

298

**ECHOCARDIOGRAPHY IN BREAST CANCER**

Costa LAM, Moreira CS, Nóbrega J, Costa EB, Costa JN  
 Serviço Medicina I e Hospital de Dia de Oncologia. Hospital de Santa Maria,  
 Av. Prof. Egas Moniz, 1699 LISBOA CODEX, PORTUGAL

**Background:** Breast Cancer (BC) is one of the most common cancers that involves the heart and pericardium, or is associated to cardiac disease following radiation and chemotherapy treatments. The purpose of this study was to detect and correlate the presence of echocardiographic (EcoC) findings in BC patients with stage, localization of metastatic disease, prognosis and previous treatments.

**Methods:** 45 BC patients (44 women and 1 man), median age 55,4 years old; 10 patients in stage II, 4 in stage III and 31 in stage IV underwent EcoC study, clinical evaluation and assessment of previous treatments. They were followed prospectively using clinical evaluation and EcoC, median follow-up: 16 months.

**Results:** We found pericardial alterations in 16 patients, 2 with pericardial thickness and 14 with pericardial effusion (2 of them showing pericardial mass). In this 14 patients 12 had small pericardial effusion and none of this developed cardiac tamponade, against one patient who required pericardiocentesis revealing malignant fluid. We found also one patient with systolic dysfunction following chemotherapy with anthracyclines. Four patients had aortic valve calcification and three mitral valve calcification.

There was significant association between the presence of pericardial effusion and left pleural effusion ( $p=0,005$ ) and with previous radiotherapy ( $p=0,04$ ).

**Conclusions:** Pericardial effusions was the most common EcoC finding in this BC patients. It is usually small and not evolutive. Pericardial effusion was significantly associated with left pleural effusion and previous radiation therapy.

300

**IMMUNODIAGNOSIS OF BREAST CANCER BY CELLSCAN**

M.Rubin, G.Asseo, S.Gerbat, R.Pakula, H.Rachmani, B.Nusbaum, E.Antebi, Z.Rehavi.

Department of Surgery "A" and "B", Department of oncology, Beilinson Medical Center and Medis-El, Tel-Aviv ISRAEL.

The Cellscan is a new instrument which permits repeated optical measurements of individual cells. The Cellscan measures changes in fluorescence polarization of fluorescein labeled peripheral blood lymphocytes, induced upon exposure to breast cancer antigens, phytohemagglutinin and encephalogenic factor. We have examined the clinical proficiency of the Cellscan to detect breast cancer in 178 women. 88 of them were hospitalized to undergo removal of a breast lump or a lesion demonstrated by mammography. 90 healthy women served as controls. 20cc of heparinized blood obtained before operation were separated on a modified Ficoll gradient yielding 95% lymphocytes, 75% of them were T lymphocytes as confirmed by flow cytometry. Criteria for exclusion from the study were: metastatic breast disease, other malignant diseases and a history of prior radiotherapy or chemotherapy. The specificity of the controls determined by the Cellscan was 72%. Among the 88 patients who underwent removal of a breast lesion, 64 had breast cancer and 24 had a benign lesion as defined histologically. Among the former, 54 tested positively with the Cellscan - sensitivity of 84%. Among the 24 with the benign lesions, 15 tested negatively and 9 positively (correlation of 63%). However, in the benign group, 4 patients were defined histologically as premalignant. The diagnosis of breast cancer by the Cellscan appears to have a higher accuracy and lower false positives than other breast cancer diagnostic tests.

302

**TIMING OF SURGERY IN RELATION TO MENSTRUAL CYCLE DOES NOT PREDICT THE PROGNOSIS IN PRIMARY BREAST CANCER.**

Kroman N, Højgaard A, Andersen KW, Graversen HP, Afzelius P, Lokdam A, Juul C, Hoffmann J, Bentzon N, Mouridsen HT.  
 Danish Breast Cancer Cooperative Group, Finsen Institute, Copenhagen, Denmark.

Some recent studies have indicated that time of surgery in relation to menstrual cycle could be a prognostic factor in primary breast cancer. This view is not universal, but previous studies have been based on relatively small groups of patients (N=41-382).

In the present multicenter study information about the last menstrual period was obtained in 1635 (study group) of 6488 (total group) pre- and perimenopausal women operated for breast cancer during the period 1977-1989. Prognostic factors and 5- and 10 years survival were similar in the two groups. Time of surgery in relation to last menstrual period was found to have no influence on survival. In addition, use of contraceptive pills or other hormonal therapy at the time of surgery was also found to be of no significance.

299

**A MATHEMATICAL MODEL OF GROWTH AND PROBABILITY OF METASTATIC DISSEMINATION OF BREAST CANCER**

E Shochat, Z Agur, F Kovner, S Chaitchik  
 Dep. of Oncology, Ichilov Hospital, Tel Aviv, and  
 Dep. of Applied Mathematics, Weizmann Inst. of Science, Rehovot, Israel.

The malignant phenomena are characterized by complexity of its processes. This work describes mathematically the growth and metastasis of breast cancer. The growth function is estimated using a theoretical model of tumor detection and a stochastic analysis of distribution of tumor size at diagnosis. Thus we can conclude, using this single measurement, that breast cancer grows exponentially. The metastatic process is described as a stochastic function of the tumor size. The model predicts the probability of metastases for any tumor size and estimates the risk of recurrence at any period after diagnosis. The parameters of the model correlate well with clinical data of 130 consecutive patients, providing a realistic simulation of the disease behaviour. This model can serve as a guide to therapeutic decisions, especially in the adjuvant setting, and a basis for optimization protocols in the treatment of the disease.

301

**HORMONAL RECEPTORS AS PROGNOSTIC FACTORS FOR DEVELOPMENT OF BONE METASTASES IN BREAST CANCER**

E.N.Piperkova, N.I.Christova, D.B.Tzinglev, B.Kirilova, E.Krasteva.

National Oncological Centre,  
 6 Plovdivsko pole str., Sofia, 1156 Bulgaria

Clinical observations have shown that approximately one third of breast tumours are hormonal depended. Several reports show that estrogen (ER) and progesterone (PR) receptors are important as prognostic factors. The relation between hormonal receptors (HR) and frequency of appearance of bone metastases (BM) and BM-free interval in 125 patients with operable (TNM-system, stage I-III) breast cancer were studied. Their average age was 52,4. Hormonal receptors were analysed of the primary tumour tissue by DCC method. Value above 10 fmol/mg was accepted as a receptor-positive. The bone metastases, during a postoperative follow-up, were detected with bone scintigraphy on a gamma-camera or a scintigraphic scanner, 3 hours after intravenous injection of 99m-Tc-MDP. BM were found in 57,2% (52 out of 91) HR-positive patients and in 47,1% (16 out of 34) HR-negative patients. In conclusion the patients with HR-positive tumours develop more frequently BM and their BM-free interval is shorter than BM-free interval in patients with HR-negative results. This is of importance for determination of the treatment strategy.

303

**PATTERNS OF DIAGNOSIS OF BREAST CARCINOMA IN A SPECIALISED SYMPTOMATIC BREAST CLINIC.**

Borovik R, Steiner M, Rabinovich I, Rubinov R, Palti S.  
 LIN Medical Center, Dep. of Oncology, Haifa Israel.

During 15 months, 2760 women were examined in a specialised symptomatic breast clinic. The median age was 48 years, (mean 49, range 14-89). 16.2% had family history of breast cancer (9.7% in a 1st degree relative). In 183 women (6.7%) breast carcinoma was diagnosed. The median age was 63 years, (mean 61, range 32-89). 28.5% were premenopausal and 71.5% postmenopausal. 75% were referred due to breast lump, 17% due to mammography finding and 8% for other complains. 74% of the tumors were detected by physical examination and mammography, 12% by physical examination only and 14% by mammography only. The sensitivity of physical examination was 78.1% and of mammography 85.4%. Fine needle aspiration biopsy was performed in 124 palpable tumors. The sensitivity of the cytology test was 88%. 64 pts. (35%) had stage I disease, 86(47%) had stage II, (22% T2N0 and 25% T1-2N1), 26(14%) had stage III and 7 pts.(4%) metastatic disease. We conclude that specialised symptomatic breast clinics are needed as many breast cancer patients are still diagnosed outside screening programs.