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Analysis of prognostic factors in patients with localized primary synovial sarcoma treated with multidisciplinary treatment: Japanese multi-center study of 162 patients

Y. Hagiwara[1], T. Ishii[2], Y. Tsuda[3], S. Iwata[2], K. Ogura[4], H. Kawano[3], M. Susa[5], T. Hiruma[6], H. Morioka[5], A. Kawai[4], T. Yonemoto[2]

[1] *Tokyo Women's University, Tokyo, Japan*
[2] *Chiba Cancer Center, Chiba, Japan*
[3] *Tokyo University, Tokyo, Japan*
[4] *National Cancer Center, Tokyo, Japan*
[5] *Keio University, Tokyo, Japan*
[6] *Kanagawa Cancer Center, Kanagawa, Japan*

Introduction: It has been widely accepted that synovial sarcoma (SS) is a chemosensitive tumor and chemotherapy (CTx) containing ifosfamide might be beneficial for the patients. However, it is still debatable whether CTx would improve the outcome of those patients. Adjuvant radiotherapy (RTx) is also recommended for the high-grade SS, whereas acute and late sequelae after RTx seriously affect the quality of life. The objective of this study was to evaluate the independent prognostic factors of localized primary SS including tumor-related factors as well as treatment-related factors.

Patients and Methods: 162 patients with a primary localized SS and surgically treated at 5 Japanese tertiary musculoskletal oncology units from 1990 to 2011 were recruited. Patients who received initial excision of the tumor at non-musculoskeletal oncology hospital and sequentially underwent additional excision at our institute were also included. Information of tumor-related factors, such as age, site, size, and stage, and treatment-related factors regarding surgery, CTx, and RTx in each patient were collected and analyzed statistically.

Results: In 162 patients, 40 were died of disease, 56 experienced distant metastases, and only 3 patients had local recurrences. The 5-year overall survival (OS) was 79.7% (95%CI 72.0-85.7%) and the 5-year event-free survival (EFS) was 64.9% (95%CI 56.8-72.3%). Tumor size, depth, and stage were significant prognostic factors for OS and EFS. Surgical margin (R0, 141 cases, 5y-OS 81.4%; R1, 16 cases, 5y-OS 60.0%; P=.0076) was a significant prognostic factor for OS, whereas RTx did not linked to superior outcomes in both patient groups with R0 and R1. Administration of CTx was marginally associated with the better OS for the 88 patients with stage IIB/III (Yes, 73.4%; No, 77.3%; P=.057). CTx regimen containing high-dose ifosfamide (=>10g/m2) had a tendency toward better EFS comparing to that containing low-dose/no ifosfamide (high-dose, 56.8%; low-dose/no, 20.0%, P=.058).

Conclusion: This Japanese multi-center study demonstrated that tumor size, depth, and stage are significant prognostic factors of primary localized SS patients. Achieving wide surgical margin strongly affects a better outcome regardless of presence or absence of RTx. CTx containing high-dose ifosfamide might improve the outcome of the selective high-risk patients with SS.