Univariate statistical analysis showed that negative ER detection by IHC (and also by dextran charcoal coated method) was highly correlated with chemosensitivity ($p = 0.001$). A high percentage of Mib-1 tumor cells (higher than 40%), as well as initial tumor size less than 4 cm were also correlated with tumor responsiveness to chemotherapy ($p = 0.009$ and $p = 0.03$).

By multivariate analysis, IHC-ER, Mib-1 and initial tumor size were independent predictive factors of response to neo-adjuvant chemotherapy, the last parameter being the most important.

515 ORAL

The expression of thymidine phosphorylase in fibrocystic disease, fibroadenoma, papilloma and carcinoma of breast

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Purpose and Methods: We have shown that human thymidine phosphorylase (TP) is identical with the platelet-derived endothelial cell growth factor and has angiogenic activity. In this study, we examined the expression of TP in fibrocystic disease, fibroadenomas, papillomas and mammary carcinomas, using biochemical and immunohistochemical methods. Moreover, in order to evaluate the significance of TP expression in mammary carcinomas, we studied its relationship with the vascular density and various clinicopathological factors in patients with a mammary carcinoma.

Results and Conclusion: TP expression was much common in mammary carcinomas, was slight in fibrocystic disease and fibroadenomas and was intermediate in papillomas. The number of microvessels in mammary carcinomas was generally correlated with the number of TP-positive cells. TP expression and the vessel density were significantly high in tumors negative for ER or positive for c-erbB2 and in tumors positive for TP or c-erb B2, respectively, TP expression and vessel density were not modified by any status of nodal metastasis, PR expression, menopause, age, and p53 expression.

516 POSTER

Power doppler vascularity in malignant breast tumours: Correlation with pathological blood vessel counts, microvessel density and other histopathological prognostic factors

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Purpose: Neoangiogenesis is a recognised characteristic of malignant breast tumours. We evaluated if power doppler (PD) detected vascularity and vessel morphology correlated with histological vascularity and known histopathological prognostic factors.

Methods: We prospectively examined 174 patients presenting with palpable or mammographic solid breast masses. Parameters measured included: number of vessels seen on colour doppler (vessel C) and PD (vessel P), vessel distribution (peripheral, central or penetrating) and morphology (tortuous, branching). 145 lesions had all available H&E sections examined and the number of vessels (separately and grouped) measuring 1 mm or more in diameter at both the centre and periphery of the lesion recorded. CD31 immunostaining was also carried out to determine the highest microvessel density at the periphery of the lesion in the "hot spot"region.

Results: 183 masses were examined and diagnosis confirmed with needle biopsy. There were 117 cancers which formed the basis of this study. 109/117 had surgery and 99 of these were histologically examined for vascularity. Doppler factors significantly associated with histological grade were vessel P ($P < 0.001$), branching vessels ($P = 0.0019$), vessel C ($P = 0.0063$), central or penetrating vessels ($P = 0.0339$) and tortuous vessels ($P = 0.0377$). Regression analysis showed vessel P to be the best predictor of high histological grade. The number of large vessels identified on PD correlated with the number of large vessels found on histology (periphery and centre: $p < 0.0001$ and $p = 0.0075$ respectively). High histological peripheral large vessel counts were associated with higher tumour grade ($p = 0.0012$) and lymph node stage ($p = 0.0073$), whilst the histological central vessel counts corresponded with stage ($p < 0.0001$) but not grade. Increased numbers of large vessels in pathological sections (both peripherally and centrally) were associated with greater size of breast carcinoma ($p = 0.0325$ and $p = 0.0024$ respectively). The mean CD31 counts showed no relationship with histological grade, stage or size.

Conclusion: The study confirmed good correlation between the number of vessels seen on PD and on histological sections. The demonstrated vascularity is associated with known pathological prognostic factors. PD may therefore provide a method of non-invasive prediction of the aggressiveness of malignant breast tumours.

517 POSTER

A national pathology audit of breast cancer cases

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Purpose: In 1997, comprehensive recommendations for pathology reporting of breast cancer were published in Australia. The NHMRC National Breast Cancer Centre undertook an audit of national pathology reporting to give a describe a baseline descriptionmeasure of the completeness and coverage of pathology reporting of breast cancer in Australia before the introduction of the recommendations.

Methods: Pathology reports of breast cancer cases in April-May 1995 from all states and territories in Australia were audited on a standard data collection form. Three pathology registrars recorded completeness of tumour size, histological type, grade, margins of excision, vessel invasion, DCIS and non-neoplastic changes in adjacent breast tissue.

Results: Reports of invasive cancers for 1,542 women were most complete for tumour type (100%) and size (94%, 95%CI 92–95) and less for histological grade (84%, 95%CI 82–86) and presence or absence of DCIS (79%, 95%CI 77–81). Information, except for tumour type and size, was variable across the States and Territories. Reporting of DCIS was comparatively poor.

Conclusion: The capacity for improvement compared with past, more limited, surveys and the variable percentages of complete information in this national audit suggested that continuing efforts were needed to ensure uniform, high quality reporting of breast cancer specimens.

518 POSTER

Comparative studies on cytological findings between early recurrent cases with negative nodes and recurrence-free cases with positive nodes in breast cancer

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Purpose: Axillary lymph node metastasis is the most important prognostic factor in breast cancer. However, early recurrence has been observed in patients without the node metastasis, and node-positive patients have survived without recurrence. Thus, the prognosis after operation is various and sometimes independent of nodal status. In the present study, we examined a significant factor by comparing cytological findings and the immunohistochemical expression of primary cancer cells between the both cases.

Material and Methods: From 735 cases surgically treated in our hospital between 1990 to 1996, 11 node negative and early recurrent cases within two years (group 1), 16 node negative and non recurrent cases for more than 5 years (group 2), 18 node positive and recurrent cases (group 3), and 20 node positive and non recurrent cases for more than 5 years (group 4) are used. Cytological atypia of the primary tumor was analyzed using microscopic morphometry (Olympus micrometer VM-30). In addition, expression of Ki-67, c-erb B2, and p53 were evaluated immunohistochemically.

Results: Significant parameters of cytological findings between group 1 and group 4 were noticed in diameter of nuclear long-length (mean $p = 0.005$, SD $p < 0.001$), diameter of nucleolar long-length ($p < 0.001$), nuclear area ($p = 0.009$), incidence of nucleolus $>2.5\ \mu m$ in diameter ($p = 0.01$), and mitotic index ($p = 0.007$). A cytological grading system (0–11 points) by means of scoring these cytological items and necrosis in each case was significantly different between the two groups (the cut point; 7, $p < 0.001$). Regarding immunohistochemical analysis, expressions of Ki-67, c-erb B2 revealed higher positivity in early recurrent cases without the node metastasis (group 1).

Conclusion: It is proposed that our scoring system of the cytological dysplasia and immunohistochemical expresions of Ki-67 and c-erb B2 may be a useful parameter of early recurrence in breast cancer.