Segmentectomy Versus Lobectomy in Small-Sized Peripheral Non-Small Cell Lung Cancer with Radiologically Pure-Solid Appearance: Supplemental Analysis of JCOG0802/WJOG4607L

Objective:
JCOG0802/WJOG4607L showed the improved OS of segmentectomy especially in patients with radiological pure-solid NSCLC, despite the high malignant feature compared to part-solid one. However, the clinical reasons are not completely clarified. Therefore, we conducted a supplemental analysis to investigate the survival of segmentectomy compared to lobectomy for NSCLC with pure-solid appearance on thin-section CT.
Methods:
Among the 1106 patients registered in JCOG0802/WJOG4607L, survival outcomes, causes of death or recurrence in 553 pure-solid tumors were compared between segmentectomy and lobectomy arms.
Results:
Lobectomy was assigned to 274 and segmentectomy to 279 patients. Nodal metastasis was found in 57 (10.4%). The 5-year OS was significantly better in the segmentectomy compared to the lobectomy (92.4% vs. 86.1%, HR 0.641, log-rank test p=0.0333), while the 5-year RFS was similar between the two arms (82.0% vs. 81.7%, HR 1.013, p=0.9420). Lung cancer death was 20 (7%) in the lobectomy and 19 (7%) in the segmentectomy, while 33 (12%) in the lobectomy died of other diseases compared to 16 (6%) in the segmentectomy. In contrast, locoregional recurrence was 2.3-folds higher in the segmentectomy, which was significantly different from the lobectomy (45 (16%) vs. 21 (8%), p=0.0021). In multivariable Cox regression analysis, lobectomy, ?70 years old, CEA of ?5.0 ng/ml, and non-adenocarcinoma were significantly associated with the worse OS (p<0.05, respectively), while ?70 years old and non-adenocarcinoma were still significant for the worse RFS but surgical mode was not associated (p=0.8427). Hence, provided that the survival outcomes were stratified by the age, the results in patients ?70 years old were similar to those of the entire cohort (OS: 85.6% vs. 77.1%, p=0.0134, RFS: 78.4% vs. 73.6%, p=0.0712). In patients <70 years old, however, the RFS of segmentectomy was significantly worse compared to lobectomy (84.4% vs. 87.4%, p=0.0493) but the OS was not statistically different between the two arms (97.0% vs. 92.5%, p=0.8386).
Conclusions:
JCOG0802/WJOG4607L supplemental analysis showed improved OS of segmentectomy in radiological pure-solid NSCLC. However, the survival benefit of segmentectomy differs based on the age. Since higher locoregional recurrence may contribute to the worse RFS of segmentectomy in younger patients, further evaluations are necessary to clarify the clinical significance of segmentectomy for pure-solid NSCLC.

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