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Nottingham prognostic index confirms equivalent breast cancer survival between UK & Europe

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Background: Eurocare-4 (Lancet Oncol 2007; 8: 784−96) suggests that there are still breast cancer survival differences between the UK and mainland Europe. We have examined this in two multicentre and two breast unit datasets in UK & Europe.

Materials and Methods: The E Anglia (EA) (n = 6372) (10 breast units in East of England), Nottingham City Hospital (N) (n = 2238), Cambridge Breast Unit (C) (n = 865) and ONCOPOOL (O) (n = 6711) (12 European Breast Units) datasets of women with primary breast cancer aged <70, diam. <5 cm, treated 1998–2003 (EA & C) and 1990–99 (N & O) are presented. The EA set includes the C set and O the N. The four datasets were compared according to Nottingham Prognostic Index (NPI). Figures shown are actuarial survival for all causes of death (OS) at 84 months survival.

Results: See the table.

- The NPI separates the E Anglia, Cambridge, Nottingham and ONCOPOOL cases into six groups with significantly differing survivals.
- There are no significant differences between the four series in case numbers falling into each NPI group, nor in survival within groups, nor in all case survival.

Conclusion: These data confirm validation of the NPI in prognostic discrimination, distribution to NPI groups and survival figures in four European datasets. It also confirms that there are now no significant survival differences between breast units in the UK and the rest of Europe.

NPI	% OS at 84 months ±2SE			
	EA	C	N	0
EPG	95(2)	93(6)	96(2)	94(2)
GPG	94(2)	94(4)	90(2)	92(2)
MPG I	89(2)	93(4)	84(4)	86(2)
MPG II	77(4)	81(8)	73(4)	78(4)
PPG	62(6)	70(12)	59(6)	58(6)
VPG	48(12)	52(26)	37(12)	44(8)
All cases	84(1)	87(4)	80(2)	84(1)

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Angiosarcoma of the breast and VEGF-R expression

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Background: Angiosarcoma of the Breast (AB) is a rare tumour accounting approximately for 0.05% of all breast cancer. In this retrospective analysis of a contemporary series of patients with AB, we defined the long term outcome and the most common prognostic factors were analysed. The expression of Vascular Endothelium Growth Factor Receptor (VEGFR), with implications for targeted therapies, was also evaluated.

Material and Methods: Patients with AB that were treated at our institution between January 1996 and December 2006 were identified from an institutional database. Twenty-one patients without metastasis at the time of diagnosis were analyzed for age, association with a previous Breast Conserving Treatment (BCT) for breast cancer, size of tumour, grade, VEGFR expression and outcome.

Results: The average age of patients at diagnosis was 50 years (range 14−73). Nine patients had previously undergone BCT for breast cancer. Tumour size was >5 cm in 20% of cases (median 4.1 cm) and the higher proportion of tumours where high grade (44%), 25% were intermediate and 31% low grade. VEGFR was positive in 64% of cases and this finding was associated with low and intermediate grade tumours (P value = 0.0030). There were 6 local recurrences and 6 deaths for disease progression. The 5 years Disease Free Survival (DFS) and Overall Survival (OS) for all patients were 46% (95% confidence interval (CI): 20−72%) and 65% (95% CI: 39−90%) respectively. No factor significantly affected either DFS or OS at univariate analysis, although VEGFR positivity and tumor size >5 cm increased the risk of recurrence or death of about two folds. The occurrence of locoregional relapse increased the risk of death of approximately 3 times.

Conclusions: Multimodal therapy should be considered the standard approach to this severe disease. Despite the low number of cases require caution in drawing conclusion, in this series VEGFR expression is highly related to low and intermediate grade tumours and may have a role to predict a particular patient's clinical course. That found, we encourage the use of a targeted therapy in adjuvant setting when VEGFR is expressed.

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A study on the relationship between breast cancer molecular classification and prognosis

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Background: To investigate the relationship between breast cancer molecular classification and prognosis.

Materials and Methods: The classification of breast cancer was according to the immunohistochemical results of estrogen receptor (ER), progesterone receptor (PR) and human epidermal growth factor receptor (HER2) status. Molecular classification definitions were as follows: highly endocrine responsive (ER+, PR+, HER2−), incompletely endocrine responsive (HER2−, hormonal receptor at low level or lacking either ER or PR), triple negative (ER−, PR−, HER2−) and HER2 positive (HER2+). 708 breast cancer patients were retrospectively analyzed to investigate the prognosis among different molecular classifications.

Results: The proportion of highly endocrine responsive, incompletely endocrine responsive, HER2 positive and triple-negative breast cancer was 33.2% (235/708), 23.6% (167/708), 21.3% (151/708) and 21.9% (155/708). Factors affecting the prognosis were tumor size, axillary lymph node status, molecular classification, adjuvant radiotherapy and adjuvant endocrine therapy by univariate analysis. Multivariate analysis revealed that the molecular classification and lymph node status were the independent prognostic factors with the hazard ratio 1.205 (95% CI, 1.003–1.449; P = 0.047) and 4.512 (95% CI, 2.802–7.263, P = 0.000), respectively. Survival analysis showed that highly endocrine responsive breast cancer was with superior prognosis versus others.

Conclusions: Molecular classification of breast cancer is an independent predictor of prognosis, breast cancer patients classified as highly endocrine responsive subtype had the best outcome.

	Hazard ratio	95% Confidence interval	P value
Tumor stage	1.068	0.719−1.587	0.744
Lymph node status	4.512	2.802−7.263	0.000
Molecular classification	1.205	1.003−1.449	0.047
Adjuvant endocrine therapy	0.632	0.393−1.015	0.058
Adjuvant radiotherapy	1.261	0.770−2.065	0.356

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Expression of invasive markers (uPA/PAI-1) in four different HER2, ER, PR subgroups of early breast cancer

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Background: Recent studies suggest that, in some cancers, HER2 specifically promotes the invasive capacity of tumor cells by up-regulating secretion of the proteolytic enzyme, urokinase-type plasminogen activator (uPA), or its inhibitor, plasminogen activator inhibitor-1 (PAI-1).

Aim: The purpose of this study was to evaluate the association between HER2 status and uPA and PAI-1 expression in primary tumors of early breast cancer patients (EBC) and to explore the uPA/PAI-1 expression difference in four molecular subgroups according to immunohistochemically determined HER2 and ER and PR status.

Methods: 308 patients with EBC treated between the years 2004 to 2006 at the University Hospital Maribor, were enrolled in the study. Biological characteristics: grade, ER and PR status, HER 2 status as well as tumor level of uPA and PAI-1 were accessed routinely. Patients