boost to the surgical cavity varying in dose between 7.5 Gy and 16 Gy, whereas 75% of patients in the hypofractionated treatment group received a boost, varying in dose between 9 Gy and 15 Gy. Local recurrence rates were very low in both groups: 1.59% in the HypoRT group and 2.44% in the ConvRT group. Rates of distant metastases were higher in the ConvRT group, with 3 out of 41 patients (7.32%) showing metastatic disease, compared to 3 out of 63 patients (4.76%) in the HypoRT group. The patients who recurred presented with metastases in the axilla, liver, bones and cerebellum. Log-rank tests and Kaplan–Meier analysis of data did not show any significant difference between ConvRT and HypoRT in terms of overall survival ($p = 0.402$), disease-free survival ($p = 0.751$), distant metastases free survival ($p = 0.851$) and loco-regional recurrence-free survival ($p = 0.244$).
Conclusions: Our data indicate that local control rates are comparable for HypoRT and ConvRT in patients with high grade breast cancer. Although confirmation of this data will require a higher number of patients and a longer follow-up, there is no evidence at this time that patients with high grade breast cancer are at a higher risk of recurrence after having received adjuvant HypoRT.

5127 POSTER

Three Fractions per Week Radiotherapy for Early Breast Cancer − Short-term Morbidity and Preliminary Outcomes

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Background: Over the last several years there has been renewed interest in hypofactionated adjuvant radiotherapy (RT) in breast cancer patients treated by conservative surgery in the light of radiobiological and clinical evidence. We present our experience regarding preliminary outcomes of a hypofractionated RT schedule.
Materials and Method: Between October 2007 and October 2009 80 women with early breast cancer were treated by 42.75 Gy/15 fractions over 5weeks. This treatment involved three fractions per week (Monday-Wednesday-Friday). All patients received an additional boost dose to the tumour bed of 8.55 Gy in 3 fractions using 6MV photons.
Acute radiation toxicity was the principal endpoint. Cosmetic appearance including changes in breast appearance together with breast shrinkage/hardness/swelling was also assessed. Methods of evaluation were photos (before and after the end of RT treatment at one/three/six month intervals), ultrasound examinations (before and after the end of RT treatment) and mammograms (three/six months and one year after RT).
Results: The median follow-up time was 24 months. In order to score radiation toxicity, patients were evaluated according the RTOG scoring system for radiation reactions at the end of treatment and 3, 6 and 12 months after treatment). At the end of RT RTOG grades 0, 1, 2 for acute skin toxicity were: 56/80 (70.0%), 19/80 (23.8%) and 5/80 (6.3%) respectively. After 3 months RTOG grades 0, 1, 2 were 64/80 (80%), 14/80 (17.5%) and 2/80 (2.5%). After 6 months RTOG grades 0, 1 were 72/80 (90.0%) and 8/80 (10.0%) respectively whereas after 1 year they were 78/80 (97.5%) and 2/80 (2.5%).
Breast shrinkage and breast hardness were the most common changes especially in patient with large breast volumes. An excellent to good cosmetic outcome (i.e. no change in breast appearance) was observed in 90% of patients.
There wasn't local or distant recurrence in any patient during this limited two years follow up.
Conclusions: Preliminary results (skin reactions and cosmetic appearance) from this study are consistent with published data that support the use of shorter fractionation schedules in early breast cancer patients after breast conservating surgery, in terms of cosmesis and effectiveness in local control. However a median follow-up of 2 years is too short to allow assessment of all the potential late normal tissue effects. This study is still on going to estimate late radiation morbidity for final evaluation.

5128 POSTER

Postmastectomy Radiotherapy Reduces Locoregional Recurrence and Overall Mortality for Breast Cancer Patients With T1−2 and One to Three Positive Lymph Nodes

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Background: The role of postmastectomy radiotherapy (PMRT) in breast cancer patients with T1−T2 tumours and one to three positive lymph nodes remains uncertain. This retrospective study was aimed to determine whether PMRT provides any clinical benefit in the study cohort of patients.
Material and Methods: We analyzed 174 post-mastectomy or post-lumpectomy women with pathologic T1−T2 breast carcinoma and 1 to 3 positive lymph nodes (LN) metastasis between 2000 and 2006. The 5-year Kaplan–Meier estimates of locoregional recurrence rate (LRR), distant recurrence rate (DRR) and overall (OS) were analyzed by age, histologic findings, surgery type, size of primary tumour (T), lymphovascular invasion (LVI), estrogen receptor (ER) status, numbers of positive LN, percentage of positive LN (cutoff level 25%), Her-2/neu status, adjuvant systemic therapy and irradiation. Multivariate analyses were performed using Cox proportional hazards modeling.
Results: The median follow-up was 58.5 months. The 5-year Kaplan–Meier LRR, DRR and OS were 8.3%, 15.2% and 88.9%, respectively. PMRT reduced 5-year LRR from 13.3% to 3.9% ($p = 0.036$). ER status, Her-2/neu status and LVI were significantly correlated with 5-year estimates of OS, whereas PMRT improved 5-year OS from 82.6% to 95.4% ($p = 0.039$) (Table 1). On multivariate analysis, PMRT was associated significantly with reduced LRR (hazard ratio [HR], 3.92; 95% confidence interval [CI], 1.07–14.43, $p = 0.04$) and improved OS (HR 2.82; 95% CI 1.09–7.30, $p = 0.033$).

Table 1. Multivariate analysis of Risk factors of LRR, DRR and OS

Factors	LRR		DRR		OS	
	p	HR (95% CI)	p	HR (95% CI)	p	HR (95% CI)
% of positive LN (⩾ 25% vs. <25%)	0.036	3.8 (1.09–13.28)				
ER status (Positive vs. negative)			0.027	0.42 (0.2–0.91)	0.006	0.3 (0.13–0.71)
HER2 status (Positive vs. negative)	0.016	4.16 (1.3–13.29)				
LVI (Negative vs. positive)					0.031	0.275 (0.09–0.89)
Adjuvant chemotherapy (Yes vs. no)			0.024	0.35 (0.14–0.87)		
PMRT (Yes vs. no)	0.04	0.26 (0.07–0.94)			0.033	0.36 (0.14–0.92)

Conclusions: For patients with T1−T2 and N1 stage breast cancer, PMRT reduced locoregional recurrence and showed overall survival benefit, especially in patients whose tumours were with positive of ER status, partial mastectomy, <25% positive LN and presence of LVI.

5129 POSTER

Evaluation of Delays in Adjuvant Radiotherapy Delivery Following the Introduction of a 23 Hour Model for Breast Surgery

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Background: Adjuvant radiotherapy (RT) prolongs disease free survival and overall survival in patients with operable breast tumours [1]. A delay of RT of more than 8−12 weeks after surgery adversely affects local recurrence [2]. In January 2010, our institution introduced a 23 hour model for breast surgery as part of a national programme to improve effectiveness and patient experience and to reduce length of stay [3]. This was implemented by careful patient selection and education, reduced use of post operative drains or discharge with drains in situ. In this study, we evaluate whether shorter inpatient stay for surgery delays adjuvant RT delivery due to a higher incidence of complications such as seroma or infection.
Materials and Methods: We performed a retrospective study of early breast cancer patients who underwent surgery and adjuvant external beam RT between December 2009-May 2010. Adjuvant chemotherapy patients were excluded. We evaluated time to RT from last surgery. Sources of any delay in this process were identified. Patients were stratified into two groups according to length of inpatient stay from initial surgery.
Results: 41 patients were evaluated. The mean age was 59.6 (range 37−78). 10 patients had a mastectomy and 31 had breast conserving surgery. 31 patients had T1 disease and 32 were staged as node negative. 3 patients had grade 1 tumours, 20 grade 2 and 12 grade 3. Histology was predominantly infiltrating ductal carcinoma. 3 patients had neoadjuvant chemotherapy. 16 patients had positive or close margins (<2 mm) after initial surgery. 8 of these had further surgery prior to RT. 88% of patients had positve Estrogen receptor (Alldred score >4) and 88% were HER2 receptor negative.
The average time from surgery to RT was 56 days. For patients with inpatient stays of one night or less ($n = 21$) this fell to 53 days. For those with longer inpatient stays ($n = 20$) the interval was 60 days. Delays to RT treatment were predominantly due to seroma and infection, but the incidence was equal in the short and long inpatient stay groups ($n = 2$ in each group).
Conclusions: In our limited study, the implementation of the 23 hour model has not impacted negatively on the timely delivery of adjuvant RT. Further

studies should explore the effect of inpatient stay for breast surgery on the provision of adjuvant treatments, particularly using prospective studies to investigate any impact on cosmesis.

5130 POSTER

Long Term Results and Prognostic Factors in Patients With Unicentric and Multicentric Breast Cancer

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Background: Among many oncologists the opinion exists, that multicentric breast cancer (MBC) shows greater metastatic dynamics and has worse prognosis comparing to unicentric breast cancer (UBC) in the same TNM. Some researchers think that proper evaluation of pT in MBC should be based on combined diameters not on the largest diameter of tumour.
The aim of the work is estimation of the treatment results with regard of multicentricity in breast cancer.
Material and Methods: The retrospective analysis included 954 consecutive women with breast cancer in stage IA-IIIC after radical mastectomy treated between 1995–1998 at the Cancer Center in Warsaw. Adjuvant chemo- or hormone therapy received 449 (47%) and 262 (27%) of patients respectively. Two hundred forty three (26%) of patients had not been given systemic treatment. Postsurgical irradiation was performed only in 135−14% of patients. Cox's regression model was used to analyse the prognostic factors having influence on disease-free survival (DFS) and overall survival (OS). Median of follow-up was 134 months.
Results: MBC was diagnosed after mastectomy in 104 (10.9%) of patients. There were no significant differences in characteristics between UBC and MBC groups according to age, stage, pT, pN, type and grade of histology and methods of adjuvant treatment. The 10-year actuarial DFS and OS for patients with UBC and MBC were 51%, 62% and 58%, 72% respectively (Log Rank $p > 0.05$). Locoregional recurrence rates were higher in UBC than in MBC: 78/850 (9.2%) vs 7/104 (6.7%) of patients $p = 0.03$. There were no statistical significant differences in frequencies of lymph nodes metastases among groups with UBC and MBC according to pT − measured as greatest diameter. In multivariate logistic regression analyses the following classical prognostic factors had independent influence on DFS and OS: pN, pT, G, and vascular invasion − $p < 0.01$. Multicentricity of breast cancer did not appeared significant prognostic factor neither for DFS and OS − $p > 0.1$.
Conclusions: From present retrospective analysis results that MBC does not deteriorate of prognosis compare to UBC and the largest rather than combined diameters of multicentric lesions should be used to establish pT what is recommended and concordant with TNM system. However, multicentricity breast cancer should be considered at postsurgical radiotherapy planning because it can have influence on improvement of locoregional control.

5131 POSTER

Sentinel Node Biopsy Following a Preoperative Diagnosis of Ductal Carcinoma in Situ (DCIS) in the Management of Screen Detected Cancer

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Background: Sentinel node biopsy has an essential role in the prognostication of invasive breast cancer. The procedure's role following a preoperative diagnosis of in situ breast cancer (DCIS) is controversial. Although a proportion of preoperatively diagnosed DCIS is subsequently determined to be invasive, these tumours tend to be small and the incidence of metastatic disease in this setting is vanishingly small.
Aims: The aims of this study were to describe the incidence of invasive breast carcinoma following therapeutic surgery for screen detected DCIS and to identify factors that may predict areas of invasion, thus facilitating the performance of a sentinel node procedure at initial surgery. The incidence of metastatic disease was also recorded.
Methods: All patients diagnosed with DCIS on core biopsy pre-operatively following screening mammogram from January 2002 to August 2010 were identified from a prospectively maintained national breast screening database. The dataset was interrogated for patient demographics, and tumour radiological and histopathological features.
Results: In total there were 783 patients diagnosed with DCIS during the study period, 74% (n = 576) of which had an axillary procedure Overall there was a reported incidence of subsequent invasion on pathological assessment of surgical specimens of 25.3% (n = 198). On logistic regression, features that were associated with an increased incidence of subsequent invasion were large mammographic size, ($p < 0.003$), palpable mass, ($p < 0.05$), and age >55, ($p < 0.02$). The overall rate of positive axillary lymph nodes was 4.7%, (n = 37). Multivariate analysis of features found to be statistically significant for nodal disease in this series were clinically palpable mass ($p < 0.04$) and increasing patient age ($p < 0.03$).
Conclusions: Sentinel lymph node assessment is not indicated in all cases of screen detected DCIS. There are preoperative characteristics that are predictive of invasion at therapeutic resection, however the low rate of nodal disease in this series would suggest that sentinel node could be avoided even with operative confirmation of invasion.

5132 POSTER

The Prognostic Value of Tumour-stroma Ratio in Triple Negative Breast Cancer

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Background: Triple-negative cancer constitutes one of the most challenging groups of breast cancer given its aggressive clinical behaviour, poor outcome and lack of targeted therapy. Until now, profiling techniques have not been able to distinguish between patients with good and poor outcome. Recent studies suggested an important role for stroma in tumour growth and progression. In colorectal-, oesophageal- and breast cancer, the tumour-stroma ratio was found to be of prognostic value.
Objective: To evaluate the prognostic value of the tumour-stroma ratio in triple-negative breast cancer.
Methods: During the period January 2004–2008, 124 consecutive triple negative breast cancer patients treated in our hospital were retrospective evaluated. Routine Haematoxylin-Eosin (H&E) stained histological sections were evaluated by two investigators (kappa 0.735) for stroma percentage, growth pattern (pushing margin), necrosis and amount of lymphocytic infiltrate. Patients with less than 50% stroma were classified as stroma-low and patients with $\geqslant$ 50% stroma were classified as stroma-high.
Results: Of 124 triple-negative breast cancer patients, 50 (40%) had a stroma-high and 74 (60%) had a stroma-low tumour. Survival analysis revealed a 5 years relapse free period (RFP) of 85% in the stroma-low and 45% in the stroma-high group. Overall survival (OS) was 89% for stroma-low and 65% in the patients with a stroma-high tumour. Both RFP and OS were significantly worse in patients with stroma-high tumours compared to stroma-low. In a multivariate cox-regression analysis, tumour stroma remained an independent prognostic variable for RFP (HR 2.39; 95% CI 1.07–5.29; $p = 0.033$) and OS (HR 3.00; 95% CI 1.08–8.32; 0.034) when corrected for other clinical-pathological variables.
Conclusion: Tumour-stroma ratio is a strong independent prognostic variable in triple-negative breast cancer. It is easy to determine, reproducible (kappa 0.735) and can be easily incorporated into routine histological examination. This parameter optimizes risk stratification and could be target for future therapies.

5133 POSTER

Segmental Resection in the Early Breast Cancer Treatment

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Background: Conservative surgery is accepted as a treatment of choice for the vast majority of patients with early breast cancer. Standard management of axilla in invasive breast carcinoma is axillary dissection, which provides both treatment and information on nodal status. Nonetheless, this procedure is responsible for functional sequelae, mainly arm edema. At present, the percentage of involved nodes is decreasing because diagnosis of breast cancer is made earlier, and the benefit of this surgery is in question.
Purpose: The main aim is to study efficacy of segmental resection without axillary dissection in patients with early breast cancer.
Patients and Methods: Between January 1988 and December 2008 101 patients with early breast cancer from Ulyanovsk Oncology Center were assigned to segmental resection without axillary dissection. This group included the patients, who refused to receive radical mastectomy or breast conservative surgery with axillary dissection, patients with hard intercurrent