory effects on cancer cells by inhibiting mTOR signaling pathway. Therefore, it is possible that metformin has also an impact on tumour extension and progression in breast carcinoma (BC) patients. The aim of our retrospective study was to examine if the patients with BC and diabetes mellitus (DM) receiving metformin have lower tumour stage in comparison to patients not receiving metformin.
Patients and Methods: A chart review of 171 patients (mean age 67.4; range 38−93 years) with invasive BC and DM was performed. They were surgically treated at our institute from 2006–2010. Data on clinical and histopathology factors (age, BMI, tumour diameter, TNM tumour stage, number of metastatic lymph nodes, presence of estrogen and progesterone receptors, HER-2 status) were collected. Statistical analysis of these factors (i.e. comparison of metformin group vs. no metformin group) was performed by contingence tables and non-parametric tests.
Results: DM type 1 and DM type 2 was present in 38 and 133 cases, respectively. Altogether 91 patients (mean age 66.3; range 51−88 years) were on metformin, while 80 (mean age 68.6; range 38−93 years) were not receiving metformin. Patients on metformin were younger than patients not receiving metformin ($p < 0.05$). No statistical difference between the study groups (metformin vs. no metformin) were found in TNM stage (T1: 47% vs. 42.5%; T2: 38% vs. 27.5%; T3: 4% vs. 6%; T4: 10% vs. 24%, p = 0.071; N0: 58% vs. 49%, N1 42% vs. 51%, p = 0.21; M0: 97% vs. 97.5%, M1 3% vs. 2.5%, respectively). However, patients on metformin had lower proportion of T3 or T4 tumours than patients who were not receiving metformin (14% vs. 30%; p = 0.013). Axillary lymphadenectomy was performed in patients on metformin and in patients not receiving metformin in 46% and 62% (p = 0.039), respectively. Tumour size (2.5 cm vs. 2.8 cm; p = 0.36), tumour histology, tumour grade, mean number of metastatic lymph nodes (2.4 vs. 2.7; p = 0.23), hormone receptor status or HER-2 status did not show any statistical difference between both study groups.
Conclusion: Our patients with BC and DM on metformin have lower proportion of T3 or T4 tumours in comparison to patients not receiving metformin.

5115 POSTER

Neo-adjuvant Chemotherapy in Breast Cancer; the Possibility of Response Evaluation and Prediction of Response Treatment Using the Internal Mammary Vessels on MR Mammography

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Background: From a previous study in our institute is known that the vascular surfaces of internal mammary artery (IMA) and internal mammary veins (IMV) relate to the the breast with cancer compared to the contralateral side. This difference was not observed in healthy controls. This study investigates the possibility whether the surface of the internal mammary vessels on MR mammography performed on a 1.5T MRI allows evaluation of the effects of neo-adjuvant chemotherapy on the tumour mass and predictions response in breast cancer patients.
Materials and Methods: Eight patients whom received neo-adjuvant chemotherapy underwent a MR mammography before, after 3 and after 6 chemotherapy cycles. Measurements were made on a transverse T2w sequence (scanning parameters: slice thickness 1 mm, field-of-view $280 \times 338 \times 190$ mm, matrix 352). Surface of both the IMA and IMV was determined on the side of the tumour and contralateral, particularly on the second and third intercostal space. The reader was blinded for all clinical data. Differences in vessel surface between the three MR mammography were analyzed using a linear mixed model.
Results: Mean tumour size was 5.6 cm (2.1−9.3) before starting neo-adjuvant chemotherapy. After 6 chemotherapy cycles mean tumour size was 2.1 cm (0.0−4.5). The surface of the IMA and IMV decreases in the present of tumours responding to neo-adjuvant chemotherapy. Probably because of the size of the study population a trend but no significant relation exists (p = 0.245). Furthermore the data suggest a delay in vessel surface decrease compared to the decrease of tumour size.
Conclusion: These data suggests a relation between decreasing tumour and decreasing vascular surface as response on chemotherapy. Future research is warranted to proof whether the vascular surface could be a supplementary parameter in the assessment of the response evaluation and prediction of response treatment on MR mammography.

5116 POSTER

Evidence of No Benefit for Extensive Axillary Dissection in Lymph Node-positive Early Breast Cancer Treated With Adjuvant Radiation

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Background: Axillary dissection (AD) in breast cancer (BC) has extensively demonstrated no survival benefit over sentinel node dissection when no ganglionar involvement is found. Recently, a randomized phase III trial (The American College of Surgeons Oncology Group Z0011) found similar results when sentinel node was positive in a sample of 891 T1-T2 BC patients (pN1-N2 in most of the cases) that complemented treatment with adjuvant radiation and standard systemic drugs. Some critics were that the sample size was not the initially planned and that results of this trial changes both oncologists mental paradigms and treatment of a large group of BC patients.
The target of this abstract is to test in a retrospective way the usefulness of extensive AD in a population similar to Z0011 trial.
Materials and Methods: We reviewed BC cases diagnosed at Hospital 12 de Octubre between 1995 and 2007 and selected 337 initially operated T 1−2 N1−2 patients that received adjuvant radiation and standard systemic treatment. We evaluated if number extracted lymph nodes (over or under the median; or in the upper or lower tertile) had a prognostic value.
Results: Median follow up was 7.85 y. Median extracted lymph nodes was 14 and the mean disease free survival (DFS) under or over it were 7.02

(95% CI 6.48–7.56) and 6.94 y (95% CI 6.39–7.49) respectively; log rank analyses didn't find significant differences (p = 0.94).
Tertile evaluation of extracted lymph node had overlapped CI for DFS or OS, and log rank analyses didn't find significant differences (p = 0.73) for lower and upper tertiles (table 1). Power to detect a significant difference with this sample size was 0.9999.

Table 1

Features	Lower Tertile	Upper Tertile
Age	55.64	53.19
Conservative Surgery	56.67%	57.94%
T1	48.31%	38.40%
T2	51.69%	61.60%
N1	60%	50%
N2	40%	50%
Ductal	91.11%	84.92%
Lobular	6.67%	10.32%
Medullar	2.22%	0.79%
Lum A	21.25%	27.19%
Lum B	48.75%	40.35%
HER2+RE+	12.50%	14.04%
HER2+RE−	8.75%	7.89%
TN	8.75%	10.53%
No Adj Chemotherapy	12.64%	5.93%
Adj Anthracyclines	51.72%	48.31%
Adj with Anthrac and Taxanes	21.84%	26.27%
Adj Trastuzumab	5.19%	2.65%
DFS	7.69 (7.28−8.1)	7.82 (7.39–8.25)

Conclusions: Our results show no benefit for extensive axillary lymphadenectomy over more conservative axillary evaluation.

5117 POSTER

Clinical and Histopathology Characteristics of Invasive Breast Carcinoma in Patients With Diabetes Mellitus

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Background: Patients with diabetes mellitus (DM) have an increased risk of breast carcinoma (BC) and higher risk of cancer-related mortality in comparison to patients without DM. Possible cause for higher risk of cancer related death is under-treatment of patients with DM. However, there are only limited data in the literature about the pathomorphological characteristics of BC in patients with DM. The aim of our retrospective study was to compare characteristics of BC in patients with DM and without DM.
Patients and Methods: Altogether 174 patients with DM (mean age 67, range 38−93 years), were surgically treated because of invasive BC at our institution from 2006–2010. Control group consisted of consecutive 316 patients with invasive BC without DM (mean age 59, range 28−86 y.), who were surgically treated at the same institution in 2006. A chart review of all 490 patients was performed. Data on clinical and histopathology characteristics (age, BMI, tumour diameter, TNM tumour stage, number of metastatic lymph nodes, presence of estrogen (ER) and progesterone receptors (PR), HER-2 status), cancer specific treatment and survival were collected. Characteristic were compared in patients with and without DM by chi-square test and non-parametric statistical analysis.
Results: Patients with DM were older than patients without DM (p < 0.001), had larger mean BMI (29.9 vs. 26.3; p = 0.007), larger mean tumour diameter (2.37 vs. 2.15 cm; p = 0.015) and higher tumour stage (T1/T2: 78% vs. 88%; T3/T4: 22% vs. 12%; p = 0.001). Patients with DM in comparison to patients without DM had no statistical difference in the rate of regional (46% vs. 47%) or distant metastases (3% vs. 2%) or in mean number of metastatic lymph nodes (2.5 vs. 3), respectively. Tumours in patients with DM were more often positive for ER (89% vs. 82%) and PR (76% vs. 66%) than in patients without DM (p < 0.05). Tumours were HER2 positive in patients with and without DM in 12.5% and 18.6% (p = 0.086), respectively. Patients with DM were more often treated with hormones and less often with chemotherapy than patients without DM (p < 0.013). There was no statistical difference in rate of lymphadenectomy or treatment with trastuzumab or cancer-specific survival between both groups of patients.
Conclusion: The patients with BC and DM are older, have larger BMI, larger tumour and higher tumour status in comparison to those without DM. There was no difference with regard to dissemination of tumour in both groups of patients.

5118 POSTER

Early Breast Cancer and Cosmetic Outcome One, Two, Three and Four Years After Intra-operative Radiotherapy Compared With External Beam Radiotherapy: an Objective Assessment of Patients From a Randomised Controlled Trial (on Behalf of the TARGIT Trialists' Group)

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Background: The international randomised controlled TARGIT Trial (ISRCTN 34086741) was designed to determine non-inferiority between the risk-adaptive approach of TARGIT [intra-operative radiotherapy with Intrabeam® (Carl Zeiss, Germany)] and conventional external beam radiotherapy (EBRT) in women with early breast cancer. The primary endpoint is risk of local relapse within the treated breast. We report here data from a sub-protocol assessing cosmesis in 114 women over 50 years participating in the TARGIT Trial from one centre (Perth, Australia).
Material and Methods: Frontal view digital photographs from were assessed, blind to treatment, using specialist software (BCCT.core 2.0, INESC Porto, Portugal) which produces a composite score based on symmetry, colour and scar. Statistical analysis was by generalised estimating equations (GEE) on all of the data, and logistic regression analysis at year 1.
Results: Images from 114 patients have been assessed, 59 and 55 randomised to IORT and EBRT, respectively. Median age at randomisation was 62 years (IQR 56 to 68). Photographs were taken at baseline (before surgery) and one, two, three and four years after initial breast conserving surgery; none had subsequent breast surgery. The scores were dichotomised into Excellent and Good (EG), and Fair and Poor (FP). There was a non-significant 45% increase in the odds of having an outcome of EG for patients in the TARGIT group relative to the EBRT group (OR=1.45, 95% CI 0.78–2.69, p = 0.245) after adjusting for tumour size. The results were similar when adjusted for tumour grade and age of the patient. For year 1 only there was a statistically significant 2.35 fold increase in the odds of having an outcome of EG for patients in the TARGIT group relative to the EBRT group (OR=2.35, 95% CI 1.02–5.45, p = 0.047) after adjusting for age of the patient, tumour size and grade.
Conclusions: These results demonstrate a significantly better cosmetic outcome with TARGIT compared to EBRT in the first year after surgery.

5119 POSTER

Use of Complementary and Alternative Medicine by Women With Breast Cancer in the Netherlands

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Background: Complementary and alternative medicine (CAM) use is common in breast cancer patients. Several studies have shown interactions between natural CAM products and conventional cancer treatment. The aim of this study was to determine the prevalence and predictors of use of CAM by breast cancer patients in the Netherlands, and to explore the association between CAM therapy use, quality of life (QOL), trust in conventional therapies, and health specific locus of control.
Material and Methods: A questionnaire assessing the use of CAM, focusing on the use of natural products, was sent to a cohort of 167 breast cancer patients from a University Medical Center in the Netherlands within a week after diagnosis. Clinical variables were obtained from medical records.
Descriptive statistics, t-tests and logistic regression analyses were conducted.
Results: The response rate was 34.1%. Of the 57 respondents 45.6% was using natural product CAM. The most common reason to use CAM was to stimulate the immune system, and the pharmacist or a drugstore was the most common source of information. 74.7% did not report CAM use to the physician, with 'it is not important to discuss CAM' being the most common reason. 80.6% of the CAM users thought CAM to be effective.