PB1756 INOTUZUMAB OZOGAMICIN IN THERAPY RELAPSE/REFRACTORY B-CELL ACUTE LYMPHOBLASTIC LEUKEMIA (R/R B-ALL): A SINGLE CENTER EXPERIENCE

**Topic:** 02. Acute lymphoblastic leukemia - Clinical

Alina Antipova, Olga Baranova, Aydemir Ibragimov, Galina Petrova, Gayane Tumian, Eugene Osmanov

1 Hematology, Federal State Budgetary Institution National Medical Research Center of Oncology named after N.N. Blokhin« of the Ministry of Health of Russia, Moscow, Russian Federation

2 Transplantation, Federal State Budgetary Institution National Medical Research Center of Oncology named after N.N. Blokhin« of the Ministry of Health of Russia, Moscow, Russian Federation

**Background:**

The current modern chemotherapy (CHT) protocols for ALL, taking into account prognostic factors, including assessment and monitoring of MRD, in the general group of patients (pts) allow achieving complete remission (CR) in 80–90% cases. In adult pts with primary B-cell ALL CR rates of 80–90% are routinely achieved with standard multidrug chemotherapy, however, 5-year disease free survival is only around 40%. The prognosis of pts with relapses or refractory disease are dismal, 5-y overall survival after treatment failure is about 10%. Therapy of r/r B-ALL remains a challenge. Intensification of CHT has not been successful secondary to high toxicity rates. Each subsequent line of therapy reduces the response rate and the duration of the achieved remission, which complicates the sequential implementation of allogeneic hematopoietic cell transplantation (alloHCT). Novel targeted therapies have been shown to improve outcomes in pts with adult B-ALL. Inotuzumab ozogamicin (InO), a new antibody–drug conjugate, has shown significant activity in adult patients with r/r B-ALL.

**Aims:** To evaluate the efficacy and safety immunotherapy with inotuzumab ozogamicin in pts r/r B-ALL.

**Methods:** In the Hematology Department of N.N. Blokhin National Medical Research Center of Oncology (Russia, Moscow) 5 pts were treated with InO between September 2021 and February 2022. There were 3 females and 2 males. Median age at start of InO was 39 years (range 23-62). Bone marrow infiltration was on the average 48% blasts. Lymphoblasts for all pts expressed CD22. All pts were Ph-negative. Cytogenetic findings were obtained in different pts: KMT2A rearrangement, hyperdiploidy, del(IGH), complex karyotype, trisomy of chromosome 10. There was no clinically significant leukocytosis, anemia, thrombocytopenia, extramedullary involvement including central nervous system. Four of five pts had a relapse of B-ALL and one had refractory disease. These 4 pts were primary treated according ALL-2009 protocol (Russian ALL-Study Group). In relapses they received intense programs like HyperCVAD,FLAG, 1 patient had undergone prior alloHCT. One patient with refractory disease received only 1 course dose adjusted HyperCVAD. InO was given as monotherapy in all pts in dose 1,8 mg/m² first course and 1,5 mg/m² in subsequent (and in 1 case 1,8 mg/m² during 2nd cycle without response), but in 1 pt the first course was in combination with mini-hyper-CVD regimen. Candidates for alloHCT (4 pts) received 2 cycles of InO therapy in 3 cases and 3 cycles in one. Also, all pts received standard triple intrathecal prophylaxis CNS involvement. The median follow-up is 6 months.

**Results:** All 5 pts achieved CR or CR with incomplete hematologic recovery (CRI) after first (4pts) and second (1 pt) courses. 4 of 5 pts reached MRD-negativity by flow cytometry and cytogenetic remission by standard karyotyping or FISH. No severe toxic complications were observed. Hematological toxicity was registered, such as thrombocytopenia (grade 3/4 in 2 pts), neutropenia (grade 3/4 in 3 pts), leucopenia (grade 3/4 in 3 pts). Patients also noted fatigue, fever. To date 2 responders underwent alloHCT. Also, the search for an unrelated donor was initiated for other two patients.

**Summary/Conclusion:**
Inotuzumab ozogamicin has shown high efficacy in adult patients with r/r B-ALL. All patients achieved complete remissions with a minimal spectrum of toxicity, which is important when performing alloHCT. Further studies in our center with a larger number of patients and a longer follow-up period will be conducted to evaluate the safety and efficacy of inotuzumab ozogamicin therapy.