

**FC-037****Oligo-recurrence of osteosarcoma patients: treatment strategies for pulmonary metastases****S. Iwata**¹, T. Yonemoto¹, T. Iizasa¹, Y. Niibe², H. Kamoda¹, T. Ishii¹¹ Chiba Cancer Center, Chiba, Japan² Toho University Omori Medical Center, Tokyo, Japan

Background: Distant metastases from osteosarcoma most commonly occur in the lungs. Osteosarcoma is a tumor that can be cured with complete surgical resection of all metastatic lesions. Recently, new notion of oligo-recurrence, that is a status in which cancer patients with 1-5 metastatic or recurrent lesions with controlled primary lesions and might have a more favorable prognosis by local therapy for metastatic lesions, has been accepted in the oncology field. This study aimed to clarify the prognostic factors for osteosarcoma patients with pulmonary metastasis and determine their oligo-recurrence status.

Methods: Patients with conventional osteosarcoma underwent definitive surgery for the primary lesion and at least 1 thoracotomy for pulmonary metastases were recruited to this retrospective study. Clinicopathological information was collected on each thoracotomy from 1976 to 2011 and was analyzed statistically. Two sequential thoracotomies for bilateral pulmonary metastases were deemed as one treatment. We counted the number of resected nodules that were pathologically confirmed as metastatic lesions from osteosarcoma.

Results: In total, 151 thoracotomies in 71 patients were analyzed. Forty-seven patients (66%) underwent up to 2 thoracotomies and the maximum number of thoracotomies was 6. The maximum number of resected nodules on each thoracotomy was 22 (median 2) and the total size of pulmonary metastases ranged from 8 to 120 mm (median 20mm). The 3-year overall and disease-free survivals were 41.7% (95% CI 34.0-50.0%) and 15.2% (95% CI 10.3-21.9%), respectively. Complete surgical remission (hazard ratio [HR] 0.24), a more than 1 year interval from a previous thoracotomy (HR 0.54), less than 4 resected nodules (HR 0.46), and total size of less than 30 mm for pulmonary metastases (HR 0.43) were independent predictors of decreased risk of tumor death by multivariate analysis. Patient group who met these conditions through their treatment history demonstrated significantly longer survival compared to patients that did not (10-year overall survival, 90.0% vs 17.5%, $P=.0002$).

Conclusions: We propose that the factors contributing to oligo-recurrence of patients with pulmonary metastatic osteosarcoma included complete surgical remission, an interval from a previous thoracotomy, the number of resected nodules, and total size of pulmonary metastases.