LETTER TO THE EDITOR
DOI: 10.4274/tjh.galenos.2025.2025.0011

Second Allogeneic Stem Cell Transplantation in an Inv 16 Patient with Acute Myeloid Leukaemia and an Isolated Central Nervous System Relapse ın the form of a Pituitary Adenoma

Mehmet Sezgin Pepeler, Fahir Öztürk
Ankara Bilkent City Hospital, Clinic of Hematology, Ankara, Türkiye

Mehmet Sezgin Pepeler, M.D., Ankara Bilkent City Hospital, Clinic of Hematology, Ankara, Türkiye
drsezgin44@gmail.com
https://orcid.org/0000-0002-2762-8573

January 9, 2025
May 27, 2025

To the editor,

It is uncommon for patients with acute myeloid leukemia (AML) to present with involvement of the central nervous system (CNS).Herein, we report a case of AML with central nervous system (CNS) relapse after Allogeneic stem cell transplantation (ASCT).

Clinical case: A 34-year-old man with AML M4-M5? with inversion 16 and c-kit positivity (standart risk) who achieved complete remission with 3+7 (Cytarabine and Idarubicin)

Minimal residual disease positivity(MRD) were detected by flow cytometry at the end of consolidation treatment (intermediate dose cytarabine regimen) and ASCT was performed .

The donor was 36-year-old female sibling with HLA matched donor. He received conditioning with Cyclophosphamide-Busulfan (myeloablative regimen). The 2nd year of transplantation the patient presented general malaise and headache. ACTH (14 pg/mL N=<46), Cortisol (2.1 ug/dL N=5.2-22.4),Thyroid Stimulating hormone (0.35 mu/L- N=0.55-4.78), Follicular Stimulating hormone (2.2 U/L N=1.4-18.1), Luteinizing hormone (0.5 U/L -N=01.5-9.3) values were found to be low due to the possibility of Adisson's disease. The pituitary gland MR evaluation revealed the presence of a macroadenoma mass measuring 2.5x1.5 cm , which was observed to be occluding the suprasellar system and exerting a supressive effect on the optic chiasm (figüre 1,2). Dexamethasone and thyroid hormone replacement was initiated for the management of Adisson's disease. Cytological and flow cytometric evaluation of cerebrospinal fluid (CSF) was consistent with acute myeloid leukaemia. Bone marrow biopsy was normocellular, MRD positivity. Intrathecal treatment (weekly intrathecal cytarabine 40 mg, methotrexate 12 mg, dexamethasone 4 mg until negative results are obtained in the last 2 cytological evaluations) and Radiotherapy (200 cGy/day-12 days) were given because of isolated CNS involvement. Bone marrow biopsy re-evaluation due to cytopenia was consistent with disease recurrence .During the recuurence chimerism was detected as 99.63%.

He was started high dose cytarabine and mitoxantrone. Bone marrow evaluation at the end of treatment showed 7-8% blasts and MRD positivity. CSF cytology and c-kit, inv 16 were also negative. He underwent ASCT from the same donor with myeloablative regimen (Fludarabin-total body irradiation). Non-sibling alternative donor not considered due to EBMT retrospective analysis. In a EBMT retrospective analysis, 2632 second allogeneic transplantations carried out for a relapse after the first transplantation were analyzed to define indications and identify predictive factors. . This evaluation result showed that using the same donor as in the first transplantation vs another donor had no predictive value for survival. Sibling donor was a favorable predictive factor.

The patient developed steroid resistance acute skin GVHD(MAGIC score :IV) post transplant 6th day. Response was obtained Ruxolitinib . 1 month after transplant CNS cytology was negative . Any pathological findings were not observed on cranial MR (figüre 3,4). Bone marrow evaluation was normocellular and MRD positivity. The chimerism result was %99.73 . Post-transplant azacytidine- DLI maintenance and intratechal prophylactic therapy were planned.

Discussion : AML 4-5, presence of inversion 16, chromosome 11 anomalies, hyperleukocytosis, lactate dehydrogenase (LDH) elevation, and FLT3–internal tandem duplication (ITD) mutations are risk factor related to CNS inolvement of AML [1,2]. The findings indicated that CNS relapse following allo-HSCT, nevertheless, the prognosis remains poor [3]. Once the disease has been successfully controlled, the subsequent step is to proceed

with cellular therapy (ASCT)[4]. Further prospective multicentre research is required to confirm these results and to investigate standard treatments for CNS relapse in AML patients following allo-HSCT.

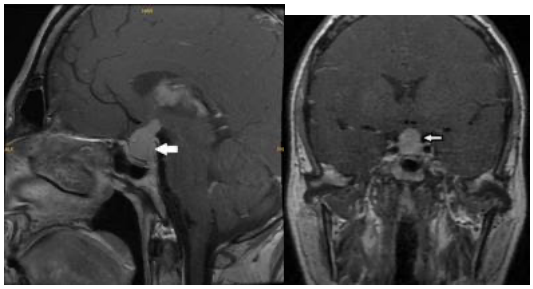

Figure 1, 2. Brain MRI T2 weighted sequence showing occluding the suprasellar system and exerting a supressive effect on the optic chiasm

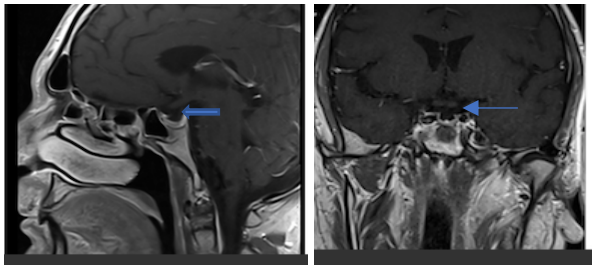

Figure 3, 4. Brain MRI T2 weighted sequence showing normal suprasellar system