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Evidence of the “graft-versus-tumor” effect following haploidentical transplantation in a patient with a metastatic relapse of Ewing’s sarcoma

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Abstract

A 16-year-old girl was admitted with a metastatic lung relapse of Ewing’s sarcoma six months after completion of multimodal therapy for a localized left shoulder tumor. She received second line ICE chemotherapy with no decrease in tumor volume. She had surgery and 2 and 3 metastases were removed from the right and left lung respectively. No histological response was seen. The appearance of 2 new foci in the right lung was observed within the 2 successive weeks. She received reduced-intensity conditioning, including fludarabine 180 mg/m², busulfan 8 mg/kg and ATG at 40 mg/kg. She also received 10.8 Gy of whole lung irradiation as part of the conditioning. The donor was the patient’s 4/6 HLA-mismatched mother. The girl was grafted on d0 and +1 with 2.2x10⁶ CD34/kg and 6.7x10⁸CD3/kg after 30’ incubation of inoculum with vincristine and methylprednisolone. GvHD prophylaxis consisted of short courses of methotrexate and cyclosporine A. The level of WBC >1.0x10⁹/l was reached on day +12. The girl required no PLT transfusion. A complete donor chimerism was observed on d+90. In the early post-transplant period grade I skin GvHD was observed. A cyclosporine-A related encephalopathy occurred on d+60 and the GvHD consisted of MMF and methylprednisolone at that time. The recovery of immunity was prompt and fast. The decrease in the size of metastases was observed to occur progressively from d+30 until their complete disappearance by day +90. At this time the girl is disease-free and well, with no evidence of GvHD.

As far as we know this is the first report of a successful family-mismatched transplantation with evidence of “graft-versus-tumor” effect in a patient with relapsed Ewing’s sarcoma refractory to second-line therapy.

Keywords: graft-versus-tumor effect, Ewing’s sarcoma, haploidentical transplantation, reduced-intensity conditioning