

Of the 16 patients referred for PET study, 12 had abnormal uptake of 18-FDG in the region of the symptomatic plexus. 3 patients had normal PET studies and one had increased FDG uptake in the chest wall that accounted for her axillary pain. CT scans were performed in 7 of the 12 patients who had positive brachial plexus PET studies; 5 of these were either normal or showed no clear evidence of recurrent disease, while 2 CTs demonstrated brachial plexus involvement. Regarding 2 of the 3 patients with normal PET studies, one had complete resolution of symptoms untreated whilst the other had cervical disc herniation on Magnetic Resonance Imaging (MRI). The third patient almost certainly had radiation-induced BP and had normal CT, MRI and PET studies. These data suggest that 18-FDG-PET scanning is a sensitive and specific technique for evaluation of patients with suspected metastatic BP, particularly if other imaging studies are normal. It may also be useful in distinguishing between radiation-induced and metastatic BP.

PP-4-18 **Ultrasound-Guided Localisation of Impalpable Breast Lesions**

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Impalpable lesions detected by mammography require accurate localisation before excision biopsy. This retrospective study assesses the efficacy of ultrasound-guided localisation in terms of successful localisation of lesions and their adequate excision. Between March 1989 and February 1996 148 patients with impalpable lesions easily visible on ultrasound underwent ultrasound-guided localisation. Localisation was performed using an Aloka SSD 620 with a 7.5 MHz linear array probe. The depth of the lesion below the skin and its diameter was recorded. The mean age of the patients was 58.7 years (range 27.4–80.4). The mean maximum diameter of lesion localised at ultrasound was 11.2 mm (range 3–30), compared to mean histological size of 12.6 mm (range 4–33). The mean maximum diameter of tissue removed was 57.5 mm (range 10–110). 65 specimens were weighed. The mean weight of all specimens was 37 g (range 2–101). 99 of the 148 ultrasound-localised biopsies (67%) were malignant. Excision was complete in 87 (88%) of the 99 malignant cases. Five patients had further excisions and seven proceeded to mastectomy. Well-defined impalpable lesions have been successfully localised using ultrasound. The procedure is simple, convenient and non-invasive.

PP-4-19 **Imaging of Tumours in Breast Cancer Patients with the Estrogen Receptor Specific Radioligand Z-[I-123]MIVE**

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Objective This study investigates the potential of the putative I-123-labelled estrogen receptor (ER) ligand cis-11 β -methoxy-17 α -iodovinylestradiol (Z-[I-123]MIVE) for ER imaging in women with primary or metastatic breast cancer.

Patients and methods For 11 women with primary and 14 women with recurrent or metastatic breast cancer scintigraphy was performed at several time points (up to 24 h) after i.v. injection of 150 MBq Z-[I-123]MIVE. The tumour-to-background uptake ratios were calculated from the images by the regions of interest technique.

Results Low lung uptake and rapid hepato-biliary excretion allowed early imaging of the thoracic region. Analysis of the abdominal region was impeded by bowel excretion. In 21 patients focal Z-[I-123]MIVE accumulation was detected in primary tumours, local recurrences or metastases. The tumour-to-background ratios increased over time. At 4–6 h p.i. the ratios were for tumours in the breast 1.2 to 3.2, lungs e.g. 3.5, liver 3.2, lymph nodes 3.6, sternum 2.2, os ilium 3.7, os pubis 9.7, and recurrence 2.8. In 8 patients a second Z-[I-123]MIVE scan was performed 2–3 weeks after initiation of tamoxifen treatment. Except for two patients with early progressive disease, tumour uptake of Z-[I-123]MIVE was blocked completely by the anti-estrogen. This indicates that Z-[I-123]MIVE uptake is indeed ER-mediated.

Conclusion Z-[I-123]MIVE accumulates specifically in primary tumours, recurrences and all metastases (bone, liver, lung, brain, and lymph nodes) of breast cancer.

PP-4-20 **Nonpalpable Opacities on Mammograms: Histopathological-Mammographic Correlations of 304 Cases**

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Nonpalpable opacities of the breast are found more frequently with the increasing number of mammography performed for clinical or screening purposes. The specificity of mammography is not very high and 50 to 70% of non palpable opacities are finally benign. The purpose of this study is to determine the influence of epidemiologic (patient age, family and personal history) and mammographic patterns on the rate of malignancy in nonpalpable breast opacities. During a 6 years period, 1097 nonpalpable lesions were biopsied after needle localization. We have found 793 clustered microcalcifications (72%) and 304 opacities (28%). These opacities, ranging in size from 3 to 40 mm (mean: 15 mm), were associated with microcalcifications in 100 cases (33%). The histological diagnosis is malignant in 126 cases (42%): 12 carcinomas in situ and 114 infiltrating cancers. The proportion of cancers varied according to age (< 50 years: 36%, > 50 years: 47%), mammographic patterns (circumscribed opacities: 11%, asymmetric densities: 26%, architectural distortion: 30% and spiculated/stellate opacities: 89%). No cancers are found among well-defined borders opacities. There is no significant difference in relation to the size or to family history. The rate of malignancy is influenced by personal history of breast cancer and associated microcalcifications. The authors will also present histological results with a special emphasis on the cancers (histological type, size, grade, node involvement, treatment).

PP-4-21 **Evaluation of the European Pilot Project in Navarra; A High Breast Cancer Detection Rate in the First Round and a Low Rate in the Second Round**

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The running European pilot project for breast cancer screening in Navarra (Spain) is evaluated, and the effects and costs of a screening programme in the long term are predicted.

A MISCAN simulation model was used, including the demographical, epidemiological and screening characteristics of Navarra. Expected results from MISCAN are compared to observed results from Navarra.

The observed detection rate of 5.9 in the first round was 18% higher than expected, while in the second round the observed rate of 3.0 is 12% lower than expected. Longer preclinical durations, lower sensitivity or less variability in preclinical duration cannot explain the first and second round results together. The mortality reduction of a long term screening programme is expected to be between 15–20%.

The observed results of the first and second screening round in Navarra cannot be explained by the present assumptions on the natural course of breast cancer and characteristics of the screening programme assuming a constant sensitivity over rounds. Studies on the possibility of another natural course of breast cancer in this southern region and review of the first and second round screening results should give a final answer to this problem. Nevertheless, it is expected that the programme will have an important health benefit for the women involved.

PP-4-22 **Overweight and Hormone Receptor Positive Breast Carcinoma in Postmenopausal Women**

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In an attempt to know whether "obese" postmenopausal women have got more often estrogen or progesterone receptor (ER, PR) positive tumors than lean women, we studied ER and PR content according to body mass index of Quetelet (QI).

Between 1974 and 1990, 698 postmenopausal women (age range: 41–93, median age: 62) presented with operable breast carcinoma (T 4, N2 or 3, inflammatory signs excluded). Quetelet's index = (weight/height²) $\times 10^4$ of every woman was established at diagnosis. ER and PR content was measured by using biochemical ligand-binding assay (dextran coated charcoal assay) and later by enzyme immune assays. Breast cancer in women with overweight (363 with QI > 25%) was more often receptor positive (ER + or PR +) than tumor in lean women (p = 0.009). Overweight

(QI > 25%) correlates with tumor progesterone receptor levels (above 100 fmol/mg protein). It suggests that women with overweight develop hormone responsive breast carcinoma more frequently than lean women.

PP-4-23 CA 15-3, CEA and TPS for Monitoring Metastatic Breast Cancer Patients — A Multicenter Study

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CA 15-3, CEA and TPS were determined in serum samples of breast cancer patients treated with hormonal and/or chemotherapy. Patients were divided into 4 groups according to UICC criteria: 1. After 3 months PR (SD) and 6 months PR (CR) (n = 29); 2. After 3 and 6 months SD (n = 39); 3. After 3 months PR (SD) and 6 months PD (n = 27) and 4. Anytime PD as the first follow-up assessment (n = 34). Initial elevation of CA 15-3 and TPS were of the same order and more often than CEA. TPS decreased (> 50%) more often than CA 15-3 and or CEA (groups 1 + 2). This decrease was also reached for TPS with a significantly shorter median time. 40 patients in groups 1 + 2 (from 4 centers) were used for calculation of the marker increase (> 25%) and 70% reached that level outside the reference range for one of the markers during the first 6 months. Extended clinical follow-up revealed that all these patients developed PD later on. The prognostic sensitivity for PD was 70%, 40% and 30%, respectively for TPS, CA 15-3 and CEA. The median lead-time was 8 months for CA 15-3 and CEA and 10 months for TPS. TPS increased more often than CA 15-3 and/or CEA (groups 3 + 4). There was no significant difference in the median time of this increase.

PP-4-24 Stereotaxic Large-Core Needle Biopsy of Breast Microcalcifications

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We report our first results with stereotaxic large-core needle biopsy (SLCNB) for diagnostic approach of microcalcifications.

90 SLCNB were performed from February 1994 till December 1995. We used a General Electric CGR stereotaxic device (Stereotix) attached to a DMR mammography unit, a biopsy gun (Biopsy Gun, Bard) and 14 gauge disposable biopsy needles (Biopsy Cut, Bard). Biopsies were performed with the patient lying on her side (50 cases) or sitting (40 cases). A mean of 5 cores was obtained per lesion. In 64 cases, at least one core sample contained microcalcifications visible on the radiography of the specimen. Histopathologic result was benign in 46 cases, malignant in 40 cases.

Four failures were noted, due to faintness or technical difficulties. Seven minor complications were encountered. No false negative occurred for SLCNB among the 36 lesions which underwent open surgical excision, but in 13 cases, the invasive nature was not specified by SLCNB which found only ductal carcinoma in situ.

Our first results are comparable to those published in the literature. With a precise technique and a cautious interpretation, SLCNB can bring useful information for the diagnosis and treatment of breast microcalcifications.

PP-4-25 Breast Screening: A 7-Year Experience in the Northeast of France

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Since 1989, during periodic health examinations, the Center of Preventive Medicine in Nancy has proposed a screening mammography to women aged over 50. They were examined with two-view mammography for the first pass, and one-view mammography for the others. Independent double reading by radiologists from Centre Alexis Vautrin was performed.

During a 7-year period, 10,949 screening examinations were performed, in 62% of the women aged over 50.

The recall rate for further examination was 6% (653 cases). Biopsy was recommended in 138 cases. Fifty-seven biopsies evidenced carcinoma. The number of breast cancers detected was 5.2 per 1,000 screenings.

The predictive positive value is 8.7%.

The authors have studied the annual trend of the results. This work has led them to develop a multidisciplinary experience that will allow to begin now a mass screening of breast cancer in the "Meurthe et Moselle" Department.

PP-4-26 Second Cancers after Breast Conservative Treatment (BCT)

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Material: From January 1980 to December 1990, 991 women with stage I-II BC (seven with bilateral BC) underwent conservative surgery and irradiation. The median age was 54 years. According to TNM classification we found 198 T0, 399 T1, 342 T2, 59 T3.

Treatment: Quadrantectomy, lumpectomy and axillary dissection were performed respectively in 764, 234 and 925 cases. All received breast irradiation by cobalt photons at 46–54 Gy, with a scar boost by electrons at 8–12 Gy. Supraclavicular and internal mammary nodes were treated in case of central/inner tumor or axillary involvement. 308 women received chemotherapy (CT), and 679 hormonal therapy (HT): 25 by radiotherapeutic castration (RC), 577 by Tamoxifen (T) and 77 by RC + T.

Results: With a median follow-up of 7 years, the overall and specific 10-years survival rates are 82% and 87%; 60 women developed local recurrences and 102 metastases. 19 women developed a contralateral BC (2%). Any had axillary involvement. Two died of metastases. We note respectively 1.3% and 2.5% of contralateral BC in women with and without CT, and 1.9% and 2.5% in women with and without HT. 41 women (4%) developed 43 second cancers: 7 endometrial carcinomas, all in group with HT (1.2%), 6 ovarian tumors, 11 digestive tumors (6 colorectal), 3 kidney adenocarcinoma, 3 melanoma, 2 vulvar ca, 2 parotid tumors, 2 NHL, one breast angiosarcoma, 2 A.M.L., 2 lung ca., one cervical ca., and one Waldenström disease.

Conclusion: Contralateral BC incidence is few influenced by adjuvant therapy. These BC have favourable prognosis. HT clearly increase the risk of endometrial carcinoma.

PP-4-27 Use of Prevention Modalities for Breast Cancer: Survey on 2889 Self-Administered Questionnaires

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Purpose: To assess the knowledge and real use of prevention modalities for breast cancer, such as mammography and self breast examination in a unselected population.

Patients and method: We distributed an self compilative questionnaire to people coming in several health units of different Italian regions.

We collected 2889 questionnaires. Of the women filling the questionnaire, 41% had less than 40 years, 41% were housework and 24% had a primary school degree.

Results: Ninety percent and 92% of the sample knew the aims of self-breast examination and mammography respectively. However only 80% was able to perform self-breast examination and only 49% performed it regularly. Of the women performing self-breast examination, only 22% performed it monthly while 55% did occasionally. Assessing the women who really carried out mammography, 52% of the sample did not undergo mammography in the last 5 years, 34% perform 1–2 mammographies and 11% more than 3 examinations.

Conclusion: The knowledge of prevention modalities for breast cancer in this population was high, but few women really carried out these techniques.

PP-4-28 Randomised Controlled Trial Comparing the Effectiveness of Rapid Diagnosis and Routine Outpatient Clinics

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Background: Women attending 'rapid diagnosis' or 'one stop' breast clinics are offered investigations (triple assessment) and definitive diagnosis in one visit. It is anticipated that these clinics are more acceptable and reduce costs. This study aims to evaluate the effectiveness and efficiency of this management policy.

Setting: Symptomatic breast clinics at South Manchester University Hospital Trust, Manchester, UK

Study Population: Women over 35 years of age with a breast lump.