High-dose cyclophosphamide, thiotepa and melphalan followed by autolologous peripheral blood stem cell transfusion (PBSCT) in patients with advanced ovarian cancer

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Background Advanced-stage epithelial ovarian cancer is often chemosensitive but is not usually curable with conventional dose therapies. We retrospectively evaluated the results of high dose chemotherapy composed of cyclophosphamide (100mg/kg), thiotepa (500 mg/m²), and melphalan (100mg/m²) in patients with advanced ovarian cancer.

Methods From September 1997 to February 1999, 5 patients among the 28 patients with stage III, IV ovarian cancer had received high dose chemotherapy (HDC). Their mean age was 38 years (range, 19 to 52), 4 patients had papillary serous histology, 4 patients had positive findings at second-look operation and all patients were platinum-sensitive. The median number of prior regimens was two (range, one to three) and the mean number of prior chemotherapy was 16 cycles. All patients were in clinical complete remission(CR) at treatment.

Results: The recurrence of optimal surgery group and platinum-sensitive group in advanced ovarian cancer was significantly lower than of the sub-optimal and platinum-resistant group by univariate analyses (P<0.01). The probabilities of relapse (R) for patients with HDC and all patients with conventional chemotherapy at 24 months were 0.20 and 0.70. A stepwise Cox multiple regression analysis identified cisplatin sensitivity (P = .0012) as the predictors of recurrence. The rate of the recurrence in the high-dose chemotherapy had the 0.13-fold lower recurrence rate than conventional chemotherapy regimen (confidence interval 0.017-1.131). The mean duration of grade IV thrombocytopenia (under 25,000/microliter) was 5 days (range 2-12 days) and the mean number of platelet transfusions required after each cycle chemotherapy was 15.6 of platelet concentrates and 8.8 units of donor plasmapheresis. Mean duration of severe leukopenia (under 500/microliter) was 9 days (range 7-11 days). The most common toxicity was diarrhea and duration of fever at each cycle of HDC was 4.6 days. One patient among the HDC-treated group had suffered from pneumococcal lung infection and died due to progressive ovarian cancer.

Conclusions Before the consideration of HDC with autologous PBSCT for advanced ovarian cancer, the hematologic toxicity and related complications should be discussed and this therapy was considered as consolidation in CR state after optimal debulking surgery and platinum-sensitive ovarian cancer patient. These results should be confirmed by an ongoing prospective randomized trial.