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ONCOPOOL, a comparison with SEER

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ONCOPOOL pooled data from 12 European Breast Units, from 16,944 cases of operable (⩽5 cm) invasive breast cancers aged ⩽70, diagnosed consecutively on each unit in 1990−99 inclusive, with first line operative treatment.

It is of interest to compare the data with another large data set; SEER has long been quoted as the standard for comparisons of tumour factors and outcomes. SEER is USA based.

The data examined is from the 2 large data sets on women with primary breast cancers, with only cases obeying the same inclusion factors as for ONCOPOOL used for the SEER data.

Comparisons will be of: Numbers entered, Age at entry, Tumour size, lymph node status (sampling or clearance required), size .v. LN status, grade (and method used), ER and PgR status, grade .v. size, grade .v. ER status (pos, neg), formulae for relation of LN negativity and size to grade, Overall (OS) and Breast Cancer Specific Survival (BCS) for all cases at intervals to 180 months.

The data from each set will be applied to indices combining prognostic factors to estimate survivals (Nottingham Prognostic Index and FIN-PROG Index) and polynomial curves for each data set relating survival to index levels produced.

Combined data (extra data will be added from FINN PROG and Uppsala). Using the indices the combined data will be entered to estimate the effects of adjuvant therapies (eg) Cox analysis will be applied entering the prognostic index values and survival for treatment with hormone; also polynomial curves will be produced of survival against index value to allow comparisons of treatments (eg) no adjuvant therapy against endocrine only in ER+ cases.

The percentage risk reductions obtained will be compared with those shown by the EBCTCG Meta Analysis. Work at present shows a differential proportional effect in relation to prognosis, which the Meta Analysis is unable to demonstrate.

Effects in other situations can similarly be examined: effects of screening; radiotherapy after Breast Conserving Surgery by Van Nuys prognostic index.

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Factors predicting disease free survival following neoadjuvant chemotherapy for breast cancer

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Background: For primary operable breast cancers, different prognostic models, as the Nottingham Prognostic Index, have been developed and proven to work well. However, this model has limitations for patients who undergo neo-adjuvant chemotherapy (NACT) as not all clinicopathological features are readily available without complete surgery. We investigated which factors are prognostic in the prediction of disease free survival (DFS) among patients with large size and locally advanced breast cancer receiving NACT.

Material and Methods: A group of 161 consecutive patients diagnosed with primary breast cancer between January 2000 and December 2005 at the University Hospitals Leuven, receiving NACT was analysed. Patients diagnosed with distant metastases, receiving neo-adjuvant hormonal treatment, switching over to neo-adjuvant hormonal therapy or refusing operation were not included in this set. DFS was defined as any breast cancer related event.

Results: 43 patients (26.7%) experienced an event at a median follow-up of 4.83 yrs. Univariate Cox regression revealed positive estrogen receptor (ER), positive progesterone receptor (PR) and pathological complete response (pCR, including residual in situ lesion) following NACT as significant ($p < 0.05$) predictors for DFS. Due to the high correlation between ER and PR a combined variable (EPR) equal to 1 if both receptors are positive and zero otherwise was used in the multivariate model. The multivariate model showed that EPR (hazard ratio=0.127, 95% CI 0.050–0.325, $p < 0.0001$) and pCR (hazard ratio=0.187, 95% CI 0.066–0.526, $p = 0.0015$) are independent prognostic variables for DFS. The prognostic index (PI) is found as: EPR+pCR and is therefore 0 for patients with negative ER or PR without pCR, 1 for patients with positive PR/ER or pCR and 2 for patients with positive PR/ER and pCR. Table 1 illustrates the expected number of events together with DFS predicted by the model (S_{COX}) and the survival as estimated by the Kaplan-Meier method (S_{KM}).

Conclusions: This preliminary study revealed that both steroid receptors and pCR were independent prognostic factors for assessing DFS following NACT chemotherapy in our series.

Table: Classification in risk groups by the multivariate Cox model

PI	n+	# events	Event rate*	S_{KM}(5-year)	S_{COX}(5-year)
0	65	33	0.14	0.52	0.51
1	87	9	0.02	0.89	0.90
2	5	0	0.00	1.00	0.99

+4 patients had no value for the estrogen/progesterone receptor.
*Expected percentage of events per year of follow-up.

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Metastatic lymph node ratio: independent prognostic factor for disease free survival in node positive breast cancer

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Background: The presence of axillary lymph node (ALN) metastasis is considered the most important prognostic factor for breast cancer survival. However, the role of the total number of excised ALNs has received less emphasis. This study investigated whether ratio between metastatic and total excised ALNs would prove to be independent prognostic factor for disease-free survival (DFS).

Materials and Methods: Data from 628 consecutive patients with pT1−3, pN1−3, nonmetastatic breast cancer were studied retrospectively. Patients were subdivided into three groups according to metastatic lymph node ratio (MLNR) value (<0.20, 0.20–0.80, 0.80–1.00). The MLNR was analyzed for their prognostic value in comparison with absolute number of metastatic lymph nodes. Cumulative DFS was determined using the Kaplan-Meier method, with univariate comparisons between groups through the log-lank test. The Cox proportional hazards model was used for multivariate analysis.

Results: On univariate analysis, parameters influencing the DFS were tumor size, estrogen receptor status and progesterone receptor status. In addition, both the absolute number of metastatic lymph nodes and the MLNR were associated significantly with DFS. On multivariate analysis, the MLNR still remained as independent prognostic factor for DFS. The absolute number of metastatic lymph nodes lost significance when the MLNR was taken into account.

Conclusions: Our study demonstrates that the MLNR is a more significant prognostic factor for recurrence than absolute number of metastatic lymph nodes in T1-T3, N1-N3, nonmetastatic breast cancer patients.

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The influence of young age on disease free survival in stage I breast cancer

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Background: Patient with invasive breast carcinoma who are ages 35 years or younger at the time of diagnosis have worse prognosis compared with older patients. The aim of this study is to assess the impact of young age on disease free survival (DFS) in stage I breast cancer.

Material and Methods: Between January 1995 and December 2005, 315 patients with stage I breast cancer were included. The median follow up was 62.6 months (range 1.2–157.2). The patients were divided into three groups, based on age at the time of diagnosis: age ⩽35 years (group A), 36−45 years (group B), >45 years (group C). The analyzed factors were tumor size, estrogen receptor status, c-erbB-2 status, operation method, adjuvant chemotherapy and adjuvant hormonal therapy. Relapse means locoregional recurrence and distant metastasis.

Results: The mean age is 48 years old (range 25−77). Age distribution showed that group A is 36 cases (11.4%), group B is 90 cases (28.6%), group C is 189 cases (60.0%). The 26 (8.3%) patients out of 315 were recurred. Fifteen patients have distant metastasis and nine patients have locoregional recurrence. In univariate analysis for DFS, the age is only significant factor. The 5-year DFS rate was 82.4% for group A, 95.6% for group B and 92.3% for group C ($p = 0.002$). The 10-year DFS showed 67.9% for group A, 95.6% for group B and 89.4% for group C. In multivariate analysis, the odds ratio of group A is 2.77 times higher than counter part groups ($p = 0.020$). The analysis of clinicopathologic factor according to groups, group A have more ER negativity and more chemotherapy than group C. The important finding on this analysis is that clinicopathologic