

Progress in lung cancer treatment

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Lung cancer is the most common cause of cancer-related death in China. In recent years, the achievements in the fight against lung cancer have been fruitful. In this column, we introduce the achievements in lung cancer treatment from four different aspects.

Radiation therapy is one of the main treatments for lung cancer, and is increasingly playing a role in the treatment of lung cancer. In recent years, great progress has been made. In this column, we introduce the following advancements in radiotherapy for lung cancer patients: (1) stereotactic ablative radiotherapy for early-stage non-small cell lung cancer (NSCLC); (2) postoperative radiotherapy (PORT) for NSCLC; (3) radiotherapy for locally advanced NSCLC; (4) improved radiotherapy for advanced NSCLC; and (5) prediction of radiation-induced lung toxicity.

Anti-angiogenesis therapy is a new field in lung cancer treatment, and in recent years, its application in lung cancer treatment has increased. According to reports, the combination of bevacizumab and chemotherapy, and bevacizumab and erlotinib has shown significant efficacy in lung cancer treatment. Meanwhile, the efficacy and

safety of docetaxel plus ramucirumab, and docetaxel plus nintedanib are also very promising, although both therapies are yet to be verified. Nonetheless, there are many challenges for anti-angiogenesis therapy. Herein, we systematically reviewed anti-angiogenesis therapy and the future challenges in its application for lung cancer treatment.

For NSCLC patients with epidermal growth factor receptor (EGFR) mutations, EGFR-tyrosine kinase inhibitor (TKI) treatment has delivered a good curative effect. However, resistance to EGFR-TKI requires more attention. This column systematically provides us with an overview of the emerging treatment approaches for patients with EGFR-TKI resistance. For example, the drugs, CO-1686 and AZD9291, target the EGFR mutation, T790M, which accounts for more than 50% of the cases of acquired resistance. Meanwhile, other bypass and downstream pathways are also the focus of many studies, for example, the c-MET, human epidermal growth factor receptor 2, phosphoinositide 3-kinase-protein kinase B-mammalian target of rapamycin, and RAS-RAF-MEK-ERK pathways. In case of acquired resistance, the

corresponding antibodies or small molecular TKIs, are expected to be effective in combination with EGFR-TKIs. Moreover, immune therapy is also being investigated. For example, antibodies against programmed cell death protein 1 and programmed death-ligand 1, have shown very encouraging results in NSCLC patients, and are expected to be released for therapy in the near future. They may dramatically change the treatment paradigm of NSCLC patients.

Currently, there are no clear recommendations for third-line chemotherapy of small cell lung cancer (SCLC), and its efficacy is unknown. In this column, we introduce a new study of third-line chemotherapy in SCLC treatment; the efficacy, safety, and prognostic factors following third-line chemotherapy in Chinese SCLC patients

have rarely been reported. We suggest that patients with an Eastern Cooperative Oncology Group performance score 0–1 and progression-free survival-2 for > 3 months will benefit from third-line chemotherapy, which should be actively offered.

Briefly, the progress in this field is very encouraging and promising. Hopefully, our presentation of this progress will help researchers to get more ideas and insights, and to generate more fruitful results.

DOI 10.1007/s10330-015-0071-2

Cite this article as: Chen Y. Progress in lung cancer treatment. *Oncol Transl Med*, 2015, 1: 3–4.