nucleotide polymorphisms (SNPs) located in candidate genes associated with the response of cells to radiation.

At the congress, we will attempt to identify factors for tailoring RT and thus for improving the therapeutic ratio in the adjuvant breast-cancer management.

**198** Invited

**The impact of the sentinel node**

Abstract not received.

## Thursday, 17 April 2008 13:00–14:00

**EUROPA DONNA TEACHING LECTURE**

# Understanding the biology of medical treatment

**199** Invited

**Understanding the biology of medical treatment**

Abstract not received.

## Thursday, 17 April 2008 16:00–17:30

**CLINICAL SCIENCE SYMPOSIUM**

# Controversies in the use of neoadjuvant therapy

**200** Invited

**Pathological assessment after neoadjuvant therapy: not an easy task**

A. Vincent-Salomon[1], M. Lae[1], N. Weber[1], P. Fréneaux[1], B. Sigal-Zafrani[1], R.J. Salmon[2], V. Dieras[3], A. Fourquet[4], X. Sastre-Garau[1]. *[1]Curie Institute, Tumor Biology, Paris, France; [2]Curie Institute, Surgical Oncology, Paris, France; [3]Curie Institute, Medical Oncology, Paris, France; [4]Curie Institute, Radiation Oncology, Paris, France*

Neoadjuvant or preoperative chemotherapy is a treatment option for locally advanced breast cancers, inaccessible to an initial surgical treatment. Its major goal is to improve the ability to perform breast-conserving therapy. In addition, it can be considered as an ideal model for studying chemosensitivity of tumoral cells in vivo. The neoadjuvant therapy can be classical chemotherapy or targeted therapy such as anti-HER2 or anti-estrogens therapies. Pathologist plays a key role, on a multidisciplinary basis, in the neoadjuvant treatment setting.

Before treatment, with the analysis of the tumor biopsy, the pathologist provides the positive diagnosis of invasive breast carcinoma and predictive factors status such as histological type, histological grade including mitotic index, hormonal receptor status and HER2 status. Pathologists can also assess the quality and the percentage of tumoral cells of frozen biopsies needed for molecular analysis. For HER2 negative breast carcinomas patients, it is necessary to be able to select patients before preoperative chemotherapy who will benefit the best from chemotherapy. This can be partly based on well-known predictive factors such as proliferation. Recently, nomograms have been proposed to help to predict which patient will experienced a complete pathological response.

After treatment, the pathologist evaluates response to treatment on the surgical specimen, according to international guidelines. This evaluation can be difficult because gross examination of the surgical specimen is often challenging after chemotherapy. Precise amounts of residual disease in the breast, axillary lymph node status, and grade with persistent mitotic activity have to be evaluated. These three parameters have been recognised as prognostic parameters in that setting.

The reproducibility of the surgical specimens analysis and the definition of response to neoadjuvant chemotherapy are very important for accurate evaluation of new treatments efficiency either new combinations of cytotoxic drugs or new-targeted therapies.

**201** Invited

**Surgery and sentinel node assessment after neoadjuvant therapy**

T. Kuhn[1]. *[1]Klinikum Esslingen, Esslingen, Germany*

Sentinel node biopsy (SNB) is a routinely established method for axillary staging in primary breast cancers. For patients undergoing primary systemic therapy (PST) the data on the reliability of SNB have been assessed as insufficient in international consensus recommendations. Thus, axillary dissection is still recommended in those patients to obtain local control. About 40% of the patients receiving PST have a negative axillary nodal status and will be overtreated if they undergo classical axillary dissection. These patients accept the increased risk of shoulder arm morbidity in return for the benefits of PST (higher rate of breast conserving therapy). For that reason it is essential to analyze the role of SNB in neoadjuvant study concepts in a prospective setting. This talk deals with the current data on this topic and elucidates theoretical pitfalls in the context of a neoadjuvant therapy plan. From this discussion a prospective trial (SENTINA = SENTinel node biopsy after NeoAdjuvant chemotherapy) emerges, which specifically address questions at issue.

**202** Invited

**Summary of the National Cancer Institute (NCI) State of the Science Conference on preoperative therapy in invasive breast cancer**

J. Gralow[1]. *[1]University of Washington, Division of Oncology Seattle Cancer Care Alliance, Seattle WA, USA*

**Background:** In March 2007 the NCI sponsored a State of the Science conference on preoperative therapy in invasive breast cancer.

**Methods:** Conference goals included understanding current standards of clinical care in the preoperative setting and identifying gaps in clinical knowledge. The conference also explored the role of preoperative therapy in research.

**Results:** Preoperative systemic therapy is standard of care in locally advanced and inflammatory breast cancer. In this setting, the intent of preoperative systemic therapy is to improve surgical outcomes and improve survival. Though often grouped together, locally advanced and inflammatory breast cancer have different biological features. The management of these patients necessitates involvement of a multidisciplinary team from the onset.

In patients with operable breast cancer, preoperative chemotherapy versus postoperative treatment with the same agents is neither better nor worse in terms of disease-free and overall survival. Because preoperative chemotherapy results in increased rates of breast conservation, it is an option for women desiring breast conservation who are not optimal candidates upfront. Caution must be taken, however, in not overstating the probability of conversion from mastectomy to lumpectomy. A multidisciplinary treatment team is essential for optimal outcomes from preoperative systemic therapy. Accurate pathologic assessment is critical both prior to preoperative therapy and at definitive surgery. Many of the unresolved clinical issues regarding preoperative therapy relate to local regional treatment. Clip placement, timing of nodal evaluation, and indications for radiation are not well-defined in patients receiving preoperative systemic therapy.

The preoperative setting provides an excellent opportunity to study the impact of systemic therapies on breast cancer biology. Using pathologic complete response and other measures as short-term correlative endpoints, new drugs can be tested in short time frames, providing an early indication of drug activity and the potential to study predictive factors allowing us to tailor treatments to given tumor profiles.

**Conclusions:** In order to achieve optimal outcomes preoperative systemic therapy must be administered as part of a coordinated, multimodality treatment program. The preoperative setting provides a unique opportunity to study the impact of systemic therapies on breast cancer biology.