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(PB2363) USE OF BLINATUMOMAB AS BRIDGE THERAPY BEFORE ALLOGENEIC BONE MARROW TRANSPLANTATION IN PATIENTS WITH ACUTE B-LYMPHOBLASTIC LEUKEMIA (B-ALL)

Topic: 2. Acute lymphoblastic leukemia - Clinical

Maryna Dubina*[1], Ihar Iskrou[1], Iryna Lendzina[1], Katsiaryna Kabayeva[1]

[1]State Institution "Minsk Scientific and Practical Center for Surgery, Transplantology and Hematology, Hematology, Minsk, Belarus;

Background:

The majority of adults with B-ALL attain complete clinical and hematological remission after a course of induction chemotherapy. However, despite this achievement, most patients continue to harbor measurable minimal residual disease (MRD) after the initial treatment phase. MRD is defined as the presence of leukemia cells with a sensitivity of ≥104-6 in patients with a bone marrow blast count of less than 5%. Minimal residual disease is the most accurate predictor of relapse in acute lymphoblastic leukemia, irrespective of the treatment regimen employed. Blinatumomab has demonstrated high efficacy in inducing complete remission in patients with B-ALL, enabling its use as a bridge therapy to allogeneic hematopoietic stem cell transplantation (allo-HSCT).

Aims:

Assess the efficacy of blinatumomab as bridge therapy in patients with minimal residual disease (MRD) who have previously received treatment, as well as in patients with relapsed B-ALL.

Methods:

A retrospective analysis of the efficacy and toxicity of blinatumomab was conducted in 5 patients ≥18 years with B-ALL. The median age was 31 years. The main condition for inclusion was the presence of MRD+ in 2 (40%) patients with clinical and hematological remission after an induction course of chemotherapy, as well as disease relapse, after previous treatment in 3 (60%) patients. Early relapse was identified in one patient (20%), characterized by the detection of 20% blasts in their myelogram. Late relapse occurred in two patients (40%). One patient experienced relapse 14 months post-treatment, with a myelogram showing 5.33% blasts, while the second patient relapsed after 5 years, exhibiting 13.33% blasts in their myelogram. The MRD study was conducted on day 29 of the blinatumomab course. Toxicity was assessed according to the US National Cancer Institute Grading Scale.

Results:

All 5 patients received the first cycle of blinatumomab therapy. Two patients underwent a second cycle of blinatumomab therapy. However, in one of them, therapy was suspended on day 14 due to allo-HSCT. Adverse events were reported in all 5 patients, with 2 patients experiencing grade 3 adverse events that necessitated discontinuation of blinatumomab. One patient experienced grade III neurological adverse events, including an episode of disorientation in time and aphasia. Additionally, cytokine release syndrome was observed in 1 patient, which was alleviated by dexamethasone. Following the resolution of these adverse effects, blinatumomab therapy was resumed. Hematological toxicity was noted in 4 (80%) patients, increased transaminases - 1 (20%), infectious complications - 1 (20%). No deaths were recorded. On the 29th day of the blinatumomab course, MRD was assessed using flow cytometry. All patients with previously persistent MRD, as well as those with relapse, achieved MRD negativity. Among the five patients who received blinatumomab, subsequent HSCT procedures were performed: two (40%) underwent allo-HSCT, and one (20%) received haploidentical allo-HSCT. Additionally, allo-HSCT is planned for two other patients.

Summary/Conclusion:

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Despite the limited patient cohort, our analysis demonstrated the efficacy of blinatumomab as bridge therapy in patients with MRD, previously received treatment, as well as in patients with relapsed B-ALL.

An analysis of the use of blinatumomab revealed that the drug's tolerability was satisfactory, and the therapy's toxicity was manageable, thereby enabling further allo-HSCT.

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