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Conference Abstract A22

Clinical Case of Successful Blinatumomab Use in an Adult Patient with Multiple Relapses of Acute Lymphoblastic Leukemia (B-II Variant)

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Introduction

Acute lymphoblastic leukemia (ALL) in adults, especially with multiple late relapses, is characterized by an extremely poor prognosis. When standard intensive chemotherapy regimens are ineffective, immunotherapy becomes increasingly important, in particular blinatumomab—a bispecific antibody targeting CD19 on blasts and CD3 on T-lymphocytes. The drug has demonstrated the ability to induce MRD-negative remissions in refractory patients [Kantarjian et al., 2017; Topp et al., 2015].

Case Description

Patient Zh., born 2002. ALL onset (B-II variant, hyperdiploid karyotype, t(1;6))—April 2009, treated according to ALL-BFM-2000 + cranial irradiation (12 Gy), remission from day 33.

- 1st relapse—2017 (bone marrow + orchitis)—ALL REZ BFM 2002 → remission.
- 2nd relapse—Nov 2023, bone marrow, 84.6% blasts, refractory to prephase of ALL-2022kz.

Blinatumomab Immunotherapy

The patient received the drug via the "Kazakhstan Khalkyna" Fund as part of the state cancer care program. Treatment carried out at the NROC (Astana).

- Prephase with blinatumomab (19.12.2023–26.12.2023): 9 mcg/day by continuous infusion. Tolerability: moderate headaches and bone pain, managed by analgesics.
  Induction I (27.12.2023–16.01.2024): blinatumomab monotherapy at standard dose escalation. Result on 17.01.2024: MRD (–), 1% blasts in BM, IHC: tumor cells 0.000%.
- Consolidation I (08.02.2024–06.03.2024): MRD remains (–)
- Consolidation II (12.04.2024–09.05.2024): MRD (–), 1% blasts
- Consolidation III (22.06.2024–20.07.2024): MRD (–), 0.6% blasts, complete hematologic response maintained
- Consolidation IV (22.08.2024–18.09.2024): MRD (–), 1.4% blasts
- Additional: CNS leukemia prophylaxis with triple therapy (methotrexate, cytarabine, dexamethasone)

Course and Outcomes

Throughout all courses—no grade ≥3 hematologic toxicity.

Complications: isolated infections (fungal pneumonia at start, acute rhinosinusitis), managed by standard therapy.

Remission was sustained in October 2024, February and May 2025, with MRD negative (0.000% by IHC).

Conclusion

In this case, blinatumomab achieved rapid and sustained MRD-negative remission in a patient with late multiple ALL relapses, refractory to intensive chemotherapy. This confirms the high clinical value of the drug as a "bridge" to transplantation, or as a standalone therapeutic option in this patient category.