evidenced by elevated C-reactive protein and low serum albumin) has been established as an independent predictor of survival in patients with metastatic breast cancer. However, the relationship between these systemic inflammatory markers, clinicopathological characteristics and cancer specific survival has not been established in early breast cancer.

Methods: During the period June 2001–May 2008, patients with early breast cancer presenting to two hospitals in the West of Scotland were prospectively included into this study ($n = 959$). Preoperative C-reactive protein, albumin and clinico-pathological data were recorded for each patient. The thresholds for normal C-reactive protein and albumin were taken as <6 mg/l and >43 g/l respectively.

Results: The median follow-up of the survivors was 4.1 years. During this period, 93 patients died of their cancer. On multivariate analysis, tumour size (HR 2.03; 95%CI 1.41–2.91, $P < 0.001$), lymph node status (HR 2.23; 95%CI 1.45–3.41, $P < 0.001$), hormone receptor status (HR 1.58; 95%CI 1.24–2.00, $P < 0.001$) and albumin <43 g/l (HR 1.97; 95%CI 1.28–3.01, $P = 0.002$) were significant independent predictors of cancer-specific survival. Lower serum albumin concentrations (<43 g/l) were associated with deprivation ($P = 0.019$) and significantly poorer 5-year cancer-specific survival (85% vs. 92% $P = 0.005$).

Conclusions: The results of the present study show that lower preoperative albumin concentrations, but not elevated C-reactive protein concentrations, predict cancer-specific survival, independent of clinico-pathologic status in early breast cancer. Albumin may be a useful clinical prognostic factor in these patients.

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O-66 REDUCED MCPH1 EXPRESSION IN BREAST CANCER IS ASSOCIATED WITH REDUCED SURVIVAL IN DUCTAL CARCINOMAS

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We have investigated the expression pattern of the MCPH1 protein microcephalin and evaluate its prognostic importance in breast cancer. Microcephalin is a damage response protein involved in the regulation of BRCA1 and BRCA2 in the homologous DNA repair pathway. BRCA1 mutations are often associated with basal-like breast cancer. MCPH1 immunohistochemistry was performed on 319 breast cancers and correlated with pathology, survival, ER, PR, HER2, EGFR, CK5/6, CK14 and BRCA1 data.

After performing continuous data analysis mean microcephalin expression decreased with increasing grade, grades 1 and 2 vs. grade 3 ($p < 0.006$). Interestingly mean microcephalin expression was also lower in ER/PR negative ($p < 0.001$) and triple negative cancers ($p < 0.004$). Conversely an association with HER2 positive cancers was also identified ($p < 0.03$). No association was identified with basal markers or BRCA1 cytoplasmic staining.

After dichotomizing the data into low and high microcephalin expression, reduced expression was identified in 29% (93/319) of breast cancers. A weak association with low microcephalin expression was identified with overall survival (OS) $p = 0.1$ in the whole patient series. This was increased in ductal carcinomas alone (HR = 0.6, 95%CI: 0.4–1, $p = 0.054$). Multivariate analysis of ductal carcinomas showed that microcephalin, together with stage, was considered an independent predictor of OS (HR = 0.5, 95%CI: 0.3–0.851, $p = 0.01$).

Microcephalin expression is reduced in 29% of breast cancers, particularly in higher grade tumours and is an independent predictor of OS in ductal carcinomas. Microcephalin may prove to be a useful biomarker for the identification of aggressive breast cancers.

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O-67 ASSESSMENTS OF PROLIFERATION IN BREAST CANCER

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Background: Proliferation rates of tumour cells provide prognostic and therapy predictive information. Mitotic index (MI), S-phase fraction (SPF) and Ki67/MIB-1 are used to assess proliferation.

Aim: To compare the proliferation assays and explore their correlation.

Patients and methods: MI, SPF and 5-year follow-up data were explored for 670 patients from the hospitals of Kalmar County. MI, Ki67/MIB-1 and 3-year follow-up data for 403 patients from the Sahlgrenska University Hospital were extracted.

Results: MI and Ki67 were both significantly correlated to early recurrence, $p < 0.001$. The optimal correlation between MI and Ki67 was achieved when both were separated in three groups with cut off values for Ki67 of 10 and 30%. Spearman $r = 0.69$, $p < 0.0001$. The 39 early distant recurrences were distributed in the MI group 1–3, group 2–11 and group 3–25 recurrences. Two pts with Ki67 <10% had distant recurrences, 22 with 10–30% and 15 pts in the group of Ki67 < 30%.

The combination of diploidy and low SPF identified pts with the lowest and MI 3 those with the highest risk of distant recurrence.

Conclusion: Mitotic index was superior to Ki67 and SPF to identify pts with inferior prognosis. The cytometric assay was superior to identify pts with the best prognosis. There was a significant correlation between MI and Ki67 when both were stratified into three groups.

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O-68 THE EFFECT OF LYMPHOVASCULAR INVASION (LVI) ON SURVIVAL

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