Roles of surgery in the management of locally advanced lung cancer Based on Molecular Staging and Typing : The Chinese experience.

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Backgroud: Lung cancer is the leading cause of cancer deaths in the world. For patients with advanced non-small cell lung cancer (NSCLC), survival prognosis is very poor with chemotherapy and radiotherapy. However, the possibility of occult metastases may lead to discrepancy between clinical and pathologic staging and under-estimation of the disease severity, and how to individualized choose the appropriate patients with locally advanced non-small cell lung cancer for surgery is controversies. In this study, we presented here the Chinese experience: individual precision surgery for locally advanced non-small cell lung cancer based on molecular staging and molecular typing.

Methods: We developed several molecular biomarkers and molecular models from Circulation Tumor Cell (CTC) detection, mi-RNA chip, Gene Chip from 1990. We used these Molecular biomarkers and molecular models for molecular staging, molecular typing, choosing indication of operation and neoadjuvant chemotherapy, predicting postoperative recurrence and prognosis of locally advanced non-small cell lung cancer.

Results: We developed two molecular staging model for individualized surgical treatment for locally advanced non-small cell lung cancer involving heart, great vessels or both. 3728 patients with locally advanced non-small cell lung cancer were underwent completely resection of the cancer in the three medical center. The 1-, 3-, 5- and 10 year survival rate were 86.5%,63.7%,45.8% and 34.4%, respectively. We used our molecular staging and typing model for neoadjuvant chemotherapy for 665 patients with locally advanced lung cancer. The 1-, 3-, 5- and 10-year survival rate were 89.35%, 61.46%, 37.39% and 29.34% of the patients, respectively. We used our molecular typing model

to divide N2 lung cancer into invasive N2 and Non-invasive N2 group. We used our molecular models adenocarcinoma and squamous carcinoma to divide T4 lung cancer into high recurrence and low recurrence groups, and help postoperative adjuvant therapy.
Conclusion: Our molecular staging and typing models can help us carry out individual precision surgery, predicting prognosis and cancer recurrence of the cancer for locally advancer no-small cell lung cancer.
Key words: individual precision surgery, Non-small cell lung cancer, Molecular staging, molecular typing.