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SYMPOSIUM

Breast cancer imaging – what progress?

6 INVITED

Digital mammography and multimedial consultation in breast diagnosis

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Digital mammography is a new method for early diagnosis of breast cancer still in the developmental stage.

The potential advantages of digital mammography are:

– the optimal presentation of all clinical images (appropriate optical density, contrast, edge enhancement by separating the functions of image display and image recording;

– the possibility of a Computer Aided Diagnosis (CAD). Several algorithmis for CAD are under evolution and in the next future this tool could be cost-effective in screening, where double reading in now recommended; – teleconsultation between esperts in selected clinical cases;

– pictures archiving and management.

The available technology, currently based on storage phosphor systems, is suboptimal because of a low spatial resolution, but a high-quality digital mammography by full-field digital mammographic equipements will be soon achievable.

In the framework of the European Multimedia services for Medical Imaging Project (Emerald), funded by ACTS-EC-Programme, three breast imaging units-namely Centro per lo Studio e la Prevenzione Oncologica Florence (I), UKRV Strahlenklink and Poliklink Berlin (D), Hospital Principe de Asturia (SP) – have been connected by high speed networks and multimedial consultation on mammography will be experimented. The clinical, social and economic efficiency of the system will be monitored and the preliminary results presented.

7 INVITED

Computer aided diagnosis (CAD) in mammography

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The weakest link in breast cancer diagnosis has always been the radiologist who must find a lesion and make a diagnosis. In routine practice and in screening, 15-20% of cancers are overlooked and show up as interval cancers or late stage cancers in subsequent examinations. Another 30% of cancers is visible on previous mammograms as so-called minimal signs.

The performance of pattern recognition programmes, developed to aid radiologists in detecting breast cancers has now reached a level that renders application in routine practice and in screening useful. First studies in our department indicate that a higher sensitivity can be achieved without lowering the specification.

In the near future the combination of full size digital mammography with CAD will have a serious impact on the early detection programme of breast cancer, even in younger women.

8 INVITED

Nuclear magnetic resonance and breast cancer diagnosis

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Purpose: To give an overview about the present state of MR Mammography (MRM) including an outlook for future developments.

Methods: For 15 years now MRM has been clinically tested. There appears to be increasing consensus, that for an exact diagnosis of breast cancer the selection of temporal resolution (dynamic technique) as well as of spatial resolution is of utmost importance. Results, experiences of more than 5000 own cases and reports of the literature are reported.

Results: For the detection of invasive breast cancers in a size of more than 3 millimeters, the sensitivity seems to be in the range of 99%. DCIS seems to be detectable in 80 to 90% of cases at least in high grade DCIS.

Specificity varies enormously depending on measurement technique and sophisticated data evaluation. Multifocality and/or multicentricity, differentiation between tumor and scarring after biopsy, operation, prothesis implantation are other MRM-indications. An enormous variety of pitfalls can occur (technical, biological, data evaluation, standardization, normal enhancement, in-flow-phenomenen, hematoma, vessels, dosage of contrast medium, zooming, keyhole, opposed-image, clips, localization, field strength, artifacts etc.).

Conclusion: MRM has proven indications, but is still a research technique due to a lacking standardization. Future developments focus on reduction of costs, evaluation of hormone effects and development of one-step-diagnostic/interventional procedures.

9 INVITED

The evolution of ultrasonography

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The use of broad band transducers determined a great increase in spatial, contrast and vascular resolution of ultrasound probes dedicated to breast studies. High resolution sonography (HRS) has improved the sensitivity of ultrasound; this results in a lower number of patients that must be submitted to stereotactic procedures for tissue sampling. Providing better definition of normal as well as pathologic features, HRS also improves the specificity of the diagnosis for the majority of malignant nodules and allows a better definition of both local and regional staging. The most impressive results have been achieved in the evaluation of multifocal and multicentric carcinomas, in determining the size of the tumor, its degree of invasion of the surrounding tissues and of the ducts. Sensitivity of HRS for multicentricity is over 75% while specifity for ductal invasion is over 90%. Similar results can be achieved only with more expensive techniques like contrast enhanced magnetic resonance.

Color and power Doppler offer further characterization that may be particularly useful in searching for small tumors in fatty breasts and in evaluating tumor vascularity during therapies that are planned before surgery. The development of new sonographic contrast media increases the sensitivity of the systems. Their use improves the diagnostic confidence; moreover it opens new possibilities in the diagnosis of non-nodular tumors and in the differentiation of microcalcifications depicted with mammography. These new diagnostic possibilities must push radiologists to adequate their instruments and their methods to provide up-to-date and more accurate informations to the surgeon.

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SYMPOSIUM

Late sequelae of breast cancer treatment

10 INVITED

Late sequelae of breast cancer treatment: systematic therapy

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The widespread use of cytotoxic and endocrine approaches such as systematic adjuvant therapy in primary breast cancer patients may increase the number of patients experiencing late physical effect of the therapy. Irrespective of whether the cytotoxic therapy is given in standard or high dose, the spectrum of non-predictable late organ toxicities like congestive cardiomyopathy, pulmonary fibrosis, chronic nephrotoxicity, and -in rare cases- persistent cytopenias may be the consequence. Secondary malignancies such as acute myelogenous leukaemia and endometrial cancer will be the consequence of high dose therapy with alkylating agents and prolong the exposure to the antioestrogen tamoxifen. Furthermore, the induction of premature menopause in premenoposal women means that early hormone replacement therapy has to be considered in order to reduce the risk of osteoporosis and maybe heart disease. Not only ovarian ablation in these women but also the increasing use of antracyclins and high dose chemotherapy is responsable for more women needing HRT. Since treatment for the late side-effects is primarily symptomatic, it is mandatory

to monitor the patients for adverse reactions, so therapy can be stopped before the toxicities become life-threatening.

11 INVITED

Cosmetic and functional sequelae related to breast cancer surgery

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Only last decade, local treatment of early breast cancer has evolved from ablative to breast conservation procedures. Although, breast conservation with radiotherapy still results in moderate or unacceptable cosmesis in 20 tot 25% of the cases. Not including radiotherapy modalities, the factors influencing cosmesis are related to the localisation of the tumor, the diameter of the tumor and subsequently the volume of breast tissue resected, the type and orientation of the incision and continuous or discontinuous incisions to breast and axilla. Most of these factors influencing cosmesis are inversely related to local control and recurrences are probably the most important 'sequelae' since they result in mastectomy in the majority of cases.

Axillary dissection has been debated with emphasis to the extent of the dissection and relation to shoulder function impairment and lymphoedema of the arm and the breast. To this, sentinel node biopsy, in selected cases (without axillary dissection), may be of importance for women with major physical arm activities – who before had to give up their activities, without impairing their chance for cure.

It is clear that multidisciplinary decision making and selection of patients for either type of surgery or combined treatment is of the utmost importance to avoid late sequelae and provide excellent tumor control.

12 INVITED

Late sequelae of radiotherapy in breast cancer

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Radiotherapy has traditionally played an important role in the management of breast cancer. In operable disease it has been used as an adjunct to mastectomy and in inoperable locally advanced tumors ñ as a definitive care. The role of radiation has considerably increased with a common substitution of mastectomy by a conservative approach including tumor excision followed by breast irradiation. Since patients managed by breast conserving therapy have early tumors and favorable prospects of long-term survival, it is necessary to evaluate thoroughly late complications produced by this method. Based on the accumulated experience it may be stated that the risk of serious normal tissue damage produced by this approach is relatively low. Common side effects include breast edema, breast fibrosis and pain. Less frequent complications are pneumonitis and rib fracture. The irradiation of regional lymph node areas (axillary, supraclavicular, parasternal) may result in more disabling complications such as arm edema, impaired shoulder mobility, brachial plexopathy or cardiac injury. The major risk factors for late postradiation complications include total and fraction dose, treatment volume and the use of chemotherapy. For this reason the incidence of late complications is increased in locally advanced breast cancer patients in whom usually higher radiation doses and larger treatment volumes are necessary to produce effective tumor control.

13 INVITED

Late psychological sequelae of breast cancer

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Up to 35% of women with advanced breast cancer develop a major depressive illness and/or generalised anxiety disorder. While there is a strong link between the number and severity of patients' concerns and the development of these disorders those so affected are least likely to disclose their concerns to doctors or nurses. Even those who are not affected disclose less than half of their concerns. The reasons will be discussed and guidelines offered.

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SYMPOSIUM

Communication – who and how to bring the news

14 INVITED

Training in communication

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Good communication with cancer patients is essential in facilitating their adjustment. For instance, it enables patients to anticipate problems, assists rehabilitation and avoids unnecessary distress. Communication is a complex process because medicine in general and oncology in particular are facing an exponential growth of scientific knowledges, generating difficulties in the process of decision making. This context and the changes of attitudes of health care professionals in favour of a good communication, require an acquisition of detailed knowledges about patients reactions and needs for support. The more health care professionals will attempt to communicate, the more patients will react on a verbal or non-verbal level. These reactions will require additional attention from health care professionals with regard to the patients needs. It is unrealistic to expect health care professionals (physicians and nurses) to support their patients in that way, and break bad news optimally for example, unless they are equipped with the necessary skills through training which is generally still unavailable. The results of two randomized study assessing the effectiveness of training programmes on communication skills, professional stress and attitudes will be presented and discussed.

15 INVITED

Structuring communication in breast cancer care

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Communication plays an important role in the quality of care of cancer patients. The Dutch initiative group of Europa Donna has held a survey into the most important problems in breast cancer care as experienced by patients, doctors and nurses.

A remarkable finding was that patients mentioned communication and information as a major problem area, and not, as might be expected, medical treatment. Nurses reported disturbances in the communication between doctor and patient and among health care workers as a principal problem. Lack of interdisciplinary communication was also mentioned by doctors as one of the main problems.

Recent developments:

Government: Patient rights, including the right to information and the right to complain, are laid down in the Medical Treatment Contract Act (1995).

Health Professionals: Physicians' working groups focusing on breast cancer have started to include patient education and psychosocial care in their guidelines for diagnosis, treatment and follow-up. Checklists on patient education have been developed by nurses. On a local level GP's, physicians, clinical and district nurses co-operate to develop interdisciplinary working agreements focusing on the consistency and continuity of patient education and interdisciplinary communication.

Patients: The breast cancer patients organization has drawn up criteria for quality of care to be used for quality enhancing projects. They want "a seat at the table" in discussions on quality of breast cancer care.

16 INVITED

Preliminary psychometric testing of a comprehensive assessment of satisfaction with care in an oncology institute

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Dissatisfaction with care may substantially contribute to further deterioration of quality of life in cancer patients. However, at present, little is known on