Synchronous and Metachronous Lung Metastases in High-grade Osteosarcoma

To the Editor:

With interest we read a recent Japanese Journal of Clinical Oncology article by Wu et al. (1). Some of the reported findings, however, might merit clarification to be more accurately representative of the published literature.

Wu et al. (1) divided their 91 patients with high-grade osteosarcoma of the extremities and lung metastases who had been treated between 1989 and 2008 into three groups, depending on the time of identification of pulmonary metastases: Group A, identified with primary tumor diagnosis; Group B, during whole treatment course; and Group C, after completion of treatment.

In their study, all 21 patients who presented with primary pulmonary metastases (Group A) died within 5 years from diagnosis—whether this was from disease or other reasons was not specified. Therefore, the authors concluded that patients with synchronous lung metastases have an extremely poor prognosis. There is, however, ample evidence that at least one-fifth of patients with osteosarcoma and primary lung metastases can be cured when treated with an aggressive combined modality approach (2–9).

Moreover, it must be emphasized that the group of patients with synchronous lung metastases is very heterogeneous in regard to prognosis. For example, in our cohort of 124 Cooperative Osteosarcoma Study Group (COSS) patients with primary lung metastases (proven either histologically or radiographically by progression of disease), the patients who presented with unilateral lung metastases had a 5-year overall survival (OS) estimate of 57%, whereas patients who had bilateral lung involvement had significant poorer outcomes with 5-year OS of 20% ($P < 0.001$) (5). Of note, the subgroup of patients who presented with solitary primary pulmonary metastases had a 5-year OS of 75%, whereas patients with either two to five metastases or more than five metastases had significantly poorer outcomes with 5-year OS of 26% and 23%, respectively ($P < 0.001$) (5).

In this COSS investigation on patients with primary metastatic osteosarcoma, completeness of surgical remission, achieved in 74 of our 124 patients (60%), was the most important factor for outcome (5). These 74 patients had a 5-year OS probability of 52%, whereas no patient in whom a complete surgical remission had not been achieved was alive 5 years after diagnosis.

Our group has also published data on 373 patients who developed lung metastases following curative therapy for osteosarcoma (10). These 373 patients with metachronous lung metastases had a survival probability very similar to that of the 124 patients with synchronous lung metastases (i.e. 5-year OS 28% vs. 5-year OS 33%) (5,10). As in patients with synchronous lung metastases, complete surgical remission again emerged as the most important prognostic factor in patients with metachronous lung metastases (10).

Wu et al. (1) noted that in their series of 91 patients with pulmonary metastases, only 52 (57%) underwent thoracotomies; and reported no significant differences in outcome between patients who underwent thoracotomies and those who did not. They further reported that the lung tumors (metastases?) disappeared during front-line chemotherapy in only 2 of the 39 patients in whom no thoracotomy was performed. Nevertheless, the 39 patients without thoracotomy were reported to have achieved a 5-year OS of 28% (1). Such a high survival rate stands in sharp contrast to our findings and those of others (2–9), and more details of the therapeutic course leading to such a surprisingly favourable outcome in a group of patients in which others have observed few if any long-term survivors would help to better understand this discrepancy. Based on our experience in osteosarcoma patients with proven pulmonary metastatic disease and based on the published literature (2–9), we continue to strongly recommend complete surgical excision of all detectable lung metastases and believe this to be an essential prerequisite for long-term survival.

One small error is noted. Figure 3 as reads: Group C should read Group A and vice versa.

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References


