



Lung cancer surgery at present and tendency

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Lung cancer is not only one of the most frequent malignant disease around the world but also one of the most deadly malignant tumors. Lung cancer has an incidence close to its cancer-related deaths, indicating this entity has a high overall mortality (1,2). In the last years screening programs for lung cancer has been established in some developed countries, promoted by scientific national associations and local government policies. Also, technological improvements in CT-scan machinery along with increasingly more frequent use of computed tomography studies in daily clinical practice have got an increased detection of pulmonary solitary nodules (3). In lung cancer, tumoral size has a great impact in prognosis. It is well established that surgery plays a main role in treatment of early-stage lung cancer and in selected cases of more advanced disease as Petrella *et al.* refer in their manuscript (4).

New technology has enabled the use of auto-suture instruments and high-definition camera systems. Thanks to these technological advances development and expansion of video-assisted thoracic surgery (VATS) have worldwide proliferated, in all its variants (multiple port, single port, robotic surgery or even with limited thoracotomy). VATS interventions have the advantage of being less painful for the patient in the immediate recovery period by using small incisions to perform lung cancer resections.

In a recent phase III trial published by the Japanese Group comparing results of lobectomy versus segmentectomy in patients with non-small cell lung cancer (NSCLC) with less than 2 cm tumoral size and

consolidation-to-diameter tumor ratio superior to 50% (5), it was reported that overall long-term survival was superior in the segmentectomy group than in the lobectomy group with statistical significance. Although there was two times more relapses in the segmentectomy group. Authors manifested this somewhat contradictory and unexpected finding could be possible explained by the fact that more second primary malignancies, respiratory and cerebrovascular diseases appeared in the lobectomy group in the follow-up with subsequent shorter overall survival. Nevertheless, loss of pulmonary function evaluated in the follow-up period was surprisingly only about 5% inferior in the lobectomy group compared to the segmentectomy group. Conclusions of this trial should be cautiously taken into account and attention has to be paid to new results that will soon see light in the coming years from ongoing clinical trial (CALGB140503: NCT 00499330). In this last-mentioned trial lobectomy was compared to sublobar resection (anatomical segmentectomy or wedge resection) to test the hypothesis that results in disease-free survival for peripheral 2 cm maximal size NSCLC were similar in both groups. In a recent single-arm study (JCOG804) of sublobar resection for ground-glass opacity (GGO) lesions with a maximal diameter of 2 cm and a consolidation-tumor ratio of 0.25 or less (considered as radiographic non-invasive peripheral nodules) results showed a 5-year recurrence-free survival of 99.7%, along with a well-preserved forced expiratory volume in the first second with approximately 4% loss at one year. The vast majority of patients (over 80%)

underwent wedge resection. Although it is not a randomised trial, results are robust enough to strongly provide evidence in that specific group of patients (6).

Until today there is no randomised clinical trial to evaluate long-term survival and recurrence-free survival in patients with partial GGO lesions or early-stage NSCLC comparing the role of surgery and that of stereotactic body radiation therapy (SBRT). SBRT has proved to be save and efficient in early-stage NSCLC and it is the standard care of treatment in patients considered medically or functionally inoperable. Nevertheless, distant relapse remains an issue and combination of SBRT and systemic treatment could be an interesting field of research (7). If SBRT had a successful rate similar to surgery in “radiographic” malignant GGO lesions, it would take away the standard care of treatment currently kept by surgery.

There is no doubt biomarkers expressed by tumor have an outstanding role nowadays. New chemotherapy drugs have emerged in the last years and target to specific molecules expressed on malignant tumoral cells. Drugs targeting tumoral cells with K-ras, EGFR, ALD, ROS-1, BRAF, HER2, or PD-1/PD-L1 gene changes are among the new therapeutic armamentarium that oncologists have at disposition. The final aim of these new targeted therapies is not only to improve overall survival in patients affected with local or advanced lung cancer, but also to provide an adequate quality of life. Newer immunotherapy agents seem to be very promising and the possibility of personalised treatment sequencing portends a future for oncologic medicine (8). In fact, the forthcoming 9th edition of Tumor-Node-Metastasis (TNM) stage classification for lung cancer expected to be published in 2024 will enhance its prognosis power by inclusion of molecular expression of lung cancer cells (genetic mutations, membrane protein alterations, etc.) (9).

To conclude, clinical trials are the best way to adopt new changes in any direction of treatment strategies for patients with lung cancer. Surgery remains the cornerstone curative treatment in early-stage patients and also in selected advanced cases in a multimodality-based treatment. Probably with better scientific knowledge of key molecular mechanisms in the biology of lung cancer and new chemotherapeutic drugs, lung cancer could be transformed into a chronic disease with long-term survival and adequate quality of life, similar to breast cancer.

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References

1. Cancer facts sheets: lung cancer. Globocan Cancer Observatory, World Health Organisation, 2018. Available online: <http://gco.iarc.fr/today/data/factsheets/cancers/15-lung-fact-sheet.pdf>
2. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin* 2021;71:209-49.
3. McWilliams A, Tammemagi MC, Mayo JR, et al. Probability of cancer in pulmonary nodules detected on first screening CT. *N Engl J Med* 2013;369:910-9.
4. Petrella F, Rizzo S, Casiraghi M, et al. State of the art and new perspectives in surgical treatment of lung cancer: a narrative review. *Transl Cancer Res* 2022;11:3869-75.
5. Saji H, Okada M, Tsuboi M, et al. Segmentectomy versus lobectomy in small-sized peripheral non-small-cell lung cancer (JCOG0802/WJOG4607L): a multicentre, open-

- label, phase 3, randomised, controlled, non-inferiority trial. *Lancet* 2022;399:1607-17.
6. Suzuki K, Watanabe SI, Wakabayashi M, et al. A single-arm study of sublobar resection for ground-glass opacity dominant peripheral lung cancer. *J Thorac Cardiovasc Surg* 2022;163:289-301.e2.
 7. Vlaskou Badra E, Baumgartl M, Fabiano S, et al. Stereotactic radiotherapy for early stage non-small cell lung cancer: current standards and ongoing research. *Transl Lung Cancer Res* 2021;10:1930-49.
 8. Bratova M, Karlinova B, Skrickova J, et al. Non-small Cell Lung Cancer as a Chronic Disease - A Prospective Study from the Czech TULUNG Registry. *In Vivo* 2020;34:369-79.
 9. Osarogiagbon RU, Rami-Porta R, Tsao MS, et al. The International Association for the Study of Lung Cancer Molecular Database Project: Objectives, Challenges, and Opportunities. *J Thorac Oncol* 2021;16:897-901.

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