

# Scientific Meeting Report

Dr. Marina Garassino ▪ ESMO Publishing Working Group  
The 2nd European Lung Cancer Conference





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**The 2nd European Lung Cancer Conference**

The **2nd European Lung Cancer Conference (ELCC)**, held in partnership with the European Society for Medical Oncology (ESMO) and the International Association for the Study of Lung Cancer (IASLC), has been a resounding success. This year there was record attendance with 1,700 participants from 78 countries. The comprehensive Conference program addressed real clinical situations and demonstrated the underlying need for multidisciplinary collaboration in the treatment of lung cancer.

Educational sessions on important topics presented by the world's leading authorities were complemented by debates on controversial topics, specialty-specific workshops and in-depth Meet-the-Professor sessions with a focus on clinically relevant issues that oncologists face in their daily practice. In order to keep abreast of the latest developments in basic, clinical and translational research, the 2nd ELCC was the thoracic continuing medical education (CME) conference to attend.

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### **Biomarker research**

The potential role of some biomarkers was addressed, suggesting the increasing need for them in the treatment of non-small cell lung cancer (NSCLC).

- Otsuka et al. assessed the expression of CXCR4 and showed expression in most NSCLC tumors. Its overexpression is associated with significantly poorer survival.
- Zhenguang et al. reported on the expression of nestin, an intermediate filament protein and important neural stem cell marker. It might be a strong independent favorable prognostic marker for NSCLC.
- Sapir et al. presented results regarding the overexpression of the signal transducer VAV1, a protein well known in the hematopoietic system, with the function to exchange GDP/GTP; overexpression of this protein seems to indicate a higher overall survival in resectable NSCLC.
- Schmidt et al. evaluated short stature homeobox 2 (SHOX2) gene methylation in bronchial lavage specimens and indicated that this may be useful in the early diagnosis of NSCLC.
- Shimanoska-Narloch presented the expression of 21 genes and concluded that the gene expression of the progesterone receptor (PgR) and androgen receptor (AR) may suggest a possible hormonal dependence. Results on the possible role of estrogen have been presented by Kritikou on the combined activity of exemestane and anti-epidermal growth factor receptor (EGFR) agents on H23 cell lines.
- The study team led by Carbone analyzed blinded baseline plasma samples available from 441 patients

included in the BR.21 study. This trial demonstrated a survival benefit of erlotinib compared to placebo in previously treated patients with NSCLC. Results of the serum proteomic showed that proteomics 'good' patients achieved a significantly higher response rate than proteomics 'poor' patients ( $P=0.002$ ). Importantly, with the serum test, 99% of patients had a successful determination of proteomic status, while only about 28% had successful EGFR sequencing and 22% had successful fluorescence in situ hybridization (FISH) determinations. Overall, FISH was a better predictor of benefit, but can only be performed on adequate biopsy tissue, so this proteomic test may be of particular value for those in whom tumor tissue is inadequate or unavailable.

- Garassino presented a new hypothesis based on the TAILOR trial (NCT00637910), a multicenter Italian phase III trial powered to evaluate a differential effect of all biological markers in selecting patients for erlotinib and docetaxel as second-line therapy in patients with NSCLC. KRAS and EGFR mutational status were available from 161 of 256 patients registered in the trial. The investigators found six types of KRAS mutation in 35 patients (20%) with replaced bases or amino acid substitution. The specific mutational status of the KRAS gene in NSCLC seems to be different from that reported for colorectal cancer; this clinical observation, together with *in vitro* results suggest different patterns of sensitivity/resistance to EGFR inhibition seen in transfected cell lines might explain the ambiguous role of KRAS as a predictor to anti-EGFR therapy in NSCLC.
- Reck presented the analysis of biomarkers in the Avail phase III randomized study of first-line bevacizumab with cisplatin-gemcitabine in patients with NSCLC. Baseline plasma samples were collected and analyzed for vascular endothelial growth factor (VEGF), ICAM-1, vascular cell adhesion molecule-1 (VCAM-1), E-selectin and basic fibroblast growth factor (bFGF). The author concluded that this exploratory analysis showed that biomarkers involved in angiogenic pathways may play a prognostic role in patients with advanced NSCLC.
- Other authors presented results on angiogenic biomarkers. Sirera showed that soluble levels of VEGF-A and VEGFR-2 are significantly higher in NSCLC patients than in the age matched controls, suggesting the possibility of identifying a subgroup of patients with a worse prognosis which may benefit from an additional anti-angiogenetic therapy, and similar prognostic results were presented on the role of VEGF ligands and receptors in tumors by Jantus. The same author also gave interesting results regarding early stage disease, in which the molecular expression of angiogenic markers correlates with a poor prognosis.
- EGFR mutations were confirmed to be superior to EGFR copy number in stratifying patients for survival, as presented by Murray in a large meta-analysis performed on 83 eligible studies retrieved from 4,873 initially selected.

- Thymidinate Synthase (TS) copy number was increased in a subgroup of patients and did not correlate with prognosis, while it did correlate with pemetrexed treatment, as presented by Wynes.
- Krebs presented the role of circulating tumor cells (CTC) assessed with two different technologies and stressed that the combination of the two methods, the ISET and the Cellsearch; are needed to obtain better results in the detection of potential biomarkers and in further understanding the biology of metastasis.

## Staging and imaging

Real Time Endobronchial Ultrasound (EBUS) showed a negative predictive value of 84% for staging NSCLC, as presented by Santos. Two communications were presented on the role of fluorodeoxy glucose positron emission tomography (FDG-PET), which concluded that tumors of squamous histology exhibit higher metabolic uptake than those of adenocarcinoma histology, thus showing evidence to support the idea that PET-scanning can be used to differentiate between lung tumors of various histology, as assessed by Singh, while Lind showed that after only 3 weeks of treatment, tumor metabolic response was predictive for progression-free survival (PFS) in patients with NSCLC receiving sorafenib and erlotinib.

A large section of the Conference program was dedicated to the introduction of the new staging system proposed by the International Association for the Study of Lung Cancer (IASLC). This staging project has introduced multiple changes in the tumor, node, and metastasis (TNM) classification of lung cancer, taking into account tumor size in the T descriptors, site of other lung nodules, introduction of a new M1 category and a better grouping of the TNM subsets, proposed a new thoracic lymph node map, and extended its application to histological types other than NSCLC (e.g. small cell lung cancer, carcinoid tumors).

## Treatment

### Surgery

In early stages lung cancer surgery in selected high-risk patients with very severe emphysema and impaired lung function was demonstrated to be feasible and safe in an experienced center. The in-hospital mortality was low, the postoperative lung function might be improved and the 5-year survival was acceptable, according to multi-institutional Swiss experience (Tutic et al.) in patients with marginal lung function who underwent resection of preoperatively detected lesions.



## Radiotherapy

Lung fibrosis is common after stereotactic body radiotherapy (SBRT) for lung tumors, but the influence of treatment technique on rates of clinical and radiological pneumonitis is still not well described. After implementing volumetric modulated arc therapy for SBRT, Palma compared the early pulmonary changes seen with arc versus conventional 3-dimensional SBRT (3D-CRT). Twenty-five SBRT patients treated with volumetric modulated arc therapy were matched with fifty SBRT patients treated with 3D-CRT. The investigators did not observe differences in clinical or radiological findings 3 months after therapy and data with longer follow-up is awaited to exclude late changes.

In locally advanced disease new results were presented by Mornex on a phase I study of the combination of cisplatin and pemetrexed with high dose radiotherapy. The study was feasible and safe and pemetrexed seemed the only regimen to be used in this setting at the full drug doses.

Le Pechoux presented results of a large meta-analysis that included 2,279 patients from 11 clinical trials. She showed that accelerated or hyperfractionated radiotherapy was effective, however with an increased acute esophageal toxicity.

## Medical treatment

Pirker presented the clinical recommendations from the European EGFR workshop group meeting. The decision to request EGFR mutation testing should be made by the treating physician and no consensus on a possible algorithm was reached. A multidisciplinary approach and reference laboratories could be helpful.

Coudert presented a subanalysis of the SATURN trial in which erlotinib maintenance therapy increased progression-free survival (PFS) in all patients with stable disease (SD) or complete response/partial response after first-line platinum-based chemotherapy. Patients with SD gained a particularly large survival benefit. Differences in the proliferative capacities of the tumors may explain this difference. These results may help physicians to identify patients most likely to benefit from erlotinib maintenance therapy.

Clinically important improvements in Quality of Life (QoL) were observed more frequently in patients treated with gefitinib than carboplatin/paclitaxel with marked differences according to the mutational status, favouring gefitinib in mutated patients and chemotherapy in non-mutated patients. This was concluded by Thongprasert who analyzed the mutational status of the IPASS study.

The final analysis of SAI1, presented by Lopez, confirmed the well-established and manageable safety profile of first-line bevacizumab in combination with chemotherapy for advanced NSCLC. The efficacy outcomes in this real-life population are consistent with those seen in the pivotal trials of bevacizumab in NSCLC (E4599 and AVAIL).

## Mesothelioma

Bramati presented a large retrospective series on the role of a second line chemotherapy in patients with mesothelioma. The benefit of second-line treatment was strictly dependent on histology and response to first-line treatment. According to this data, rechallenge with platinum-based regimens seemed to be the best treatment option. No benefit has been proven in favor of polychemotherapy regimens compared to single agent treatments. The superiority of cisplatin-pemetrexed rechallenge has been demonstrated also in multivariate analysis.

Intensity Modulated Radiation Therapy (IMRT) following extrapleural pneumonectomy resulted in a high local control rate, according to a study by Dimmerling. Similar results were presented by Feiges, enhancing the role of modern radiotherapy technique in the multimodality treatment of mesothelioma.

Felley Bosco demonstrated the induction of senescence (p21 and PAI-1) markers by neo-adjuvant chemotherapy and their association with treatment outcomes.

Posters were displayed for the duration of the Conference in the following categories: Tumor biology and pathology; Prevention, Early detection, Epidemiology and Tobacco Control; Translational research; Imaging and staging; Early NSCLC; Locally advanced NSCLC; Advanced NSCLC; Mesothelioma & SCLC; and Miscellaneous.

The ELCC Exhibition Hall was a true focal point for participants and exhibitors to fully interact and discuss the latest developments and further advance their understanding and knowledge of lung cancer.

To watch webcast sessions from the 2nd European Lung Cancer Conference, please visit <http://esmo.onsite.tv/elcc2010/>

Abstracts from the 2nd European Lung Cancer Conference are available at <http://journals.lww.com/jto/toc/2010/05001>

## Save the date:

**European Multidisciplinary Conference in Thoracic Oncology - EMCTO**  
**Lugano, Switzerland, 24-26 February 2011**

Dr. Marina Garassino has reported that she is a member of the advisory board for Bayer and Lilly.