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List of Articles

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Oncology, Nuclear Medicine and Transplantology
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Conference Abstract A1

Opportunities for Genetic Stratification in Personalized Treatment: A Case Study of Multiple Myeloma

G.Ch. Badalova[1], Ch.D. Asadov[1], I.A. Bagirov[1]

[1]*National Center of Hematology and Transfusion, Baku, Republic of Azerbaijan*

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Corresponding author's email: botasha.95@mail.ru

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Introduction

Multiple myeloma (MM) is a heterogeneous disease in which patient survival and treatment response are closely linked to genetic mutations. Recent studies show that identifying genetic biomarkers enables personalized treatment for patients [1]. In particular, mutations such as translocation t(11;14)(q13;q32), deletion 17p (P53), and duplication 1q (CKS1B) are considered key genetic markers for therapy selection [2]. This article analyzes the frequency and clinical significance of several genetic abnormalities.

This is the first study in Azerbaijan devoted to genetic stratification in MM patients, analyzing the frequency and clinical relevance of specific genetic abnormalities. Some rare alterations (hypodiploidy 13 and 14) were also recorded, highlighting regional features of the disease.

Methodology

The study was conducted at the National Center of Hematology and Transfusion of the Ministry of Health of the Republic of Azerbaijan between 2020 and 2023 and included 28 patients diagnosed with MM. Diagnosis was based on the International Myeloma Working Group (IMWG, 2014) criteria [1]. For genetic analyses, fluorescence in situ hybridization (FISH) and next-generation sequencing (NGS) methods were used. The obtained data were analyzed retrospectively, and mutation frequencies were determined.

Results

The study revealed that translocation t(11;14)(q13;q32) was found in 21.4% of patients (6 individuals) and was the most frequent genetic abnormality. This translocation is associated with sensitivity to BCL-2 inhibitors [3]. Deletion 17p (P53) and duplication 1q (CKS1B) were detected in 10.7% of patients, indicating a more aggressive course of the disease [4]. These results confirm the impact of genetic mutations on prognosis and treatment selection.

The following table summarizes the main mutations and their frequency (see Figure 1). Results demonstrate that genetic mutations are heterogeneously distributed among patients, and different mutations have varying prognostic significance.

Mutation	Number of patients (n)	Percentage (%)
t(11;14)(q13;q32)	6	21.4
Trisomy 11	3	10.7
17p (P53) deletion	3	10.7
1q CKS1B duplication	3	10.7
1p CDKN2C deletion	3	10.7
13q deletion	2	7.1
13 and 17 hypodiploidy	1	3.5
Trisomy 5	1	3.5
Monosomy 13	1	3.5
Tetrasomy 14	1	3.5
Trisomy 17	1	3.5

Conclusion

This study confirms the important role of genetic mutations in personalized treatment and prognostic assessment of MM patients. Risk group determination based on identified biomarkers and development of individualized therapy strategies may contribute to improved patient survival.

Future research should explore in greater depth the relationship between genetic mutations and treatment response, as well as the efficacy of novel targeted therapies.

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Conference Abstract A2

Infectious Mortality After Allogeneic Hematopoietic Stem Cell Transplantation in the Early Post-Transplantation Period: A Single-Center Retrospective Study

S.B. Mukhammadiev[1], S.S. Asilov[1], K.A. Olimzhonov[1], G.Z. Makhamadaliyeva[1], S.S. Saydamanova[1], Z.S. Khudaiberdiev[1], A.A. Kayumov[1]

[1]*Republican Specialized Scientific and Practical Medical Center of Hematology, Tashkent, Ministry of Health of the Republic of Uzbekistan*

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Corresponding author's email: mukhammadiev@gmail.com

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Background

Allogeneic hematopoietic stem cell transplantation is the cornerstone of therapy for various malignant and non-malignant hematological disorders. Despite advances in transplantation techniques and supportive care, infectious complications remain a major problem, particularly during the early post-transplantation period. This challenge is exacerbated in resource-limited settings where access to modern diagnostic methods and antimicrobial agents may be restricted.

Aim

To evaluate the frequency and spectrum of infectious complications and their impact on early mortality after allogeneic hematopoietic stem cell transplantation, and to analyze the effectiveness of an escalation strategy of empirical antibacterial therapy.

Materials and Methods

This retrospective study included 45 patients who underwent allogeneic hematopoietic stem cell transplantation from 2023 to the present at a single transplantation center. The objective was to assess the safety of the escalation strategy in recipients of allogeneic transplantation: recurrence of febrile neutropenia, bloodstream infection, sepsis or septic shock, admission to the intensive care unit, and death within 30 days from the onset of febrile neutropenia. Detailed patient characteristics are presented in Table 1. Blood cultures were obtained from all patients during episodes of febrile neutropenia, including those resulting in death. Cultures were performed from two separate sources — central venous catheter and peripheral vein — at each febrile episode. Preliminary results, including classification of the pathogen as Gram-positive or Gram-negative, were available within 24–48 hours after sampling using mass spectrometry on the VITEK 2 COMPACT system. Subsequent identification of microorganisms and assessment of their growth were performed using the VITEK MS PRIME (bioMérieux) microbiological analyzer.

Results

The median duration of follow-up for the entire cohort was 196 days (range: 7–800). At the time of analysis, 28 patients (62%) were alive. Among the 17 deaths, relapse of the underlying disease was the cause of death in 5 cases (30%), while infectious complications accounted for 10 deaths (59%). The remaining 2 deaths (11%) were due to other causes.

The median time to onset of febrile neutropenia after allogeneic transplantation was 4 days (–4 to 12). The median duration of empirical antibacterial therapy was 15 days (10–19). The median time to sepsis or septic shock from transplantation was 10 days (1–13). Four patients (40%) had a prior intensive care unit stay for sepsis or septic shock. Six patients (60%) had a documented infectious pathogen. All patients with sepsis (10/10; 100%) had late colonization with Klebsiella pneumoniae (local intensive care unit flora).

According to bacteriological studies, pathogens were identified in all cases. The most frequently detected pathogens in Gram-negative bacteremia were Pseudomonas aeruginosa (20%; n = 2), Escherichia coli (10%; n = 1), and Klebsiella pneumoniae (60%; n = 6). Pneumocystis pneumonia was diagnosed in 10% (n = 1) (ex juvantibus) (see Figure 1). All patients died from septic shock despite empirical antibiotic therapy administered in accordance with the escalation strategy. A detailed antibiotic therapy strategy for each patient is presented in Table 2.

№	**Cefoperazone/ Sulbactam**	**Meropenem**	**Linezolid**	**Vancomycin**	**Amikacin**	**Colistin**	**Ceftazidime/ Avibactam, Aztreonam**	**Fosfomycin**
1	+	+	+	+		+		
2	+	+	+	+		+	+	
3	+	+	+		+	+		+
4		+	+			+		
5	+	+	+			+		
6	+	+		+		+		
7		+		+		+		
8	+	+	+		+	+		
9	+	+	+			+	+	
10		+	+	+		+	+	

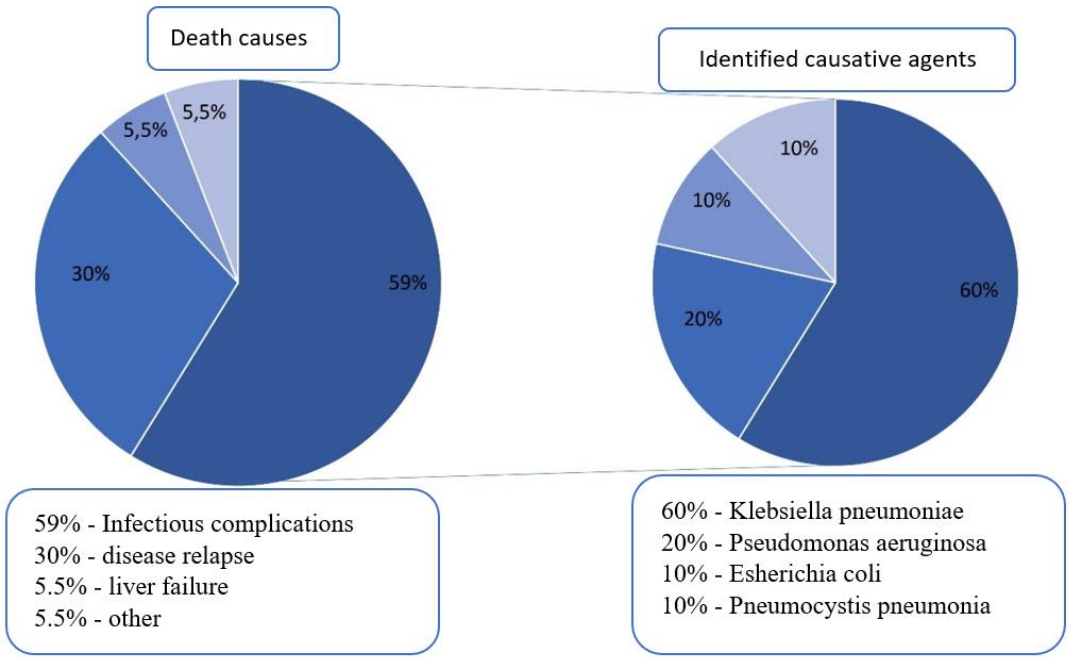
Conclusions

This retrospective study demonstrates the safety of escalation empirical antibacterial therapy in recipients of allogeneic hematopoietic stem cell transplantation. However, this approach should be used with caution when allogeneic transplantation is performed as salvage therapy, as well as in patients with a history of sepsis or septic shock and intensive care unit admission. It remains essential to determine microbial sensitivity at all stages of therapy before and after allogeneic transplantation, to modernize equipment, and to improve the qualifications of intensive care unit staff.

Characteristics of patients	Study group (n=45) N	 %
Median age (years)	28 (19 – 60)	
Sex Male Female	 31 14	 68.9 31.1
Diagnoses Acute myeloid leukemia Acute lymphoblastic leukemia Aplastic anemia Myelodysplastic syndrome	 21 15 8 1	 46.7 33.3 17.8 2.2
Indication for transplantation Standard therapy Salvage therapy	 39 6	 75.8 24.2

Number of transplantations First allogeneic transplantation Second allogeneic transplantation	 43 2	 95.6 4.4
Donor type Haploidentical Matched related donor	 22 23	 48.9 51.1
Source of stem cells Mobilized peripheral blood stem cells	 45	 100.0
Conditioning regimen RIC	 45	 100
Post-transplant cyclophosphamide for graft-versus-host disease prophylaxis	45	100

Picture №1



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Conference Abstract A3

Changing Role of Allogeneic Hematopoietic Stem Cell Transplantation in the Treatment of Patients with Chronic Myeloid Leukemia

Yu.Yu. Vlasova[1], Yu.S. Yakovleva[1], K.S. Tsvirko[1], K.V. Muslimova[1], E.V. Morozova[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantation, Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russia*

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Corresponding author's email: yuliya.vlasova@mail.ru

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Introduction

Chronic myeloid leukemia is a disease in which allogeneic hematopoietic stem cell transplantation remains a key therapeutic modality for patients who are resistant to tyrosine kinase inhibitors, particularly those harboring the T315I mutation and those progressing to the accelerated phase or blast crisis.

Aim

To analyze the indications for allogeneic hematopoietic stem cell transplantation in patients with chronic myeloid leukemia based on the 2025 European Leukemia Net and 2022 European Society for Blood and Marrow Transplantation recommendations as well as on our own clinical data.

Methods

According to the ELN 2025 and EBMT 2022 guidelines, key changes concern the timing of referral for allogeneic hematopoietic stem cell transplantation and the choice of therapy for different phases of chronic myeloid leukemia.

Indications for allogeneic transplantation in the first chronic phase include resistance to second-generation tyrosine kinase inhibitors, mutations conferring resistance to multiple lines of tyrosine kinase inhibitors, or the emergence of additional chromosomal abnormalities. Allogeneic transplantation may be deferred if a response is achieved with the next line of tyrosine kinase inhibitor therapy.

In the accelerated phase an individualized approach (allogeneic transplantation versus tyrosine kinase inhibitor therapy) is required, taking into account mutational status, patient age, and donor availability. In blast crisis, allogeneic transplantation is the standard of care, increasing median overall survival to 60 months compared with 21.4 months without transplantation.

Results

New data have been obtained regarding the efficacy of allogeneic transplantation.

In the first chronic phase, the best outcomes are achieved with early allogeneic transplantation in patients with tyrosine kinase inhibitor resistance.

In the accelerated phase, no significant difference in overall survival was observed between allogeneic transplantation and tyrosine kinase inhibitor therapy (5.3 versus 5.6 years), although early mortality was higher after transplantation.

In blast crisis, allogeneic transplantation increased overall survival to 60 months compared with 21.4 months with conservative therapy. According to the 2024 European registry, three-year overall survival was 23.8 months.

An innovation in the therapy of chronic myeloid leukemia is asciminib, an allosteric BCR-ABL1 inhibitor effective in patients with the T315I mutation. According to our center's data, asciminib is effective after allogeneic transplantation.

For post-transplantation relapse prophylaxis, one-year overall survival was 89% and progression-free survival was 89%. Asciminib demonstrated a favorable toxicity profile after allogeneic transplantation, with minimal vascular complications. In patients with chronic myeloid leukemia carrying the T315I mutation, asciminib is an alternative to ponatinib.

According to updated guidelines, for patients with chronic myeloid leukemia (CML) in chronic phase (CP), first-line targeted therapy (asciminib/ponatinib) is prioritized. Data from our center indicate the necessity of prophylaxis against post-transplant relapse. Prophylactic treatment with dasatinib or asciminib improves 5-year overall survival (OS) (71% vs. 41%) and major molecular response (MMR) rates (55% vs. 33%).

The decision to discontinue tyrosine kinase inhibitor (TKI) therapy is made after two years of sustained molecular remission. Practical recommendations have been established. Referral to transplant centers is indicated for patients who fail to respond to second- to fourth-line TKI therapy, harbor mutations (e.g., ASXL1, 3q26.2), exhibit disease progression, or have intolerance to TKI treatment. A therapeutic algorithm has been developed to guide treatment selection between allogeneic hematopoietic stem cell transplantation (allo-HSCT) and TKIs. In CP, allo-HSCT is recommended in cases of resistance; in accelerated phase/blast crisis, allo-HSCT combined with TKI prophylaxis is advised. Regular monitoring, including assessment of molecular response and mutation status, is essential.

Conclusion

Allogeneic hematopoietic stem cell transplantation retains its role in high-risk chronic myeloid leukemia but requires a personalized approach. New tyrosine kinase inhibitors such as asciminib and ponatinib are changing the treatment paradigm for chronic myeloid leukemia, particularly for T315I-positive disease and in the post-transplantation period, but further studies are needed. Timely referral of patients to transplantation centers improves outcomes.

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Conference Abstract A4

Evaluation of the Effectiveness of Additional Infusion of Hematopoietic Stem Cells ("Boost") as a Treatment for Graft Failure After Allogeneic Hematopoietic Stem Cell Transplantation

T.A. Rudakova[1], N.P. Volkov[1], D.K. Zhogolev[1], K.S. Afanasyeva[1], S.E. Ziganshina[1], Yu.A. Rogacheva[1], E.V. Morozova[1], Yu.Yu. Vlasova[1], A.G. Smirnova[1], S.N. Bondarenko[1], I.S. Moiseev[1], A.D. Kulagin[1]

[1]*Research Institute of Pediatric Oncology, Hematology and Transplantology after R.M. Gorbacheva, Pavlov First Saint Petersburg State Medical University, Ministry of Health of the Russian Federation*

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Corresponding author's email: tatyana.rudakova@mail.ru

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Background

Severe hypofunction of graft is a life-threatening complication following allogeneic hematopoietic stem cell transplantation. One of the therapeutic options is the additional infusion of hematopoietic stem cells from the original donor ("boost").

Aim

To evaluate the effectiveness, overall survival and event-free survival after the administration of a hematopoietic stem cell boost in patients with severe graft hypofunction.

Materials and Methods

Thirty-two consecutive hematopoietic stem cell boosts performed at the R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantation, Pavlov First Saint Petersburg State Medical University during 2009–2024.

The patients' ages ranged from 18 to 69 years (median 38 years); there were 21 men and 11 women with acute lymphoblastic leukemia (n = 7), acute myeloid leukemia (n = 8), myeloproliferative diseases (n = 4), myelodysplastic syndrome (n = 4), chronic myeloid leukemia (n = 4), non-Hodgkin's lymphoma (n = 2), severe aplastic anemia (n = 2), and chronic lymphocytic leukemia (n = 1).

Allogeneic hematopoietic stem cell transplantation had been performed from unrelated fully HLA–matched donors (n = 11), partially matched donors (n = 5), related matched donors (n = 9), and haploidentical donors (n = 7).

The indication for the boost were severe graft hypofunction in 25 cases and severe graft hypofunction with mixed chimerism in 7 cases.

The median interval between the initial allogeneic hematopoietic stem cell transplantation and the boost was 105 days (range 35–545). The source of hematopoietic stem cells was bone marrow in 9 cases and peripheral blood stem cells in 23 cases. $CD34^+$ cell selection was performed for two patients. The median $CD34^+$ cell dose was 3.3 (0.6–11) × 10^6/kg.

Most patients received prophylaxis for graft-versus-host disease with methylprednisolone 5 mg/kg combined with calcineurin inhibitors (CNIs) and mycophenolate mofetil (MMF) (n = 13), CNIs plus MMF (n = 7), ruxolitinib combined with MMF and CNI/sirolimus (n = 5), or post-transplant cyclophosphamide (n = 1); 6 patients received no graft-versus-host disease prophylaxis.

Results and Discussion

The number of boosts performed per year ranged from one to three. Hematopoietic recovery after the boost was achieved in 18 patients (56%), with a median time to recovery of 22 days (range 8–105).

Twelve patients had grade 2–4 acute graft-versus-host disease between the first transplantation and the boost. All patients experienced cytomegalovirus infection or reactivation of human herpesvirus 6 during this period.

Graft rejection occurred in two cases (at 29 and 118 days), and relapse occurred in three patients.

Acute graft-versus-host disease after the boost occurred in eight cases with a cumulative incidence of 26% (95% confidence interval 12–50). Two-year relapse incidence was 9% (95% confidence interval 2–23), with the time from boost to relapse ranging from 14 to 30 days. Non-relapse mortality was 33% (95% confidence interval 17–50).

In total, 19 patients died: infection (n = 12), graft-versus-host disease combined with infection (n = 4), and relapse (n = 3). Two-year overall survival was 53% (95% confidence interval 37–75).

This study has clear limitations due to its retrospective nature and the small, heterogeneous cohort. Notably, prolonged use of hematopoietic stem cells occurred in the historical cohort (2009–2016).

Conclusion

A hematopoietic stem cell boost can be a life-saving procedure for patients with severe graft hypofunction. Further studies are needed to develop protocols for this intervention aimed at reducing the incidence of graft-versus-host disease and infectious complications in this category of patients.

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Conference Abstract A5

Epidemiology of Gram-Positive (G+ bacteria) Bloodstream Infections in Patients After Allogeneic Hematopoietic Stem Cell Transplantation (allo-HSCT)

M.B. Pogorova[1], Yu.A. Rogacheva[1], M.O. Popova[1], A.A. Sinyaev[1], Yu.Yu. Vlasova[1], S.N. Bondarenko[1]

[1]*Gorbacheva Institute of Pediatric Oncology, Hematology and Transplantology, First St. Petersburg Pavlov State Medical University, St. Petersburg, Russia*

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Corresponding author's email: pogorovam@yandex.ru

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Background

Bloodstream infections (BSIs) caused by Gram-positive (G+) microorganisms remain a significant problem in patients after allogeneic hematopoietic stem cell transplantation (allo-HSCT), leading to severe infectious complications and prolonged hospitalization.

Aim

To study local epidemiology, risk factors, and mechanisms of antibiotic resistance.

Materials and Methods

The study included 212 patients over 18 years old that received their first allo-HSCT between January 2023 and December 2024 at the Gorbacheva Institute. Patients who received a second allo-HSCT or those with localized/systemic infections requiring antibacterial therapy (ABT) at the time of transplantation were excluded (37 patients). Outcomes were evaluated in 175 patients.

The median age at transplantation was 42 years (range: 18–75); 49% were male (n=86). Patient characteristics are presented in Table 1.

Vancomycin-resistant enterococci (VRE) colonization prior to allo-HSCT was observed in 10.3% (n=18). Among G+ BSI cases, VRE colonization was present in 28.7% (n=5).

Results

The incidence of G+ BSI within the first 30 days after allo-HSCT was 25.1% (n=44). The median day of onset of bloodstream infections (BSI) was 6 days (range 2–27 days) after allo-HSCT. The BSI were caused by the following etiological agents:

Staphylococcus epidermidis — 79.5% (n=35)
Staphylococcus haemolyticus — 2.3% (n=1)
Staphylococcus hominis — 2.3% (n=1)
Corynebacterium jeikeium — 2.3% (n=1)
Enterococcus faecium — 4.5% (n=2)
Streptococcus mitis — 2.3% (n=1)
Staphylococcus aureus — 2.3% (n=1)
Streptococcus epidermidis — 2.3% (n=1)

Antibiotic susceptibility patterns are presented in Table 2.

In 25.9% of cases (n=13), central venous catheter (CVC) replacement was performed, with a median time of 2 days (range 0–13) from BSI confirmation to replacement.

In 13.6% of cases (n=6), Gram-positive bloodstream infections (G+ BSI) were preceded by bloodstream infections caused by Gram-negative (G–) bacteria, with a median onset day of 8 (range 1–28). In 11.4% of cases (n=5), G– BSI developed after G+ BSI (median onset day = 6, range 1–13). In 4.5% of cases (n=2), BSIs were caused by both G+ and G– pathogens.

First-line therapy was administered in 43.2% of cases (n=19) — median initiation on day 11 from BSI onset. Second-line therapy was used in 36.4% (n=16), third-line in 20.5% (n=9).

Risk factors (univariate analysis): Severe mucositis grade 3–4 (p=0.01) was significantly associated with G+ BSI. Diarrhea, GVHD (grades 3–4), and neutropenia duration showed no statistically significant correlation. Multivariate analysis revealed no independent predictors of G+ BSI (p>0.05). Severe mucositis was borderline significant (p=0.08), requiring validation in a larger cohort.

Thirty-day overall survival (OS) was 100%. Median OS was not reached. All deaths occurred in patients with G– BSI during or after G+ BSI.

Conclusions

The incidence of G+ BSI in patients after allo-HSCT was 32.5%. The predominant pathogen was Staphylococcus epidermidis. Fatal outcomes were recorded among patients with G– BSI developing against the background of G+ BSI. In univariate analysis, severe mucositis (p=0.01) and duration of neutropenia (p=0.035) were associated with G+ BSI.

Table 1. Patient characteristics and allo-HSCT

Characteristics	Study group
	% n=175
Study period	01.2023 – 12.2024
Median age	42 (18-75)
Male	49%(86)
Main diagnosis	
AML	57% (99)
ALL	13%(23)
CMPD	10%(18)
LH and nHL	4.6%(8)
AA	5.7%(10)
MDS	9.7%(17)
Relapse/progression	14%(24)
Type of transplantation **MRD** **MUD** **MMUD** **Gaplo-HSCT**	 17%(30) 26%(46) 28%(49) 29%(50)
Conditioning regimen **MAC**	 39.4%(69)

Table 2. Antibiotic susceptibility of isolated strains

Bacteria	**Sensitivity %, (n)**			
	Clindamycin	**Vancomycin**	**Linezolid**	**Tigecycline**
Staphylococcus epidermidis (n=35)	25,7%	85,7%	97,1%	100%
Staphylococcus haemolyticus (n=1)	0%	100%	100%	100%
Staphylococcus hominis (n=1)	0%	100%	100%	100%
Staphylococcus aureus (n=1)	100%	100%	100%	100%
Streptococcus epidermidis (n=1)	0%	100%	100%	100%
Streptococcus mitis (n=1)	0%	100%	100%	0%
Corynebacterium jeikeium (n=1)	0%	100%	0%	0%

Enterococcus faecium (n=2)	0%	100%	100%	100%

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Conference Abstract A6

Allogeneic Hematopoietic Stem Cell Transplantation in Acute Myeloid Leukemia Among Elderly Patients

D.K. Zhogolev[1], S.N. Bondarenko[1], A.G. Smirnova[1], Yu.Yu. Vlasova[1], E.V. Morozova[1], I.S. Moiseev[1], A.D. Kulagin[1]

[1]*Research Institute of Pediatric Oncology, Hematology and Transplantation named after R. M. Gorbacheva, First Saint Petersburg Medical University named after I. P. Pavlov. Saint Petersburg, Russia*

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Corresponding author's email: zhogolev.dmitry@mail.ru

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Introduction

Allogeneic hematopoietic stem cell transplantation remains the only potentially curative approach for the majority of patients with acute myeloid leukemia, while the proportion of adverse biological variants of the disease increases with age. In recent years, advances in the optimization of transplantation techniques have expanded the upper age limit for candidates and improved survival outcomes in older patients. Against this background, it is relevant to assess the outcomes of allogeneic hematopoietic stem cell transplantation in patients aged 60 years and older compared with younger recipients.

Aim

To perform a comparative analysis of outcomes of allogeneic hematopoietic stem cell transplantation in first remission of acute myeloid leukemia between patient groups aged ≥60 years and <60 years.

Materials and Methods

This retrospective study included 379 consecutive adult patients who underwent allogeneic hematopoietic stem cell transplantation in first remission of acute myeloid leukemia at the R. M. Gorbacheva Institute from 2013 to 2024. The cohort was divided into two groups according to age (≥60 years and <60 years). The evaluated outcomes included the cumulative incidence of relapse, non-relapse mortality (nRM), overall survival (OS), and leukemia-free survival (LFS), calculated at two years of follow-up.

Results

When stratified by age, 30 patients were assigned to the ≥60-year group and 349 to the <60-year group. Comparative analysis showed that the ≥60-year group had a higher frequency of secondary acute myeloid leukemia (30% versus 12.6%; p = 0.03) and a statistical trend toward a higher frequency of measurable residual disease positivity (48.1% versus 28.6%; p = 0.057). The proportion of patients with a high comorbidity index was also significantly higher (50% versus 5.4%; p < 0.001). All patients aged ≥60 years received reduced-intensity conditioning regimens, whereas 14% of patients <60 years underwent myeloablative conditioning (p = 0.02). Detailed comparative characteristics of the groups are shown in Table 1.

The cumulative incidence of relapse was 24% (95% confidence interval [CI] 8.3–45) versus 14% (95% CI 10–18; p = 0.12), non-relapse mortality was 6.7% (95% CI 1.1–19) versus 12% (95% CI 8.5–15; p = 0.47), overall survival was 76.4% (95% CI 62.5–93.3) versus 78.1% (95% CI 73.7–82.7; p = 0.5), and leukemia-free survival was 69% (95% CI 51.8–91.8) versus 74.3% (95% CI 69.8–79.2; p = 0.5) in the ≥60- and <60-year groups, respectively.

Conclusions

Patients aged ≥60 years are characterized by a less favorable baseline profile at the time of allogeneic hematopoietic stem cell transplantation, including a higher frequency of secondary acute myeloid leukemia, measurable residual disease positivity, and more pronounced comorbidity. Consequently, reduced-intensity conditioning regimens are universally applied in this group. Nevertheless, key transplantation outcomes are comparable with those in patients <60 years. Thus, chronological age is becoming a less restrictive factor owing to modern approaches to peri-transplant management.

Table 1. Comparative characteristics of the groups

	<60 years	≥60 years	p
	n=349	n=30	
Median age, years (range)	37 (18-59)	63 (60-75)	<0,001
Sex, n (%) Female Male	 187 (53,6) 162 (46,4)	 18 (60,0) 12 (40,0)	0,6
Secondary acute myeloid leukemia, n (%) No Yes	 305 (87,4) 44 (12,6)	 21 (70,0) 9 (30,0)	0,03
Risk ELN 2022, n (%) Favorable Intermediate Adverse	 20 (5,8) 280 (80,2) 49 (14,0)	 0 (0,0) 27 (90,0) 3 (10,0)	0,44
Measurable residual disease status, n (%) Positive Negative	 220 (71,4) 88 (28,6)	 14 (51,9) 13 (48,1)	0,057
Simplified comorbidity index, n (%) 0-1 2-3 ≥4	 217 (62,2) 113 (32,4) 19 (5,4)	 1 (3,3) 14 (46,7) 15 (50)	<0,001
Donor type, n (%) 10/10 related 10/10 unrelated 9/10 unrelated Haploidentical	 66 (18,9) 131 (37,6) 86 (24,6) 66 (18,9)	 3 (10,0) 13 (43,4) 7 (23,3) 7 (23,3)	0,63
Conditioning regimen intensity, n (%) Myeloablative Reduced-intensity	 49 (14,0) 300 (86,0)	 0 (0,0) 30 (100,0)	0,02
Stem cell source, n (%) Mobilized peripheral blood stem cells Bone marrow	 273 (78,2) 76 (21,8)	 27 (90,0) 3 (10,0)	0,2

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Conference Abstract A7

The Role of Allogeneic Hematopoietic Stem Cell Transplantation in Patients with Blast Crisis of Chronic Myeloid Leukemia in the Era of Tyrosine Kinase Inhibitors

Yu.S. Yakovleva[1], K.S. Tsvirko[1], Yu.Yu. Vlasova[1], E.V. Babenko[1], T.L. Gindina[1], I.M. Barkhatov[1], E.V. Morozova[1], I.S. Moiseev[1], A.D. Kulagin[1]

[1]*Research Institute of Pediatric Oncology, Hematology and Transplantology, Saint Petersburg, Russia*

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Corresponding author's email: yakovleva@mail.ru

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Background

The prognosis for patients with blast crisis of chronic myeloid leukemia (CML blast crisis) remains extremely poor in the era of tyrosine kinase inhibitors. The median overall survival does not exceed 12 months. The role and optimal timing of allogeneic hematopoietic stem cell transplantation remain undefined.

Aim

To evaluate the outcomes of patients with CML blast crisis depending on whether or not they underwent allogeneic hematopoietic stem cell transplantation.

Materials and Methods

A total of 170 patients with CML blast crisis followed at the R.M. Gorbacheva Research Institute were included between 2001 and 2024. The diagnosis of CML blast crisis was established according to the World Health Organization 2022 criteria. Seventy-nine patients (46%) underwent allogeneic hematopoietic stem cell transplantation, while 91 patients (54%) did not. Both groups were comparable in their main biological characteristics: presence of additional chromosomal abnormalities ($p = 0.4$); complex karyotype/3q26 ($p = 0.3$); BCR::ABL1 mutations ($p = 0.5$); and extramedullary involvement ($p = 0.4$).

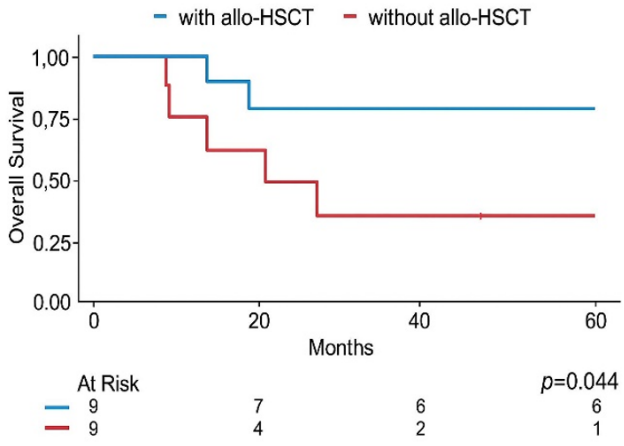
Results

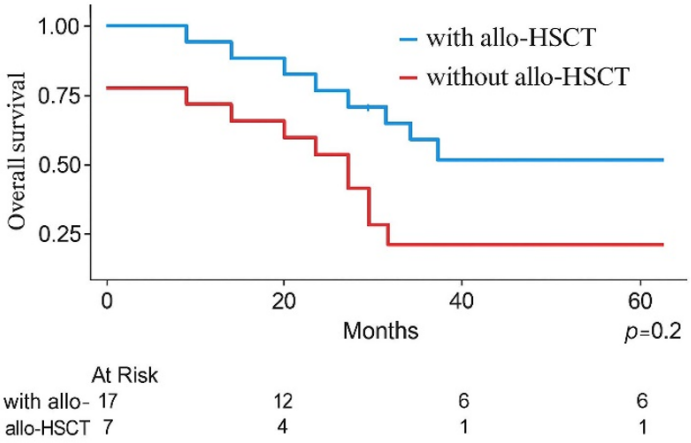
At a median follow-up of 63.3 months (57.1–69.5), the 5-year overall survival for the entire cohort was 26.5% (95% confidence interval: 19.5–33.8). The median overall survival of patients undergoing allogeneic hematopoietic stem cell transplantation (landmark analysis at 6 months from the onset of blast crisis) was 60 months (16.3–not reached), compared with 21.4 months (7.7–not reached) in the group without allogeneic transplantation ($p = 0.044$). Allogeneic hematopoietic stem cell transplantation performed within the first 10 months from the onset of blast crisis did not demonstrate an effect on improvement of overall survival ($p = 0.3$) (Figure 1). Additional chromosomal abnormalities (hazard ratio 3.1; 95% confidence interval: 1.7–5.8; $p < 0.001$) and complex karyotype/3q26 (hazard ratio 2.8; 95% confidence interval: 1.5–5.1; $p = 0.001$) negatively affected overall survival in univariate analysis. Age, time of blast crisis onset (de novo versus transformed from chronic phase), immunological variant of blast crisis, BCR::ABL1 mutations, and extramedullary involvement did not affect overall survival. In multivariate analysis, only allogeneic hematopoietic stem cell transplantation demonstrated an independent positive impact on overall survival (hazard ratio 0.3; 95% confidence interval: 0.2–0.4; $p < 0.001$), whereas additional chromosomal abnormalities retained their negative impact (hazard ratio 1.9; 95% confidence interval: 1.3–2.8; $p = 0.002$).

Conclusions

The prognosis of patients with CML blast crisis remains unfavorable in the era of tyrosine kinase inhibitors. Allogeneic hematopoietic stem cell transplantation improves therapeutic outcomes. Transplantation performed within the first 6 months from the onset of blast crisis demonstrates the best results. Timely referral of patients to a transplantation center is essential.

Figure 1. Overall survival of patients with CML blast crisis depending on the timing of allogeneic hematopoietic stem cell transplantation (landmark analysis): A – landmark analysis at 6 months from the onset of blast crisis; B – landmark analysis at 10 months from the onset of blast crisis.





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Conference Abstract A8

Results of Targeted Therapy for Systemic Mastocytosis at the R.M. Gorbacheva Research Institute

Z.K. Abdulhalikova[1], E.V. Morozova[1]

[1]*Pavlov First Saint Petersburg State Medical University, Ministry of Health of the Russian Federation, R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantology, Saint Petersburg, Russia*

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Corresponding author's email: dr_abdulhalikova@mail.ru

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Background

Midostaurin is the first targeted agent approved for the treatment of systemic mastocytosis (SM). Its efficacy is independent of C-KIT mutation status and it has improved overall survival outcomes without the need for allogeneic bone marrow transplantation.

Objective

To evaluate the outcomes of targeted therapy for systemic mastocytosis in clinical practice.

Materials and Methods

The diagnosis of systemic mastocytosis was established according to WHO 2017 criteria. Diagnostic workup included complete blood count with microscopy, cytological and histological examination of bone marrow, serum tryptase measurement, C-KIT mutation analysis (KITD816V, mutations in exons 8–11 and 17), abdominal ultrasound, and low-dose whole-body CT scan. Treatment response was assessed according to the 2024 National Clinical Guidelines for the diagnosis and therapy of mastocytosis.

Results

Between 2019 and 2024, systemic mastocytosis was confirmed in 41 patients. Distribution of SM subtypes was as follows: indolent SM (ISM) – 53.6% (n=22), smoldering SM (SSM) – 2.6% (n=1), aggressive SM (ASM) – 7.2% (n=3), SM with associated hematologic neoplasm (SM-AHN) – 26.8% (n=11), mast cell leukemia (MCL) – 4.9% (n=2), unclassified SM – 4.9% (n=2). KITD816V mutation was detected in 75% of cases, C-KIT wild type in 22%, and Phe522Cys mutation in 3%.Midostaurin therapy was administered in 31% (n=13): ISM (n=4), SSM (n=1), ASM (n=2), SM-AHN (n=4), MCL (n=2). At therapy initiation (dose 200 mg/day), clinical manifestations were present in all patients: general symptoms 85% (n=11), cutaneous involvement 77% (n=10), splenomegaly 77% (n=10), hepatomegaly 54% (n=7), lymphadenopathy 61% (n=8), anaphylaxis episodes 15% (n=2), skeletal involvement 39% (n=5), gastrointestinal symptoms 46% (n=6), transfusion dependence on platelet concentrates 7.6% (n=1) and on erythrocyte products 23% (n=3). Median follow-up was 18 months (range 6–30). After 6 months of therapy: partial response – 15% (n=2), clinical improvement – 38.75% (n=5), stable disease – 38.75% (n=5), disease progression – 7.5% (n=1). No differences in response were observed depending on C-KIT status. Median duration of response was not reached in any SM subgroup. Median overall survival (OS) was not reached in ISM and SSM groups; in advanced SM it was 6 months, with a single fatal case (progression) in MCL. Dose reduction of midostaurin (to 50 mg/day) was required in 30% (n=4): due to Grade 4 hematologic toxicity in 15% (n=2) and Grade 4 emetic syndrome in 15% (n=2).

Conclusion

Targeted therapy with midostaurin results in clinical response across all systemic mastocytosis subgroups within 6 months of treatment initiation; however, long-term follow-up is required.

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Conference Abstract A9

Influence of Immunophenotypic Characteristics of Plasma Cells in Multiple Myeloma Patients on Disease Prognosis and Course

A.B. Karabekov[1], V.M. Kemaykin[1], Zh.A. Iskakova[1], R.B. Ibragimova[1]

[1]*National Research Oncology Center LLP, Astana, Republic of Kazakhstan*

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Corresponding author's email: botasha.95@mail.ru

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Background

Multiple myeloma (MM) is one of the most complex forms of hematologic malignancy, presenting significant challenges in diagnosis and management. MM remains an incurable disease; current treatments allow prolonged remissions in some cases but not all. Thus, advancing prognostic systems through molecular-genetic and immunological studies that account for MM heterogeneity is a key goal in oncohematology. Additional insights can be gained by assessing the expression of surface markers on tumor cells using flow cytometry. It is established that immunophenotypic features (IFT) of myeloma cells are associated with clinical presentation and response to therapy.

Aim

To evaluate the impact of CD56 expression on plasma cells in newly diagnosed MM patients on the efficacy of induction therapy, disease aggressiveness, and overall survival.

Materials and Methods

A retrospective single-center study was performed on data from 26 newly diagnosed MM patients treated between 2023 and 2025. The efficacy of induction, disease aggressiveness, and overall survival (OS) were assessed according to CD56+ cell count by IFT.

Results

Among 26 patients analyzed, 4 (15%) exhibited no CD56 expression, 10 (38%) showed CD56 expression up to 30%, and 12 (47%) demonstrated expression above 30%. All patients received VCD chemotherapy as induction treatment. In the CD56-negative group, only 2 patients (50%) achieved a partial response (PR), while the remainder were refractory. Among patients with CD56 expression ≤30%, 1 patient (10%) achieved a complete response (CR), 8 patients (80%) achieved a PR, and 1 patient (10%) was refractory. In the subgroup with CD56 expression >30%, 2 patients (17%) achieved a very good partial response (VGPR), 4 patients (34%) achieved a PR, and 6 patients (49%) were refractory.

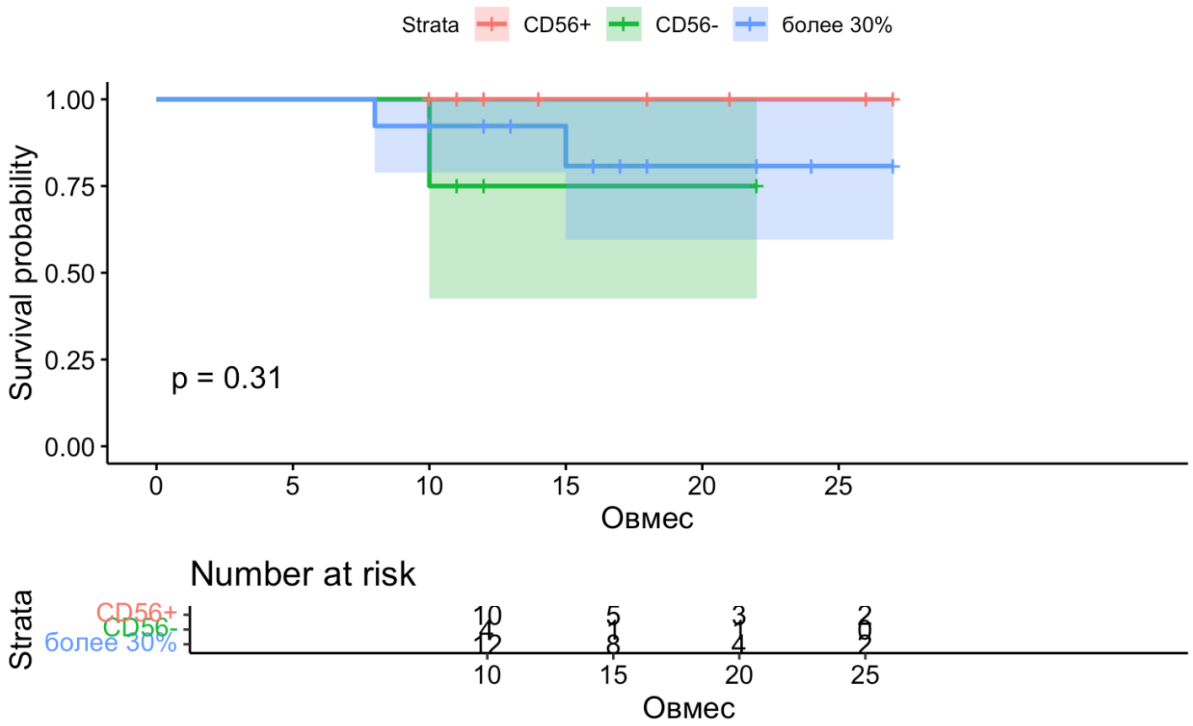
In terms of overall survival (OS), there was a tendency toward worse outcomes in patients with absent CD56 expression (24-month OS – 73%) and in those with CD56 expression >30% (24-month OS – 76%), although the differences did not reach statistical significance due to the small sample size ($p = 0.31$) (Figure 1).

These findings suggest that both absence of CD56 and high CD56 expression (>30%) are associated with inferior treatment responses and a trend toward reduced OS. In contrast, the most favorable outcomes were observed in patients with intermediate CD56 expression (≤30%), where the highest overall response rate (90% combining CR and PR) was achieved.

Conclusions

Using flow cytometry data for prognosis in MM patients may help personalize treatment, improve efficacy, and enhance long-term outcomes. Further study of immunophenotypic characteristics remains necessary, with a broader cohort and evaluation of factors lowering response probability to bortezomib-based therapy and progression-free survival post high-dose treatment and autologous stem cell transplantation.

Picture 1.



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Conference Abstract A10

Risk of Developing Malignant Blood Diseases in Individuals Infected With Hepatitis C and B Viruses

G.S. Alieva[1], A.G. Shirinova[1], N.V. Ismail[1], Ch.D. Asadov[1]

[1]*National Center of Hematology and Transfusion, Baku, Azerbaijan*

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Corresponding author's email: Gunel-aliyeva7@mail.ru

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Introduction

The relevance of studying the association between hepatitis C (HCV) and B (HBV) viruses and oncohematological diseases is due to the fact that chronic viral infections play a significant role in altering immune regulation, activating inflammatory pathways, and disrupting apoptosis, which may contribute to the development of malignant blood diseases. Identifying a possible connection between these infections and malignant blood diseases is of great epidemiological, clinical, and social importance. Studying these associations may contribute to more accurate risk stratification, improved patient monitoring, and the development of effective preventive and therapeutic strategies. Currently, there is evidence suggesting a possible link between chronic viral hepatitis B and C and the development of oncohematological diseases. However, the mechanisms of this association remain unclear, and research findings are often contradictory. There is an urgent need for further studies to better understand the pathogenetic links and assess the impact of viral infections on the course and prognosis of malignant blood diseases.

Objective

To assess the associations between HCV, HBV, and the risk of developing malignant blood diseases among patients in Azerbaijan.

Materials and Methods

Medical records of 797 patients with various oncohematological diagnoses at the National Center of Hematology and Transfusion were analyzed:

- Non-Hodgkin's lymphoma (NHL) – 62
- Acute lymphoblastic leukemia (ALL) – 255
- Chronic lymphocytic leukemia (CLL) – 123
- Multiple myeloma (MM) – 69
- Acute myeloid leukemia (AML) – 193
- Chronic myeloproliferative diseases (CMPD) – 95

The number of patients with hepatitis B (HBsAg) and C (anti-HCV) markers at the time of diagnosis was counted. Data on hepatitis B and C infection among primary blood donors from the Central Blood Bank at the National Center of Hematology and Transfusion served as the control. The association between oncohematological diseases and viral hepatitis infections was assessed using relative risk (RR) and odds ratio (OR) with a 95% confidence interval. Differences were considered significant at $P < 0.05$. Statistical analysis was performed using SPSS software.

Results

The data summarized in the table and figure show that there is a direct association between anti-HCV positivity and the risk of developing ALL, CLL, MM, and AML. Hepatitis B was statistically significantly associated only with CLL and MM.

Malignant blood diseases (N=797)	HCV	HBV	RR/OR for HCV (95% CI)	RR/OR for HBV (95% CI)
Non-Hodgkin's lymphoma (N=62)	8 (13%)	4 (6.4%)	11.7 / 13.3 (P=0)	5.27 / 5.56 (P=0.000465)
Acute lymphoblastic leukemia (N=255)	19 (7.4%)	1 (0.4%)	6.76 / 7.22 (P=0)	0.32 / 0.32 (P=0.126205)
Chronic lymphocytic leukemia (N=123)	8 (6.5%)	8 (65%)	5.9 / 6.24 (P=0)	5.31 / 5.61 (P=0.000001)
Multiple myeloma (N=69)	3 (4.3%)	3 (4.3%)	3.94 / 4.08 (P=0.008752)	3.55 / 3.66 (P=0.014048)
Acute myeloid leukemia (N=193)	10 (5.2%)	4 (2.0%)	4.7 / 4.9 (P=0.000001)	1.69 / 1.71 (P=0.145741)
Chronic myeloproliferative diseases (N=95)	2 (2.1%)	5 (5.3%)	1.91 / 1.93 (P=0.179271)	4.3 / 4.48 (P=0.000570)
Control group (N=6277)	692 (1.1%)	769 (1.2%)	-	-

Conclusion

HCV and HBV are associated with an increased risk of several oncohematological diseases, including ALL, CLL, AML, and MM. A possible mechanism involves chronic inflammation and cytokine activation, which promote oncogenesis. The results highlight the need for monitoring patients with hepatitis and conducting further studies to develop targeted prevention strategies.

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Conference Abstract A11

Outcomes of Allogeneic Hematopoietic Stem Cell Transplantation in Patients with Myelodysplastic Syndromes

N. Tsvetkov[1], M. Krivitskaya[1], T. Rudakova[1], K. Tsvirko[1], T. Gindina[1], Yu. Vlasova[1], E. Morozova[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantation, Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russia*

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Corresponding author's email: zhabagin99@gmail.com

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Introduction

Myelodysplastic syndromes are a heterogeneous group of malignant disorders of the hematopoietic system. Allogeneic hematopoietic stem cell transplantation remains, to date, the only curative treatment option. This study presents the experience with allogeneic hematopoietic stem cell transplantation in adult patients with myelodysplastic syndromes at our institution.

Materials and Methods

We performed a retrospective analysis of data from 151 patients with various subtypes of myelodysplastic syndromes according to the 2016 World Health Organization classification. All patients received treatment at our institution between 2008 and 2024. Risk stratification was performed using the Revised International Prognostic Scoring System. Response to therapy was assessed according to the 2006 IWG criteria. We analyzed two-year overall survival, relapse incidence, and non-relapse mortality after allogeneic hematopoietic stem cell transplantation.

Results

A total of 151 patients (81 men and 70 women) were included in the study. The median age at diagnosis was 48 years (range 18–81). High-risk myelodysplastic syndromes were identified in 86 of 135 patients. Eighty-four of 124 patients received treatment with hypomethylating agents. No response to therapy was observed in 49% (61/124) of patients. Twenty-three patients (15%) were unable to undergo transplantation because of disease progression (n = 14) or significant comorbidities (n = 9). The median time from diagnosis to allogeneic transplantation was 11 months (range, 1–112), and the median follow-up after transplantation was 10 months (range, 1–65). Bone marrow blast count before transplantation was below 10% in 94 of 128 patients. Pre-transplantation cytogenetic clonal evolution was observed in 29 of 128 patients. The donor was human leukocyte antigen-matched in 77% of patients, unrelated in 63%, and haploidentical in 7%. Post-transplant cyclophosphamide for graft-versus-host disease prophylaxis was used in 78% of patients. Peripheral blood was used as the stem cell source in 70% of patients. Reduced-intensity conditioning with fludarabine and busulfan was administered to 93% of patients. Two-year overall survival was 49.5%, relapse incidence was 33%, and non-relapse mortality was 24%. Overall survival in patients with a pre-transplantation bone marrow blast count above 10% was 29% compared with 57% ($p < 0.01$) in those with a blast count below 10%. Overall survival in patients with pre-transplantation cytogenetic evolution was 23% compared with 61% ($p < 0.001$) in those without cytogenetic evolution.

Conclusions

Allogeneic hematopoietic stem cell transplantation remains the basic method of therapy for myelodysplastic syndromes, although a substantial proportion of patients experience treatment failure before or after transplantation. There is an urgent need for precise prognostic tools and effective treatment options. Within the context of allogeneic transplantation, issues such as optimal pre-transplant therapy, timing of transplantation, and prevention of post-transplant relapse remain unresolved.

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Conference Abstract A12

Colonic Microbiota Profile in Patients with Polycythemia Vera

I.A. Tsopova[1], V.Yu. Meshcheryakov[1], Sh.A. Murzamatova[1]

[1]*Kyrgyz National Center of Oncology and Hematology, Ministry of Healthcare of the Kyrgyz Republic, Bishkek, Kyrgyzstan*

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Corresponding author's email: tsopovaira@yandex.ru

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Background

Polycythemia vera (erythremia) is a chronic myeloproliferative neoplasm frequently accompanied by the development of ulcers in various parts of the gastrointestinal tract. This is associated with thrombosis of small vessels and trophic disturbances in the mucosa, leading to reduced strength of the mucosal barrier, translocation of Helicobacter pylori and fungi, disruption of the normal microbiota, and the development of systemic inflammation [1,2]. Several authors have demonstrated that the gut microbiota of patients with chronic myeloproliferative neoplasms differs from that of healthy individuals and is characterized by a reduced relative abundance of Firmicutes [3,4]. Therefore, the study of the composition of the colonic microbiota may make it possible to modulate the qualitative and quantitative parameters of bacterial associations and thereby improve the quality of life of patients with polycythemia vera.

Aim

To investigate the qualitative and quantitative composition of the colonic microbiota in patients with polycythemia vera.

Materials and Methods

The state of the colonic microbiota was assessed by real-time polymerase chain reaction using the "Kolonoflor-16" reagent kit (Alfalab, Russia) in 41 patients with polycythemia vera (Group 1) and 20 healthy donors (Group 2). Statistical analysis was performed using Microsoft Excel 2010 and IBM SPSS Statistics version 26.0. Results were considered statistically significant at $p < 0.05$ (Spearman's rank correlation coefficient).

Results

The composition of the colonic microbiota differed markedly between Groups 1 and 2 (Table 1).

Table 1. Comparison of quantitative indicators in patients with polycythemia vera and healthy donors.

Components	**Group 1**	**Group 2**	**p**
Total bacterial mass	3*10^8	1*10^13	0,084
Lactobacillus spp.	< 10^3	1*10^8	0,026
Bifidobacterium spp.	1*10^6	2*10^9	0,119
Escherichia coli	7*10^5	2*10^8	0,046
Bacteroides spp.	5*10^9	4*10^12	0,080
Faecalibacterium prausnitzii	2*10^6	7*10^10	0,031
Bacteroides thetaomicron	3*10^7	5*10^9	0,078
Akkermansia muciniphila	Not detected	4*10^9	0,108
Enterococcus spp.	4*10^10	2*10^6	0,022
Escherichia coli enteropathogenic	Not detected	4*10^3	0,047
Klebsiella pneumoniae	2*10^3	1*10^2	0,027
Klebsiella oxytoca	Not detected	2*10^3	
Candida spp.	5*10^7	1*10^2	0,046
Staphylococcus aureus	3*10^4	1*10^2	0,064
Clostridium difficile	1*10^2	Not detected	
Clostridium perfringens	Not detected	Not detected	
Proteus vulgaris/mirabilis	2*10^5	1*10^2	0,0424
Citrobacter spp.	4*10^3	Not detected	
Enterobacter spp.	3*10^5	2*10^2	0,173
Fusobacterium nucleatum	1*10^3	Not detected	
Parvimonas micra	Not detected	Not detected	
Salmonella spp.	Not detected	Not detected	
Shigella spp.	7*10^5	1*10^2	0,0416
Proportion of Bacteroides spp. And Faecalibacterium prausnitzii (Bfr/Fprau)	3300	0,01–100	0,0247

Note: p — statistical significance of differences in the analyzed parameters between patients with polycythemia vera and healthy donors.

Conclusion

Alteration of the normal colonic microbiota was identified in 84.6% of the examined patients. This was characterized by a decrease in the abundance of commensal microorganisms such as Lactobacillus spp., Bifidobacterium spp., and Faecalibacterium prausnitzii, and by an increase in Enterobacter spp., Candida spp., Staphylococcus aureus, and Clostridium difficile. An increase in the ratio of Bacteroides spp. to Faecalibacterium prausnitzii was observed, reflecting the anaerobic imbalance index and confirming chronic inflammation and immunodeficiency in patients with polycythemia vera during therapy.

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Conference Abstract A13

Allogeneic Hematopoietic Cell Transplantation in Combination Therapy for Refractory Myeloid Neoplasms

I. Moiseev[1], S. Bondarenko[1], Yu. Vlasova[1], E. Morozova[1], A. Smirnova[1], O. Epifanovskaya[1], D. Zhogolev[1], D. Chernyshova[1], A. Meliboev[1], D. Khudaiberdiev[1], A. Mazing[2], S. Lapin[2], I. Kholopova[2], A. Botina[3], V. Baikov[3], M. Popova[1], O. Kosarev[4], A. Kulagin[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantation, Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russian Federation*
[2]*Center for Molecular Medicine, Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russian Federation*
[3]*Faculty of Pathology, Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russian Federation*
[4]*Department of Informatics and Computer Technologies, Saint Petersburg Mining University, Saint Petersburg, Russian Federation*

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Corresponding author's email: moisiv@mail.ru

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Introduction

The prognosis after salvage allogeneic hematopoietic cell transplantation in refractory myeloid malignant neoplasms remains unsatisfactory, and no standard therapy is currently available.

Methods

We conducted a prospective single-arm study to evaluate whether the combination of bendamustine and cyclophosphamide administered post-transplantation (PTBCr) could enhance the graft-versus-leukemia effect in this group of patients. Fifty patients with refractory myeloid neoplasms undergoing allogeneic hematopoietic cell transplantation from all donor types were enrolled in this prospective study.

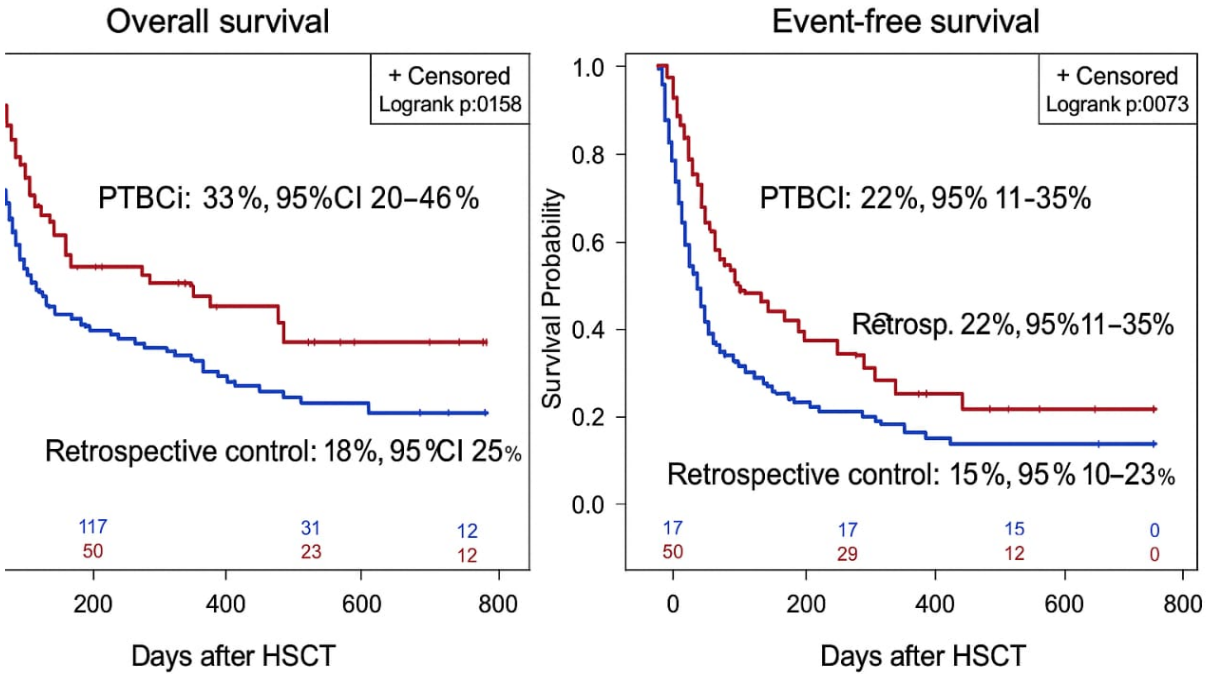
Results

The cumulative engraftment rate was 88%, and 76% of patients achieved undetectable residual disease. Immune toxicity in the form of cytokine release syndrome occurred in 30% of patients. The cumulative incidence of acute graft-versus-host disease of grade II–IV was 20%, and the cumulative incidence of moderate to severe chronic graft-versus-host disease was 34%. Non-relapse mortality was 20%. The relapse rate was 62%, but the median time to relapse reached 245 days. Overall survival was 33%, and event-free survival was 22%. In the multivariate analysis of event-free survival, significant factors were alternative donor (hazard ratio 0.24, 95% confidence interval 0.11–0.52) and adverse genetic characteristics (hazard ratio 2.48, 95% confidence interval 1.26–4.88). The PTBCr was associated with a unique profile of immune reconstitution characterized by high levels of effector memory $CD8^+$ T cells, programmed death ligand-1–positive monocytes, and granulocytes. Compared with the historical control, two-year overall survival increased from 18% to 33% ($p = 0.01$) and progression-free survival from 15% to 22% ($p = 0.07$) with the post-transplant bendamustine plus cyclophosphamide regimen.

Conclusions

Prophylaxis of graft-versus-host disease using the PTBCr represents a promising approach in refractory myeloid neoplasms, delaying relapse after hematopoietic cell transplantation and opening opportunities for post-transplant prophylaxis. Optimization of this regimen is ongoing in partially human leukocyte antigen–matched hematopoietic stem cell transplantation.

Figure. Overall survival (left) and event-free survival (right) comparing results of the post-transplant bendamustine plus cyclophosphamide regimen with historical control.



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Conference Abstract A14

Efficacy of PD-1 Inhibitor Maintenance Therapy After Autologous Transplantation in Patients With Relapsed/Refractory Classical Hodgkin Lymphoma: Interim Results of a Phase II Clinical Study (NCT06812858)

P.V. Kotselyabina[1], A.B. Balaeva[1], L.V. Fedorova[1], S.V. Bogatyrev[2], N. S. Shorokhov[2], N.E. Mochkin[2], A.B. Karabekov[3], A.M. Nurzhanovna[3], V.Ya. Mel'nichenko[2], K.V. Lepik[2], I.S. Moiseev[1], V.O. Sarzhevsky[2], E.A. Demina[2], V.M. Keimakin[3], N.B. Mikhailova[1], A.D. Kulagin[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantology, First Saint Petersburg State Medical University Named After I.P. Pavlov, Saint Petersburg, Russia*
[2]*N.I. Pirogov National Medical Surgical Center, Moscow, Russia*
[3]*National Research Oncology Center, Astana, Kazakhstan*

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Corresponding author's email: jewelpoulina@gmail.com

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Background

Maintenance therapy with PD-1 inhibitors after autologous hematopoietic stem cell transplantation (auto-HSCT) in patients with relapsed/refractory classical Hodgkin lymphoma (r/r cHL) has shown promising results in pilot studies, including improved progression-free survival rates and a favorable safety profile. The current study aims to evaluate the efficacy and safety of PD-1 inhibitor therapy as maintenance after auto-HSCT in r/r cHL using a prospective multicenter design.

Materials and Methods

This international, prospective, multicenter phase 2 clinical trial included adult patients with histologically confirmed r/r cHL who underwent auto-HSCT as consolidation after the 2nd or later lines of therapy (NCT06812858). Enrollment criteria: primary refractory disease or early relapse (within 12 months after first-line therapy), late relapse with unfavorable risk factors (extranodal involvement, bulky disease, B symptoms), PET/CT positive status at the time of auto-HSCT, more than one salvage regimen. According to the study protocol, patients received maintenance PD-1 inhibitor therapy (selected by the investigative center): 12 cycles of nivolumab (40 mg or full dose) every 14 days, or 8 cycles of pembrolizumab every 21 days, with subsequent response evaluation by PET/CT (LYRIC criteria).

Results

20 patients were enrolled across 3 centers. Median age at initiation of maintenance therapy was 31 years (range 19–59). Primary refractory disease and early relapse after the first line were observed in 11 (55%) and 4 (20%) patients, respectively. All patients received PD-1 inhibitors in salvage regimens prior to auto-HSCT: 5 (25%) received monotherapy, 4 (20%) combination with chemotherapy, 11 (55%) both monotherapy and combination. The best response to pre-transplant PD-1 inhibitor therapy was complete in 18 patients (90%) and partial in 2 (10%). Brentuximab vedotin was used in 7 (35%) patients before auto-HSCT at any line. Pre-transplant complete response: 18 (90%), partial: 2 (10%). Auto-HSCT as consolidation for 2nd line—7 (35%), 3rd line—8 (40%), 4th line—4 (20%), and 5th line—1 (5%). Median number of high-risk factors per modified AETHERA criteria: 2 (1–4). For maintenance, pembrolizumab was used in 6 (30%), nivolumab full dose—5 (25%), nivolumab fixed 40 mg—9 (45%). Median time from day 0 to maintenance initiation was 2.3 months. Median follow-up: 2 months (1–13). All patients alive at last restaging; 7 completed maintenance with no relapses.

Conclusions

Results demonstrate efficacy of PD-1 inhibitor maintenance therapy, including low-dose nivolumab (40 mg), in high-risk r/r cHL patients after auto-HSCT.

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Conference Abstract A15

Treatment of Adult Patients with Acute Promyelocytic Leukemia Using the AIDA Protocol: Survival Analysis at the National Research Oncology Center (NROC)

V.M. Kemaykin[1], T.R. Sergazina[1], R.F. Vildanova[1], A.M. Kuttymuratov[1]

[1]*LLP "National Research Oncology Center (NROC)" Astana, Republic of Kazakhstan*

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Corresponding author's email: Kemaykin90@mail.ru

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Background

Acute promyelocytic leukemia (APL) is a unique subtype of acute myeloid leukemia associated with the t(15;17) translocation and the formation of the PML::RARA fusion gene. Previously, the disease was characterized by an extremely unfavorable prognosis. However, the introduction of protocols using tretinoin (ATRA) and anthracyclines, in particular AIDA (idarubicin, ATRA), has significantly improved treatment outcomes. Despite the high sensitivity of the tumor to therapy, unresolved issues remain, including early mortality, relapse, and outcomes in high-risk patients, which necessitates an analysis of institutional data.

Aim

To evaluate overall survival (OS) and relapse-free survival (RFS) in adult patients with APL who received therapy with the AIDA protocol at NROC (2014–2024), as well as to analyze factors influencing treatment effectiveness.

Materials and Methods

The study included 70 patients with APL confirmed through cytogenetic and molecular testing, treated at NROC from 2014 to 2024. Key patient characteristics are presented in Table 1.

All patients received treatment according to the AIDA protocol, which consists of a combination of ATRA and idarubicin for induction, consolidation with the AIDA regimen, and subsequent maintenance therapy (ATRA ± chemotherapy depending on risk group).

Treatment effectiveness was assessed based on complete remission rate, early mortality, relapse rate, as well as OS and RFS indicators. Additional analysis was conducted on the impact of age, risk group, and leukocyte levels on treatment outcomes.

Results

Most patients achieved complete remission after the first induction with the AIDA protocol: remission was achieved in 60 patients (85.7%). Early mortality occurred in 10 cases (14.3%), primarily due to infectious and hemorrhagic complications at disease onset.

During the observation period, 9 relapses (12.9%) were observed. A second remission was achieved in 6 patients, while 3 patients died after relapse.

Survival rates confirmed the effectiveness of the AIDA protocol, but remain insufficient for long-term disease control. Five-year OS was 73.7% (Picture 1), while RFS declined to 59.3% (Picture 2).

Prognostic factor analysis showed that patients under 60 years of age had significantly higher OS and RFS compared to older patients (p=0.012). High leukocytosis at disease onset was associated with poorer outcomes, including higher relapse rates and mortality (p=0.00024). The best survival outcomes were achieved in the low-risk group, while outcomes were significantly worse in the high-risk group (p=0.0021).

Conclusions

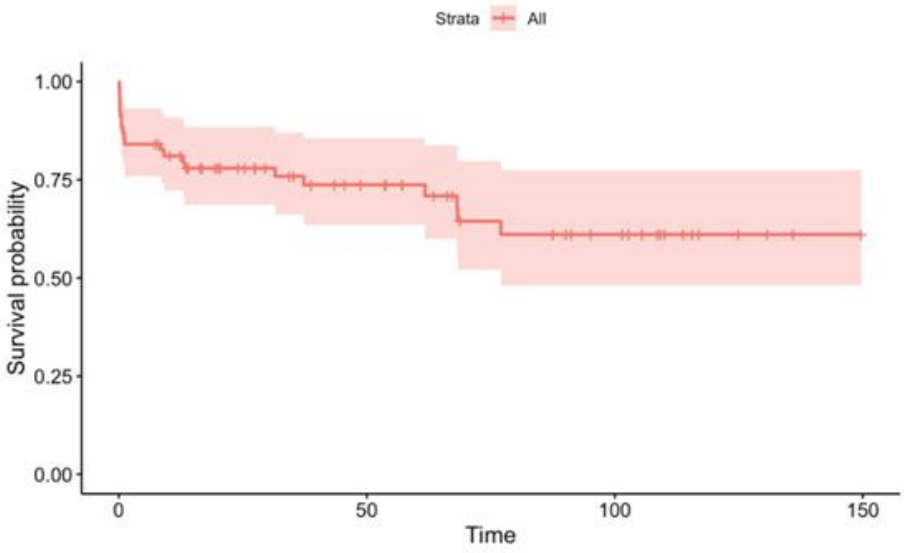
Despite the high rate of complete remission with the AIDA protocol, significant challenges remain: early mortality (14.3%), relapses (12.9%), and suboptimal 5-year survival rates (OS 73.7%, RFS 59.3%).

Adverse outcomes are associated with older age and high leukocytosis at onset, highlighting the need for a more differentiated, risk-adapted approach. An unresolved issue remains optimizing therapy in elderly patients, where less toxic regimens and personalized treatment strategies are required.

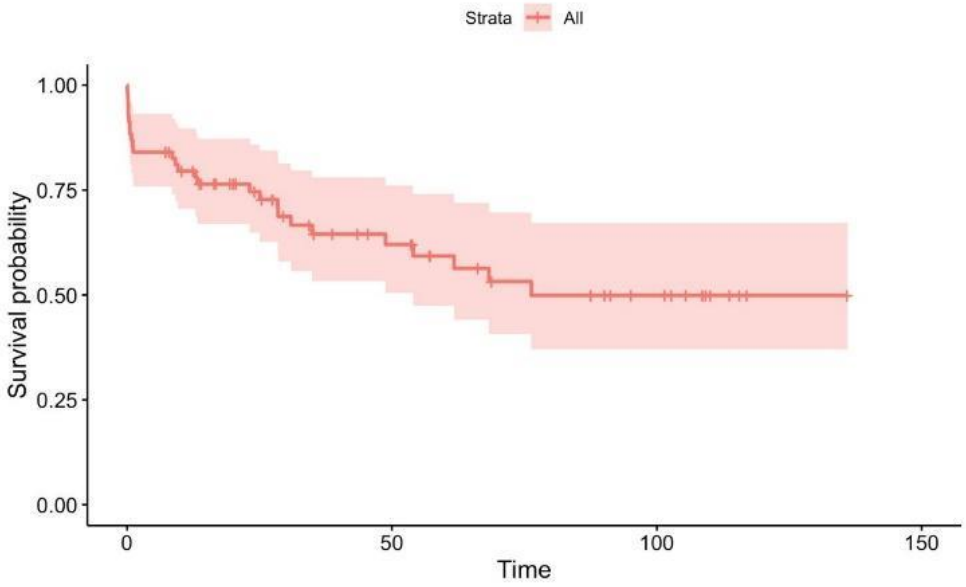
Table 1

Characteristic	**n=70 (100%)**
Sex	
Male, n (%)	**32** (45,7%)
Female, n (%)	**38** (54,3%)
Mean age (years)	**42,5** (19–72)
Age <60 y.o, n (%)	**55** (78,6%)
Age ≥60 y.o, n (%)	**15** (21,4%)
Distribution by risk groups	
low	**38** (54,3%)
Intermediate	**14** (20,0%)
high	**18** (25,7%)
Main treatment-related complications	
Infectious complications (sepsis, pneumonia, febrile neutropenia)	**22** (31,4%)
Hemorrhagic syndrome (DIC, intracranial and other hemorrhages)	**15** (21,4%)
Differentiation syndrome (ATRA syndrome)	**5** (7,1%)
Other complications (thrombosis, skin reactions, gastrointestinal toxicity)	**3** (4,3%)
Leukocytes at disease onset	
≤10×10⁹/L	**52** (74,3%)
>10×10⁹/L	**18** (25,7%)
Methods of confirming translocation *t(15;17)*	
FISH — Fluorescence in situ hybridization	**66** (94,3%)
PCR (Polymerase Chain Reaction)	**68** (97,1%)
Cytogenetics (karyotype)	**62** (88,6%)
Clinical treatment outcomes	
Complete remission	**60** (85,7%)
Early mortality (≤30 days from therapy initiation)	**10** (14,3%)
Disease relapse	**9** (12,9%)

Pic 1.


Strata All
1.00
0.75
0.50
0.25
0.00
Survival probability
0
50
100
150
Time

Pic 2.


Strata All
1.00
0.75
0.50
0.25
0.00
Survival probability
0
50
100
150
Time

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Conference Abstract A16

Infectious Mortality After Allogeneic Hematopoietic Stem Cell Transplantation in the Early Post-Transplantation Period: A Single-Center Retrospective Study

R.A. Aliyeva[1], A.A. Kerimov[1], N.V. Ismail[1]

[1]*National Center of Hematology and Transfusion, Baku, Azerbaijan*

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Corresponding author's email: alieva.rafiga@mail.ru

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Relevance

Expression of lymphoid markers (CD2, CD3, CD5, CD7) in acute myeloid leukemia (AML) is an important prognostic factor determining clinical outcomes. CD56, a marker of NK cells, is expressed in various lymphohematopoietic malignancies, including AML. According to the literature, the presence of CD56 on blast cells may influence the duration of complete remission and is associated with poorer overall survival and therapy resistance. In our study, we analyzed a cohort of pediatric and adult patients diagnosed with AML, treated between 2020 and 2024, to evaluate the association of CD56 expression with treatment outcomes.

Objective

To determine the frequency of CD56 expression in AML patients using flow cytometry and to assess the prognostic value of this marker.

Materials and Methods

The study included two patient groups: pediatric (31 patients aged 0–16 years) and adult (181 patients aged 17–70 years), who received treatment from January 2020 to December 2024. CD56 expression was assessed using a three-laser flow cytometer BD FACS CANTO II.

Results

The total follow-up period was 36 months. The pediatric group was divided into 3 age categories:

- 0–5 years – 5 patients (16%)
- 5–10 years – 12 patients (38.7%)
- 10–16 years – 14 patients (45%)

Among them, 17 (54.8%) were male and 14 (45%) female.

In the total cohort, 19 patients (62%) achieved complete clinical and hematological remission, 10 patients (34%) experienced bone marrow relapse, and 4% were resistant to therapy.

Positive CD56 expression was observed in 7 patients (23%), including:

- 3 patients (9.6%) with AML with maturation features
- 1 case (3%) of promyelocytic leukemia
- 3 cases (9.6%) of myelomonoblastic leukemia

Among CD56-positive AML patients, mutations such as t(8;21)(q22;q22), ct(15;17), t(11q23), and inv(16) were identified.

Survival analysis was performed using the Kaplan-Meier method. The rate of complete remission after induction chemotherapy was nearly the same between CD56-positive and CD56-negative groups (85% and 81%, respectively). However, relapse-free survival differed significantly: 67% in CD56-positive vs. 48% in CD56-negative patients.

Figure 1. Overall Survival Curve (time = days)

In pediatric patients with CD56-positive AML, higher relapse and mortality rates were observed compared to the CD56-negative group ($p < 0.05$). Overall survival time was significantly shorter in CD56+ patients ($p = 0.26$), with a median survival of 385 days (range: 3 to 1000 days), compared to 442 days (range: 1 to 1244 days) in CD56-negative patients.

In the adult group, CD56 expression was positive in 16.8% of patients. A high frequency of this marker was associated with AML with t(8;21), promyelocytic, and myelomonocytic variants. In the CD56-positive group, lower rates of complete remission and poorer relapse-free survival were observed compared to the CD56-negative group.

Conclusion

We consider CD56 expression in AML to be a potentially independent prognostic factor. The presence of this marker is often associated with certain cytogenetic abnormalities and a higher risk of relapse and adverse outcomes in both adults and children. Considering CD56 expression in clinical practice allows for better identification of high-risk patients and may contribute to therapy optimization.

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Conference Abstract A17

Coexistence of Multiple Myeloma and T-Cell Lymphoblastic Leukemia/Lymphoma (Etp-All): A Rare Clinical Case

N.K. Temir[1], V.M. Kemaykin[1], R.F. Vildanova[1], A.M. Kuttymuratov[1], T.R. Sergazina[1], Sh.A. Zholdasova[1], N.B. Dairova[1], Zh.A. Iskakova[1]

[1]*LLP 'National Scientific Oncological Center', Astana, Republic of Kazakhstan*

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Corresponding author's email: temir.n@gmail.com

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Introduction

The coexistence of two hematologic malignancies in a single patient is extremely rare. Of particular interest is the development of acute lymphoblastic leukemia of the T-cell early precursor variant (ETP-ALL) in a patient who had been in strict complete remission of multiple myeloma after autologous bone marrow transplantation. Such cases require a comprehensive diagnostic approach and individualized therapy planning.

Clinical Case

A 45-year-old man was examined in 2018 for anemia and bone pain. Laboratory and morphological studies established a diagnosis of multiple myeloma IgG+KAPPA (25.1% as of 05.01.18), stage IA according to Durie–Salmon PLUS, complicated by extramedullary plasmacytoma and myeloma nephropathy. Several lines of chemotherapy (VCD, PAD, DT-PACE, CRD) were administered, and in August 2019 an autologous bone marrow transplantation with MEL200 conditioning was performed. Since September 2019, maintenance therapy with lenalidomide was initiated. By July 2020, strict complete remission was achieved according to IMWG criteria.

In December 2024, inguinal lymphadenopathy was detected. Initial histological findings suggested poorly differentiated carcinoma, but repeat analysis at a specialized oncohematology center revealed T-cell lymphoblastic lymphoma/early T-cell precursor acute lymphoblastic leukemia. Morphological and immunophenotypic examination of the bone marrow confirmed the presence of T-lineage blast cells (about 10%).

From March 2025, an induction chemotherapy course according to the '7+3 DNR' regimen was administered, achieving complete remission and minimal residual disease (MRD)-negative status. In May 2025, consolidation with intermediate-dose cytarabine (IdAc 123) was performed.

In July 2025, immunophenotyping revealed MRD positivity. Options of CAR-T therapy and allogeneic bone marrow transplantation were considered. After consultations, a haploidentical transplantation from the daughter (5/10) was recommended, but the decision was made to continue chemotherapy locally while searching for an unrelated donor.

Discussion

The coexistence of two hematologic malignancies in one patient is extremely rare. In this case, multiple myeloma was in long-term remission after autologous bone marrow transplantation. The appearance of inguinal lymphadenopathy was the reason for further evaluation. Initial histology failed to provide a definitive diagnosis, but repeat analysis with immunohistochemical and immunophenotypic methods identified T-cell lymphoblastic lymphoma/early T-cell precursor acute lymphoblastic leukemia.

Such cases require heightened vigilance when new clinical or laboratory changes occur in patients in remission. Timely extended diagnostics allow refining the diagnosis and selecting the optimal therapeutic strategy. Despite remission, the presence of minimal residual disease indicates a high risk of relapse and necessitates consideration of allogeneic bone marrow transplantation.

Conclusion

This case illustrates the rare coexistence of multiple myeloma and T-cell lymphoblastic leukemia/lymphoma, underscoring the importance of timely diagnostics, diagnosis verification, and a comprehensive treatment approach.

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Conference Abstract A18

Clinical and Laboratory Characteristics and Prognosis of Patients with Chronic Myelomonocytic Leukemia

K.S. Tsvirko[1], S.E. Ziganshina[1], N.P. Volkov[1], N.Yu. Tsvetkov[1], Yu.Yu. Vlasova[1], T.L. Gindina[1], E.V. Morozova[1], I.S. Moiseev[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantation, First Saint Petersburg State Medical University named after I.P.Pavlov Saint Petersburg, Russian Federation*

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Corresponding author's email: ksenia.tsvirko@mail.ru

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Introduction

Chronic myelomonocytic leukemia is a clonal myeloproliferative disorder characterized by dysplasia of peripheral blood and bone marrow cells, excessive production and circulation of monocytes in peripheral blood, and a high risk of transformation into acute myeloid leukemia. The objective of this study was to analyze a cohort of patients with a diagnosis of chronic myelomonocytic leukemia, to assess factors influencing overall survival, and to evaluate treatment outcomes.

Materials and Methods

This retrospective study included 112 patients with a verified diagnosis of chronic myelomonocytic leukemia who were followed at the R.M. Gorbacheva Research Institute from 2011 to 2025. Overall survival was analyzed using the Kaplan–Meier method, and factors influencing overall survival were assessed by Cox regression analysis. The median age at diagnosis was 56 years (range, 17–88); men comprised 66% (n = 74) and women 34% (n = 38). At the time of diagnosis, 34% of patients (n = 38) were classified as chronic myelomonocytic leukemia-0, 28% (n = 31) as chronic myelomonocytic leukemia-1, and 38% (n = 43) as chronic myelomonocytic leukemia-2 according to the 2016 World Health Organization classification. During follow-up, transformation into acute myeloid leukemia was documented in 29% of patients (n = 33). The median follow-up duration was 16.5 months.

Results and Discussion

Two-year overall survival for the entire population was 57% (95% confidence interval, 47.0–68.5%), with a median overall survival of 44 months. The median time to transformation into acute myeloid leukemia from diagnosis was 6.5 months. The presence of constitutional symptoms was significantly associated with worse overall survival (hazard ratio = 2.38, p = 0.009). The following factors showed a trend toward statistical significance: documented transformation into acute myeloid leukemia (hazard ratio = 1.84, p = 0.052), bone marrow blast count at disease onset (hazard ratio = 1.02, p = 0.079), and absolute monocyte count in peripheral blood (hazard ratio = 1.03, p = 0.088). Allogeneic hematopoietic stem cell transplantation was performed in 21% of patients (n = 24), 63% of whom (n = 15) were at the stage of transformation into acute myeloid leukemia. Two-year overall survival among the nine patients who underwent allogeneic transplantation in complete remission was 100%, whereas in patients without complete remission (n = 15) it was 34.4% (95% confidence interval, 17.0–67.5%, p = 0.014). Causes of death after allogeneic transplantation were relapse (46%, n = 6), primary graft failure (8%, n = 1), and infectious complications (46%, n = 6).

Conclusion

Chronic myelomonocytic leukemia is a clonal hematologic disorder characterized by a combination of features of myelodysplastic and myeloproliferative neoplasms and an unfavorable prognosis. The results obtained confirm the importance of timely diagnosis and determination of the prognostic variant of the disease to guide optimal therapeutic strategy. Therefore, further studies of molecular and genetic characteristics, predictors of disease progression, and determination of the optimal timing for allogeneic hematopoietic stem cell transplantation are required.

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Conference Abstract A19

Treatment of Acute Promyelocytic Leukemia During Pregnancy: A Clinical Case Report

A.A. Adusheva[1], V.M. Kemaikin[1], R.F. Vildanova[1], A.S. Suleimenova[1], S.M. Eskendirova[1], S.D. Dossaeva[1], A.A. Mussakhanova[1]

[1]*National Research Oncology Center (NROC), Astana, Republic of Kazakhstan*

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Corresponding author's email: a.adusheva@gmail.com

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Background

Acute promyelocytic leukemia (APL) is a rare subtype of acute leukemia characterized by an excessive proliferation of promyelocytes in the bone marrow, associated with the chromosomal translocation t(15;17) and the mutant PML-RARA gene.

The occurrence of acute leukemia during pregnancy is uncommon, occurring in fewer than 1 case per 100,000 pregnancies. APL is considered as an urgent condition and initiation of chemotherapy is required as soon as the diagnosis is confirmed.

Case Report

A 33-year-old patient was delivered to hospital at 34 weeks of gestation. At 32 weeks, she had been found to have mild anemia, moderate thrombocytopenia, and leukopenia. Since then, her condition has been monitored by general practitioners and obstetrician-gynecologists. During physical examination hemorrhagic symptoms were not detected, though she was urgently hospitalized to NROC by reason of progressive cytopenia. Laboratory results: agranulocytosis 0.9×10^9/L, hemoglobin 105 g/L, platelets 43×10^9/L. Bone marrow aspirate revealed 66.8% blasts. PCR confirmed the PML/RARA mutant gene with t(15;17) accounting for 14%, which established the diagnosis of APL. Fetal ultrasound demonstrated placental circulation disturbance grade I and nuchal cord. Induction therapy according to the AIDA protocol was initiated: idarubicin 12 mg/m² on days 2, 4, 6, and 8, combined with ATRA 45 mg/m² per day until remission.

At 37 weeks (on 18th day of chemotherapy), the patient delivered a healthy female neonate weighing 2446 g and measuring 46 cm, with Apgar scores of 7/8. No congenital malformations were identified. Neonatal laboratory findings: WBC 4.15×10^9/L, platelets 189×10^9/L, hemoglobin 162 g/L, RBC 4.51×10^{12}/L.

By 38th day of chemotherapy, bone marrow evaluation showed 1.8% blasts, with negative FISH for t(15;17), confirming both hematologic and molecular remission.

Results

The patient subsequently completed three consolidation courses of AIDA-based chemotherapy. She remains for 2,5 years on maintenance therapy, consisting of ATRA 45 mg/m² for 15 days every 3 months, in combination with mercaptopurine 50 mg/m² and methotrexate 15 mg/m² daily (excluding ATRA days). Monitoring of molecular and bone marrow remission is performed every three months in accordance with clinical guidelines.

The most recent assessment from May 2025 demonstrated persistence of both hematologic and molecular remission. Follow-up of the child demonstrated normal hematologic parameters: WBC 11.4×10^9/L, hemoglobin 112 g/L, platelets 452×10^9/L.

Discussion

Idarubicin crosses the placental barrier and may theoretically exert adverse effects on the fetus."

In a prospective cohort of 58 infants exposed to chemotherapy during the first trimester, no congenital anomalies were observed, and subsequent physical, neurological, and cognitive development remained within normal limits. Similarly, French studies assessing chemotherapy during the later stages of gestation reported no congenital abnormalities.

Conclusion

This clinical case describes the successful treatment of acute leukemia during pregnancy.

Through an integrated multidisciplinary effort, complete remission was achieved and a healthy infant was delivered. Such cases are of particular relevance in countries with high birth rates, where similar clinical cases may be encountered more frequently. A coordinated approach involving hemato-oncologists, obstetricians and other specialists is the key determinant of successful management of acute promyelocytic leukemia in pregnancy.

The safety of both the mother and the fetus can only be ensured through close interdisciplinary collaboration.

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Conference Abstract A20

A New Screening Index for Differential Diagnosis of Iron Deficiency Anemia and Thalassemia

O.M. Abdullaev[1], U.V. Abdullaeva[1], Sh.Z. Mustafazade[1], F.M. Mamedov[1]

[1]*National Institute of Hematology and Transfusiology; Azerbaijan State Institute for Advanced Training of Physicians named after Aziz Aliyev, Baku, Republic of Azerbaijan*

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Corresponding author's email: oktay.abdullaev@gmail.com

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Relevance

Microcytic anemias are a frequent problem in clinical practice, particularly among young patients and women of reproductive age. The most common causes are iron deficiency anemia (IDA) and thalassemia. Despite their similar laboratory manifestations (reduced hemoglobin, erythrocytosis, microcytosis), the management of these conditions differs fundamentally. Iron supplementation in thalassemia is not only ineffective but may be harmful. Therefore, there remains a pressing need to develop simple and reliable laboratory indices for primary differential diagnosis.

We propose a new screening index, calculated as follows:

$$\frac{MCHC\ (g/dL)}{RBC\ (million/\mu L)}$$

It is known that:

$$\text{MCHC} = \frac{Hb\ (g/dL)}{HCT\ (\%)} \text{ x } 100$$

Since hematocrit is calculated as:

$$\text{HCT} = \frac{MCV(fL)\ x\ RBC\ (million/\mu L)}{10}$$

then substituting, we obtain:

$$\frac{Hb\ (g/dL)}{MCV(fL)\ x\ RBC\left(\frac{million}{\mu L}\right) xRBC\left(\frac{million}{\mu L}\right)} \text{ x } 1000$$

Thus, the proposed index may also be expressed as:

$$\frac{Hb\ (g/dL)}{MCV(fL)\ x\ RBC\left(\frac{million}{\mu L}\right) xRBC\left(\frac{million}{\mu L}\right)} \text{ x } 1000.$$

Objective

To evaluate the diagnostic significance of the newly calculated index in differentiating iron deficiency anemia from thalassemia.

Materials and Methods

The study included 85 patients with microcytic anemia.

- Main group: 50 patients with confirmed thalassemia (confirmed by hemoglobin electrophoresis, without iron deficiency, and prior to initiation of transfusion therapy). Age range: 1–9 years (mean age: 5.3 ± 0.28 years). Peripheral blood parameters were examined using both automated hematology analyzers and morphological evaluation of blood smears. Routine biochemical test results were also analyzed.
    - Of these, 6 patients (12%) had alpha-thalassemia.
    - 44 patients (88%) had beta-thalassemia.
- Control group: 35 patients with laboratory-confirmed iron deficiency anemia (low ferritin and hemoglobin levels), in whom thalassemia carrier status was excluded by hemoglobin electrophoresis. This group consisted of patients with normal HbF levels and normal or reduced HbA2 levels.

The new screening index was calculated for all participants. A diagnostic threshold value of 6.5 was chosen, corresponding to the arithmetic mean of the obtained data. Sensitivity and specificity at this threshold were assessed.

Results

- In the thalassemia group, 40 of 50 patients (80%) had index values above 6.5.
- In the iron deficiency anemia group, 21 of 35 patients (60%) had index values ≤ 6.5.

At the selected cutoff point (6.5), the new screening index demonstrated:

- Sensitivity: 80%
- Specificity: 60% for diagnosing thalassemia.

Conclusions

The new screening index can serve as an additional diagnostic tool in the differential diagnosis of microcytic anemias. Values above 6.5 permit a reasonable presumption of thalassemia. Given its simplicity of calculation and the availability of required parameters, the index is particularly useful in outpatient settings and in contexts with limited access to specialized diagnostic methods (e.g., ferritin measurement, hemoglobin electrophoresis). Further larger-scale studies comparing this tool with other indices will help refine its clinical utility and determine optimal areas of application.

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Conference Abstract A21

Use of Azacitidine and Venetoclax Combination in the Treatment of Relapsed Acute Myeloid Leukemia: Experience of Two Clinical Cases

A.S. Suleimenova[1], V.M. Kemaykin[1], B.A. Adusheva[1], S.D. Dossaeva[1], A.A. Musakhanova[1], S.M. Eskendirova[1]

[1]*LLP 'National Scientific Oncological Center', Astana, Republic of Kazakhstan*

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Corresponding author's email: aizatik507@gmail.com

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Introduction

Relapse of acute myeloid leukemia (AML) is associated with a poor prognosis, particularly in patients who are not eligible for intensive chemotherapy. The combination of azacitidine and venetoclax has demonstrated efficacy in inducing remissions; however, clinical experience in Kazakhstan remains limited.

Clinical cases

Patient K., born in 1992, diagnosed with AML in 2022. She received two induction courses, two consolidations, and three courses of maintenance therapy, followed by a haploidentical transplantation (September 15, 2023). Remission was maintained for one year; however, relapse was documented in December 2024. Therapy with azacitidine + venetoclax was initiated. Treatment was complicated by severe pneumonia and sepsis, requiring prolonged mechanical ventilation. After infection control, remission was achieved (0.5% blasts in the myelogram). Considering significant pulmonary changes, further therapy was continued at her place of residence.

Patient A., born in 1996, diagnosed with AML in 2017. She underwent "7+3" induction therapy and haploidentical transplantation (August 18, 2017). After 7 years, she developed a late relapse. FISH analysis revealed no significant mutations. Treatment with azacitidine + venetoclax was administered. The therapy was well tolerated, with no complications or transfusion dependence. Remission was achieved after the first cycle; subsequent cycles are being administered on an outpatient basis. Cellular therapy is planned for discussion.

Objective

To present the clinical experience of using the azacitidine + venetoclax regimen in patients with relapsed AML.

Materials and methods

Two clinical observations of patients with relapsed AML who received azacitidine (75 mg/m² × 7 days) in combination with venetoclax (400 mg/day).

Results

In both cases, remission was achieved after the first cycle. The first patient experienced severe infectious complications, which were managed with intensive therapy; residual pulmonary sequelae persist. The second patient had no serious complications, remains in remission, and continues therapy.

Conclusions

The combination of azacitidine and venetoclax is an effective and tolerable therapeutic option for patients with relapsed AML, including those after transplantation. This experience supports the need for broader implementation of this regimen in clinical practice.

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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)

A.M. Kuttymuratov[1], V.M. Kemaykin[1], R.F. Vildanova[1], T.R. Sergazina[1], Sh.A. Zholdasova[1], N.K. Temir[1], N.B. Dairova[1]

[1]*LLP 'National Scientific Oncological Center', Astana, Republic of Kazakhstan*

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Corresponding author's email: aset91-91@mail.ru

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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.

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Conference Abstract A23

Genetic and Phenotypic Characteristics of Hb H Disease in the Azerbaijani Population

Kh.Kh. Jafarova[1], A.R. Agayev[1], T.A. Mamedova[1]

[1]*National Center of Hematology and Transfusiology, Baku, Azerbaijan*

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Corresponding author's email: temir.n@gmail.com

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Relevance

The Republic of Azerbaijan is among the countries with a high prevalence of hereditary anemias—hemoglobinopathies. Among this large group, β- and α-thalassemias are the most common. In the complex mechanism of anemia development in thalassemias, the main role is played by impaired synthesis of one or more globin chains, leading to reduced hemoglobin production and globin chain imbalance. Hb H disease is characterized by deletion of three α-globin genes, leading to an excess of β-chains in the form of β4 tetramers. Clinical manifestations of Hb H disease in Azerbaijan are highly polymorphic, which may be explained by the diversity of molecular defects underlying this condition. Currently, more than 500 point mutations and deletions affecting β- and α-globin genes have been identified worldwide, each population having its own mutation spectrum.

Objective

To identify the spectrum of α-thalassemic mutations characteristic of the Azerbaijani population and to study the phenotypic manifestations of their various combinations in Hb H disease.

Materials and Methods

The study included 80 patients diagnosed with Hb H disease showing varying clinical manifestations, and 105 α-thalassemia carriers (mainly close relatives). Hb H was detected by electrophoresis, and α-thalassemia mutations were identified using dot-blot hybridization (α-globin Strip Assay) and DNA sequencing.

Results

Fifteen α-thalassemic mutations were identified in the Azerbaijani population: 3.7 kb DEL, 4.2 kb DEL, 20.5 kb DEL, MED DEL, α2 Poly A-1, α2 Poly A-2, α2 IVS-1 5nt DEL, α2 Codon 142 (T>C) - Hb CS, α1 Codon 59 (G>A) - Hb Adana, c.389 (T>C), αααanti 3.7 triplication, c.134_135 insC, --THAI/αα, c.3G>A (p1:p.2?), c.45(G>A). The mutation spectrum was dominated by deletions, with double deletion 20.5 kb (n=100) and single deletion 3.7 kb (n=75) being the most frequent. Point mutations were much rarer.

Among patients with the heterozygous form of the disease, α+-thalassemia was found in 51 individuals and α0-thalassemia in 54. Two individuals showed homozygosity for α+-thalassemia (-α/-α). More than 30 different genotypes were identified in patients with Hb H disease. The most frequent was the combination of single and double deletions (--/-α) in 54 patients. In 21 patients, a combination of deletional and non-deletional mutations (--/ααT) was found, and in 5 cases homozygosity for non-deletional defects (αTα/αTα). This high genetic heterogeneity explains the variability in hematological and clinical parameters.

All patients with Hb H disease showed reduced hematological parameters (Hb, MCV, MCH) compared to controls, with lower values in homozygous and compound heterozygous mutations. RBC counts were elevated in deletional compounds but normal in point mutations. Patients with non-deletional mutations had lower HbA2 and higher Hb H levels.

Phenotypic Manifestations

Genotypic heterogeneity of Hb H disease in Azerbaijan is also reflected in the polymorphism of clinical presentation. The phenotype usually resembles intermediate thalassemia, with moderate hemolytic anemia of varying severity, hepatosplenomegaly, and occasional acute hemolytic crises triggered by oxidative drugs or infections.

In patients with deletional genotypes, the clinical course was mild, with disease onset in later life and often discovered incidentally. Many women were diagnosed during pregnancy, often with concurrent iron deficiency anemia. In contrast, patients with point mutations had early disease onset, more severe anemia, high reticulocytosis, frequent crises, and splenomegaly. These patients often required periodic or regular red cell transfusions. However, deletional genotypes are predominant in the local population, and severe clinical forms of Hb H disease are rare.

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Conference Abstract A24

Chronic Myeloid Leukemia with Concomitant Immune Thrombocytopenia: A Rare Case Highlighting the Importance of Bone Marrow Analysis

S.M. Yeskendirova[1], V.M. Kemaykin[1], A.S. Suleimenova[1], B.A. Adusheva[1], S.D. Dossaeva[1], A.A. Musakhanova[1]

[1]*LLP 'National Scientific Oncological Center', Astana, Republic of Kazakhstan*

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Corresponding author's email: yeskendirova@gmail.com

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Introduction

Chronic myeloid leukemia (CML) is a myeloproliferative disease characterized by the presence of the BCR-ABL fusion gene. Immune thrombocytopenia (ITP) is an autoimmune disorder leading to platelet destruction and an increased risk of bleeding. The combination of CML and ITP is extremely rare and presents diagnostic and therapeutic challenges, particularly in differentiating thrombocytopenia induced by tyrosine kinase inhibitors (TKIs) from immune-mediated mechanisms.

Objective

The aim of this clinical observation is to demonstrate a rare combination of chronic myeloid leukemia and immune thrombocytopenia, and to emphasize the key role of bone marrow histological analysis in differentiating thrombocytopenia caused by TKI therapy from autoimmune mechanisms, which is crucial for selecting the correct treatment strategy.

Methods and Case Description

A case of a 41-year-old female patient diagnosed with CML in 2016, receiving tyrosine kinase inhibitor (TKI) therapy, is presented. Persistent thrombocytopenia was initially interpreted as hematologic toxicity; however, the lack of recovery after treatment modification and a positive response to glucocorticosteroids (GCS) led to suspicion of concomitant ITP.

Molecular testing confirmed the presence of the BCR-ABL translocation (t(9;22)).

Bone marrow histology (2024) confirmed the diagnosis of ITP, revealing the following findings:

-Normocellular bone marrow (~60% cellularity) with focal moderate hypercellularity

-Adequate megakaryopoiesis with small clusters (6–8 cells), but 10–15% of megakaryocytes showed dysplastic changes (monolobulated, hyperlobulated, and anucleated forms)

-Scattered hemorrhagic foci and rare lymphoid cells in the stroma

-Absence of fibrosis and dysplasia

The combination of persistent thrombocytopenia, bone marrow findings, and response to GCS confirmed the diagnosis of ITP, allowing distinction from isolated TKI-induced thrombocytopenia.

Treatment strategy: Prednisolone (1 mg/kg/day) led to restoration of platelet count (from 10×10^9/L to 131×10^9/L), enabling continuation of nilotinib therapy.

Results

In 2023, a major molecular response (MMR) was achieved on nilotinib therapy.

In 2024, the diagnosis of ITP was confirmed by comprehensive clinical, laboratory, and histological evaluation.

This case underscores the pivotal role of bone marrow histology in differentiating TKI-induced hematologic toxicity from immune thrombocytopenia, which is critical for correct treatment strategy selection.

Conclusion

This case demonstrates the necessity of a multidisciplinary approach in managing patients with thrombocytopenia in the setting of CML. Accurate diagnosis of immune thrombocytopenia using bone marrow analysis is essential to prevent unjustified dose reductions or discontinuation of TKIs, which may negatively impact CML control.

Glucocorticosteroids remain an important therapeutic option for treating ITP in patients with CML.

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Conference Abstract A25

Features of Cardiac Hemodynamics and Blood Gas Composition Correction in Patients with CML. Respiratory Intensive Therapy. Literature Review and A Clinical Case

D.I. Zhulamanova[1]

[1]*Republican Specialized Scientific-Practical Center of Hematology, Tashkent, Uzbekistan*

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Corresponding author's email: temir.n@gmail.com

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Relevance

Chronic myeloid leukemia (CML) is a rare type of blood cancer characterized by uncontrolled proliferation of leukocytes of a specific form. In CML, genetic mutations occur in hematopoietic stem cells of the bone marrow: a shortened chromosome 22 is detected in the genome of leukemic cells in almost all patients with CML. This abnormal chromosome was first described by researchers in the United States and named after the place where it was discovered — the Philadelphia chromosome.

CML is often detected incidentally during a blood test, since the disease develops asymptomatically. The goal of drug therapy is to maintain CML in the chronic phase, which allows patients to achieve almost the same life expectancy as healthy individuals. Thanks to new treatment methods, life expectancy in CML patients is steadily increasing, and therefore the number of patients with CML is also growing.

Treatment of CML requires special expertise and should be carried out in close collaboration with specialized centers. In cases of complications, treatment in the intensive care unit (ICU) by intensivists is required to correct metabolic disturbances at the level of the acid–base balance of the blood.

Objective of the study

To identify the features of hemodynamic disorder correction and to develop a management algorithm for patients with CML.

Materials and methods

The study was based on the results of examination and treatment of 25 CML patients from October 10, 2023, to April 20, 2024, who were in critical condition with hemodynamic and respiratory disorders, aged 20–45 years. Diagnostic criteria in this patient category included echocardiography and hemodynamic data.

Results

In one case, echocardiography revealed cardiac tamponade with accumulation of pericardial fluid and progression of severe heart failure.

In another case, a patient with bilateral pneumonia demonstrated, on chest MSCT and echocardiography, pronounced hydropericardium up to 500 ml, bilateral hydrothorax, ascites, and hepatosplenomegaly.

On average, patients stayed in the ICU for 14 days, where they received intensive therapy. Most patients were admitted in extremely severe condition: the severity was due to grade II respiratory failure, dyspnea, arterial hypoxemia (SpO_2 88%), tachypnea, respiratory rate of 28/min, and markedly reduced breath sounds bilaterally on auscultation.

Drug therapy included vasopressor and inotropic agents, non-invasive ventilation "CPAP," and oxygen therapy administered for arterial hypoxemia and respiratory alkalosis using different ventilation modes. In acute left ventricular failure, echocardiography revealed decreased cardiac volumes — EDV, ESV, and left ventricular ejection fraction, as well as ECG changes with sinus tachycardia. Positive dynamics were observed in 9 patients under cardiotonic support.

Conclusions

A practical-tactical algorithm was developed for ICU conditions: comprehensive monitoring of the cardiovascular system, early detection of risk factors, intensive therapy, reduction of the need for cardiotonic drugs, use of CPAP as supportive ventilation without transition to invasive mechanical ventilation in the absence of profound hypoxia or worsening ARF, and prevention of sepsis and multiple organ failure.

Thus, hemodynamic, respiratory, and acid–base disturbances lead to the development of such vital complications as pulmonary edema and acute left ventricular failure.

Non-invasive respiratory support in CPAP mode, combined with adequate intensive therapy, pharmacotherapy, and surgical methods, allows rapid stabilization of clinical condition, respiratory status, and hemodynamics in patients with left and right ventricular failure in CML.

It was determined that the use of the developed strategy for correction of hemodynamic disorders and respiratory therapy in complicated CML is optimal, reducing the risk of complications and lowering mortality.

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Conference Abstract A26

Efficacy of the Combination of Azacitidine, Venetoclax, and Midostaurin in A Patient With Refractory-Relapsed FLT3-ITD-Positive Acute Myeloid Leukemia: A Clinical Case

Sh.A. Zholdasova[1], V.M. Kemaykin[1], R.F. Vildanova[1], A.M. Kuttymuratov[1], T.R. Sergazina[1], N.K. Temir[1], N.B. Dairova[1]

[1]*LLP 'National Scientific Oncological Center', Astana, Republic of Kazakhstan*

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Corresponding author's email: temir.n@gmail.com

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Relevance

Acute myeloid leukemia (AML) with FLT3-ITD or FLT3-TKD mutation is characterized by high proliferative activity and a poor prognosis, including a high risk of relapse and resistance to standard chemotherapy (CT) regimens. The introduction of FLT3 inhibitors in combination regimens has shown improved remission rates and survival, especially when combined with hypomethylating agents (HMAs) and the BCL-2 inhibitor venetoclax (VEN). However, data on the efficacy of triple combinations in refractory cases remain limited.

Objective

To present a clinical case of successful remission achievement in a patient with FLT3 mutation and refractory disease treated with a combination of azacitidine (AZA), VEN, and midostaurin.

Materials and Methods

Patient T., 47 years old, was diagnosed with AML with an FLT3-ITD mutation. Initial therapy with 7+3 induction regimen (cytarabine + daunorubicin) resulted in partial remission. Reinduction with idarubicin and cytarabine (7+3 Ida) combined with midostaurin followed. Control bone marrow examination showed persistent blastemia, indicating refractory disease.

A decision was made to switch to a less intensive regimen: azacitidine 75 mg/m^2 subcutaneously on days 1–7; venetoclax with dose titration up to 400 mg/day (dose adjusted to 100 mg in combination with azoles); and midostaurin 50 mg twice daily starting from day 8 of the cycle.

Results

After the first cycle of AZA+VEN+midostaurin, the patient reported general improvement and reduced cytopenia severity. Bone marrow examination after the second cycle showed morphological remission. The treatment was continued in the same manner.

Adverse events included grade 3 neutropenia (managed with colony-stimulating factors) and transient transaminase elevation (grade 1–2). As of the latest follow-up (8 months after starting the combination), the patient remains in remission and is preparing for haploidentical hematopoietic stem cell transplantation from a sister donor.

Conclusion

In this case, failure of repeated induction, even with the inclusion of a FLT3 inhibitor in the 7+3 Ida regimen, confirmed the high chemoresistance of AML with FLT3 mutation. The use of azacitidine, venetoclax, and midostaurin allowed achievement of deep remission with complete MRD eradication and transition to potentially curative treatment— allogeneic transplantation.

These results are consistent with NCCN (v2.2025) guidelines and recent studies confirming that triple therapy including a FLT3 inhibitor and BCL-2 inhibitor on the background of HMAs may provide high MRD-negative remission rates in patients with an unfavorable molecular profile and early relapse. Thus, the combination of azacitidine, venetoclax, and midostaurin may be considered an effective bridging therapy option in this patient category, provided that toxicity and MRD status are closely monitored, with the potential for confirmation in multicenter trials.

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Conference Abstract A27

Autologous Hematopoietic Stem Cell Transplantation in Lymphoma Treatment: Efficacy, Challenges, and Possibilities in Uzbekistan

M.M. Akhmadkhuzhaev[1], K.A. Olimjonov[1], S.S. Asilov[1], G.Z. Mahamadalieva[1], M.S. Islamov[1], A.A. Kayumov[1], I.V. Berger[1], A.D. Mahmudova[1]

[1]*Republican Specialized Scientific-Practical Center of Hematology, Tashkent, Republic of Uzbekistan*

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Corresponding author's email: mister.m1997@mail.ru

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Introduction

The coexistence of two hematologic malignancies in a single patient is extremely rare. Of particular interest is the development of acute lymphoblastic leukemia of the T-cell early precursor variant (ETP-ALL) in a patient who had been in strict complete remission of multiple myeloma after autologous bone marrow transplantation. Such cases require a comprehensive diagnostic approach and individualized therapy planning.

Autologous hematopoietic stem cell transplantation (auto-HSCT) is the standard of care for relapsed or refractory aggressive lymphomas such as diffuse large B-cell lymphoma (DLBCL), Burkitt lymphoma, mantle cell lymphoma, Hodgkin lymphoma, and lymphoblastic lymphoma. The procedure involves collecting the patient's stem cells, administering high-dose chemotherapy, and reinfusing cells to restore bone marrow function. In Uzbekistan, lymphoma patients receive chemotherapy at the Republican Specialized Scientific-Practical Medical Center of Oncology and Radiology (RSSPMCO&R), while auto-HSCT is performed at the Republican Specialized Scientific-Practical Medical Center of Hematology (RSSPMCH), the only facility specializing in transfusiology and oncohematological diseases. RSSPMCH is equipped with modern technology and serves as a base for research and training. Despite progress, implementation of HSCT is limited by infrastructural and financial barriers. This abstract reviews the efficacy of HSCT, previous chemotherapy lines, challenges and opportunities based on RSSPMCH, RSSPMCO&R, and international research data.

Materials and Methods

From 2016 to 2024, RSSPMCH performed 13 autologous HSCTs in lymphoma patients. Cohort characteristics are presented in Table 1:

Characteristic	Value
Number of patients	13
Sex, n (%)	Male: 10 (76.9%), Female: 3 (23.0%)
Median age (range)	39 years (18–61)
Diagnosis, n (%)	DLBCL: 6 (46.1%), Burkitt lymphoma: 1 (7.7%), Mantle cell lymphoma: 2 (15.4%), Hodgkin lymphoma: 2 (15.4%), Lymphoblastic lymphoma: 2 (15.4%)
Disease status, n (%)	CR1: 2 (15.4%), CR2+: 11 (84.6%)
Conditioning regimen	BEAM: 13 (100%)
Transplant type	Autologous HSCT: 13 (100%)
Median cell dose (range)	4.41×10^6/kg (1.84–7.6)

All patients received BEAM conditioning (carmustine 300 mg/m², etoposide 200 mg/m², cytarabine 200 mg/m² bid, melphalan 140 mg/m²) at RSSPMCH. Efficacy was assessed by 5-year overall survival (OS), progression-free survival (PFS), and meta-analysis (Ahmed et al., 2025).

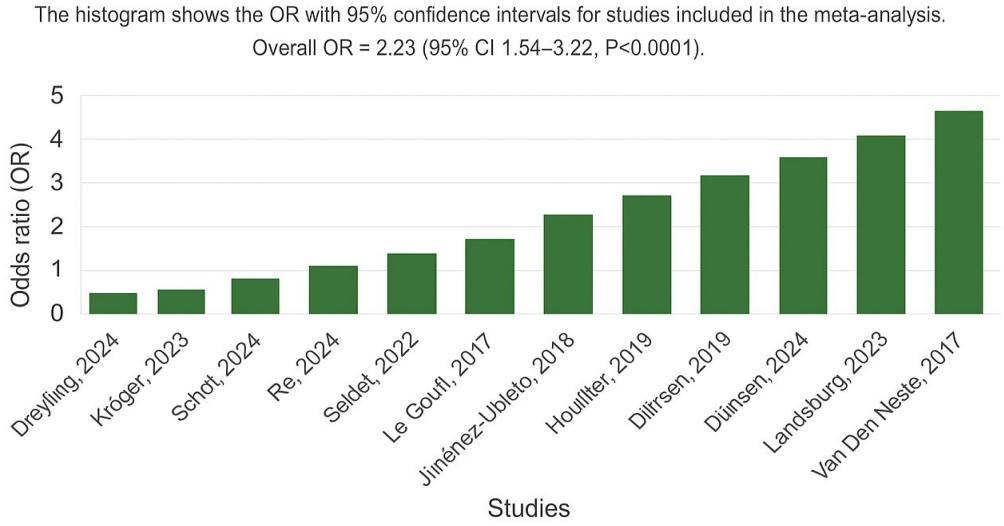
Previous Chemotherapy Lines

Lymphoma patients received chemotherapy at RSSPMCO&R under the supervision of oncologists and hematologists. Therapy lines depended on lymphoma type and stage (Ann Arbor classification). For DLBCL (6 patients, 46.1%), the first line was R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, prednisolone). Upon relapse or refractoriness (5 patients), salvage regimens were R-DHAP (rituximab, dexamethasone, high-dose cytarabine, cisplatin) or R-ICE (rituximab, ifosfamide, carboplatin, etoposide). For Hodgkin lymphoma (2 patients), first-line was ABVD (doxorubicin, bleomycin, vinblastine, dacarbazine), with DHAP for relapse. Mantle cell lymphoma (2) received R-CHOP or R-B (rituximab, bendamustine); for refractoriness, regimens with ibrutinib were used. Lymphoblastic lymphoma (2) followed hyper-CVAD protocols (cyclophosphamide, vincristine, doxorubicin, dexamethasone). All auto-HSCT recipients had at least one prior therapy line; 84.6% were in CR2+.

Results

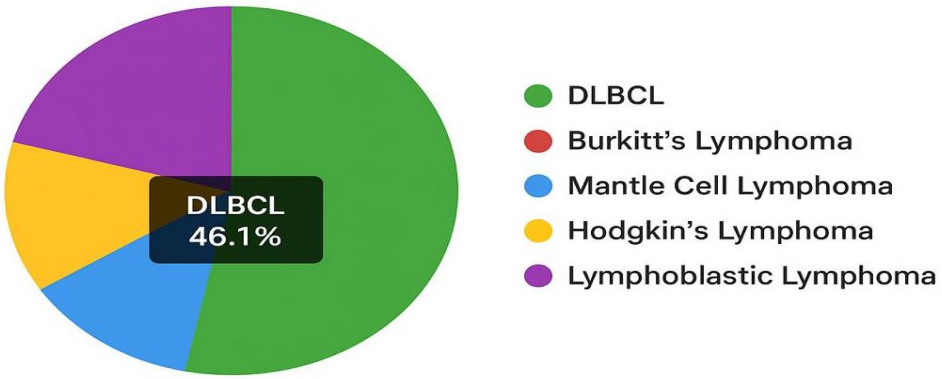
Meta-analysis (Ahmed et al., 2025) showed auto-HSCT efficacy with odds ratio (OR) 2.23 (95% CI 1.54–3.22, P<0.0001). Data presented in **Figure 1:**

Figure 1. Efficacy of autologous ATCT in the treatment of lymphoma (Ahmed et al., 2025)

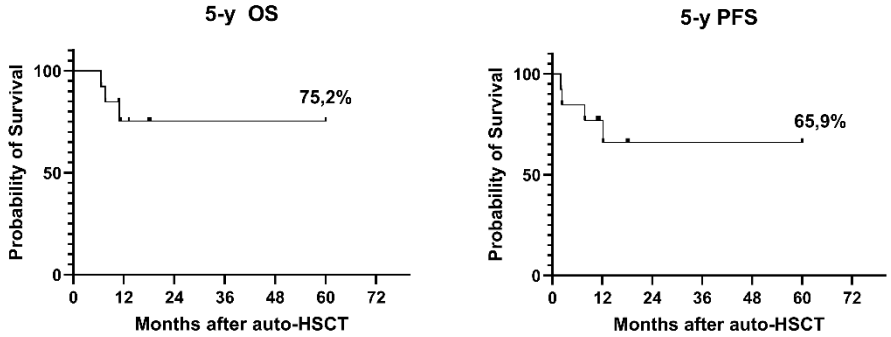


Distribution of patients' diagnoses at RSSPMCH is presented in **Figure 2:**

Figure 2. Distribution of Diagnoses among Patients with Autologous HSCT at the Republican Scientific Center for Transplantation (2016–2024)



At RSSPMCH, the 5-year overall survival (OS) rate was 75.2% and progression-free survival (PFS) was 65.9%.



Key predictors of success: complete remission status (CR > non-CR) and low/intermediate International Prognostic Index (IPI). Relapses remain a problem: relapse rate in T-cell lymphoblastic lymphoma reached 30.7%. At RSSPMCH, 5-year overall survival (OS) and progression-free survival (PFS) results are limited by high chemoresistance and systemic barriers: lack of HEPA-filtered rooms, limited insurance coverage, low patient awareness.

Discussion

Autologous HSCT conducted at RSSPMCH confirms efficacy in treating aggressive lymphomas, achieving durable remission. Chemotherapy at RSSPMCO&R (R-CHOP, ABVD, R-DHAP, R-ICE, hyper-CVAD) prepares patients for HSCT, but high chemoresistance, especially in Burkitt lymphoma, and infrastructure limitations reduce outcomes. Promising approaches include combining HSCT with CAR T-cell therapy (anti-CD19/CD22) and maintenance anti-PD-1 antibody therapy (tislelizumab), demonstrating synergistic effects (Luo et al., 2024). International cooperation, including specialist training in Russia, Turkey, and India, and infrastructure investments such as RSSPMCH expansion, are essential to improved outcomes.

Conclusion

Autologous HSCT at RSSPMCH remains an effective treatment for aggressive lymphomas, with prior chemotherapy at RSSPMCO&R (R-CHOP, ABVD, R-DHAP, R-ICE, hyper-CVAD). Integration of immunotherapy and international collaboration will help overcome barriers and improve clinical outcomes.

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Conference Abstract A28

First-Line Therapy of Primary Central Nervous System Lymphoma: A Russian Multicenter Study

V.V. Markelov[1], Yu.S. Osipov[2], E.K. Sokolova[3], S.V. Voloshin[4], Yu.A. Alexeeva[2], A.A. Sinkevich[5], P.A. Tereshenkova[6], N.A. Khasanova[7], D.I. Surtaeva[8], E.E. Zinina[9], O.S. Samoilova[10], N.V Minaeva[11], N.N. Glonina[12], L.V. Anchukova[13], E.V. Patrakova[14], E.V. Zubkova[15], A.Yu. Kuvshinov[16], I.S. Zyuzgin[17], E.A. Ukrainchenko[18], M.A. Kolesnikova[19], I.S. Stepochkin[20], E.S. Pavlyuchenko[21], Yu.N. Vinogradova[22], T.S. Konstantinova[23], A.N. Gavrilenko[1], L.V. Fedorova[1], K.V. Lepik[1], V.V. Baikov[1], N.B. Mikhailova[1], A.D. Kulagin[1]

[1]*R.M. Gorbacheva Research Institute of Pediatric Oncology, Hematology and Transplantology, First Saint Petersburg State Medical University named after I.P. Pavlov, Saint Petersburg, Russia*
[2]*V.A. Almazov National Medical Research Center, Saint Petersburg, Russia*
[3]*A.I. Burnazyan Federal Medical Biophysical Center, Moscow, Russia*
[4]*Leningrad Regional Clinical Hospital, Saint Petersburg, Russia*
[5]*Regional Clinical Hospital, Krasnoyarsk, Russia*
[6]*V.A. Baranov Republican Hospital, Petrozavodsk, Russia*
[7]*City Clinical Hospital No. 31, Saint Petersburg, Russia*
[8]*Regional Clinical Hospital, Barnaul, Russia*
[9]*Surgut District Clinical Hospital, Surgut, Russia*
[10]*N.A. Semashko Nizhny Novgorod Regional Clinical Hospital, Nizhny Novgorod, Russia*
[11]*Kirov Research Institute of Hematology and Blood Transfusion, Kirov, Russia*
[12]*Professor S.I. Sergeev Regional Clinical Hospital, Khabarovsk, Russia*
[13]*Vologda Regional Clinical Hospital, Vologda, Russia*
[14]*Vologda Regional Clinical Hospital No. 2, Cherepovets, Russia*
[15]*Irkutsk Regional Oncological Dispensary, Irkutsk, Russia*
[16]*Russian Research Institute of Hematology and Transfusiology, Saint Petersburg, Russia*
[17]*N.N. Petrov National Medical Research Center of Oncology, Saint Petersburg, Russia*
[18]*City Clinical Hospital No. 17, Saint Petersburg, Russia*
[19]*City Clinical Hospital No. 2, Novosibirsk, Russia*
[20]*Novgorod Regional Clinical Hospital, Veliky Novgorod, Russia*
[21]*North-Western State Medical University named after I.I. Mechnikov, Saint Petersburg, Russia*
[22]*A.M. Granov Russian Research Center for Radiology and Surgical Technologies, Saint Petersburg, Russia*
[23]*Sverdlovsk Regional Clinical Hospital No. 1, Yekaterinburg, Russia*

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Corresponding author's email: hema.dep2016@gmail.com

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Introduction

Primary central nervous system lymphoma (PCNSL) is a rare subtype of extranodal lymphomas with an aggressive clinical course. Currently, there are no systematic data available in the Russian Federation regarding treatment outcomes and prognosis in patients with PCNSL.

The aim of this study was to evaluate the clinical and epidemiological characteristics of patients with PCNSL, the current first-line therapeutic landscape, and treatment outcomes in real-world clinical practice.

Methods

From 2010 to 2025, a total of 205 adult patients with histologically confirmed PCNSL from 23 centers across Russia were included in the study.

Key patient and disease characteristics are presented in Table 1.

Results

As first-line therapy, 96% of patients (n=196) received immuno- and/or chemotherapy (ICT) regimens, 3% (n=6) underwent radiotherapy, and 1% (n=3) received glucocorticoids alone.

Within the ICT group, rituximab was administered to 83% of patients (n=162) with CD20-positive PCNSL. High-dose methotrexate (HD-MTX)–based regimens accounted for 71% of ICT cases (n=139). The most frequently used HD-MTX–based regimens were R-HDMTX-AraC (35%, n=49), R-MP(D)V ± lenalidomide (17%, n=23), R-HDMTX (14%, n=19), and R-HDMTX-temozolomide (10%, n=14). The MATRix protocol was administered in 5% of cases (n=7). The remaining patients (29%, n=57) received other intensive regimens (R-DeVIC – 5%, n=3) or non-intensive regimens (68%, n=39), most commonly temozolomide and/or MTX combinations ± other agents (49%, n=28). In 26% (n=15) of these patients, intra-arterial chemotherapy with MTX was performed using temporary opening of the blood–brain barrier.

In the ICT group, treatment response was assessed in 166 patients (85%). An objective response (OR) was achieved in 71% (n=118), including complete response (CR) in 42% (n=69) and partial response (PR) in 29% (n=49). Stable disease (SD) was observed in 11% (n=19), while 17% (n=29) experienced progressive disease (PD). Treatment-related mortality prior to restaging occurred in 8% (n=15). In the radiotherapy group, 83% (n=5) achieved CR, while 1 patient had PD.

At a median follow-up of 12 months (range 0.5–151), 2-year overall survival (OS) was 49%, and 2-year progression-free survival (PFS) was 33% (Figure 1).

In the ICT group, 35% of patients with OR (n=41) received consolidation therapy: 26 with CR and 15 with PR. High-dose chemotherapy followed by autologous hematopoietic stem cell transplantation (auto-HSCT) was performed in 23 patients, while 17 underwent whole-brain radiotherapy (WBRT), and 1 received a combination of both. Among patients who underwent consolidation, 2-year OS was 84.7% and 2-year PFS was 68.4%. Outcomes did not differ between patients in CR and PR at the time of consolidation: OS 88.6% vs. 80% (p=0.73), PFS 72.2% vs. 63.4% (p=0.86). Consolidation method did not impact outcomes: OS after auto-HSCT vs. WBRT was 79.4% vs. 90% (p=0.39), and PFS 72.9% vs. 66.2% (p=0.86), respectively.

Conclusions

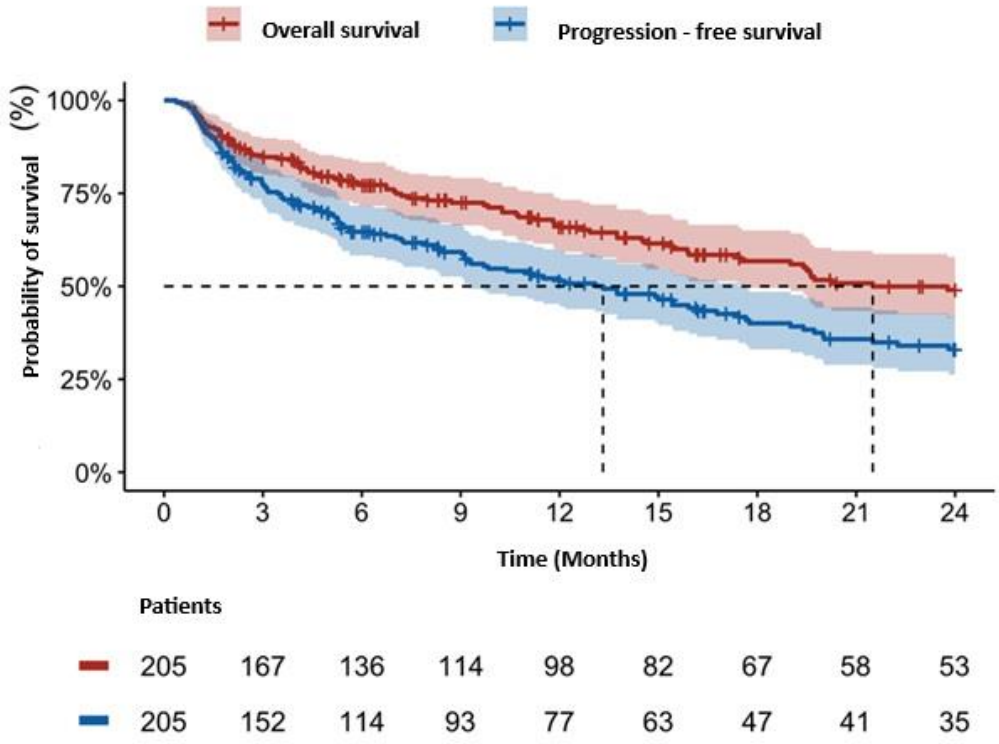
The clinical profile of patients was generally consistent with previously published data, although some selection factors related to sex, age, and HIV status were noted. Most patients were treated with regimens aligned with international guidelines, though a significant proportion received suboptimal approaches. The best survival outcomes were observed in patients who achieved an objective response and subsequently underwent consolidation therapy. The choice of consolidation modality did not affect prognosis.

Table 1. Key patient and disease characteristics

Characteristics	**n=205 (100%)**
Sex	
Male	**83 (40.5%)**
Female	**122 (59.5%)**
Age at diagnosis, median (range)	**58 (27–82)**
ECOG performance status	
ECOG 1	**53 (26%)**
ECOG ≥2	**152 (74%)**
Immunocompromised status at diagnosis	
HIV-positive	**10 (5%)**
Kidney transplant	**1 (0.5%)**
History of malignancy	**4 (2%)**

MSKCC risk score	
Low risk	**27 (13%)**
Intermediate risk	**77 (38%)**
High risk	**101 (49%)**
Diagnostic procedure	
Surgical resection	**113 (55%)**
Stereotactic biopsy	**92 (45%)**
Histologic subtype	
Diffuse large B-cell lymphoma	**197 (96%)**
High-grade B-cell lymphoma	**4 (2%)**
Marginal zone lymphoma	**2 (1%)**
Burkitt lymphoma	**1 (0.5%)**
Peripheral T-cell lymphoma	**1 (0.5%)**

Figure 1. Overall survival and progression-free survival of patients with PCNSL



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Conference Abstract A29

Multicenter International Experience in the Treatment of Aggressive Peripheral T-Cell Lymphomas

E.E. Lepik[1], A.V. Kozlov[1], E.V. Kondakova[1], L.V. Stelmakh[1], K.V. Lepik[1], Yu.Yu. Vlasova[1], M.O. Popova[1], I.S. Moiseev[1], T.V. Schneider[1], O.S. Uspenskaya[1], V.V. Denisova[1], M.V. Demchenkova[1], V.M. Kemaykin[2], A.A. Semenova[1], G.S. Tumyan[1], I.S. Zyuzgin[1], V.V. Baikov[1], N.B. Mikhaylova[1], A.D. Kulagin[1]

[1]*Raisa Gorbacheva Memorial Research Institute of Pediatric Oncology, Hematology and Transplantation, Saint Petersburg, Russia*
[2]*National Research Oncology Center LLP, Astana, Republic of Kazakhstan*

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Corresponding author's email: lepik.elena@mail.ru

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Introduction

Peripheral T-cell lymphomas represent a rare and morphologically heterogeneous group of predominantly aggressive mature T/NK-cell neoplasms characterized by a high frequency of primary refractory disease and relapse. We conducted a multicenter analysis of therapy in patients with aggressive peripheral T-cell lymphomas, taking into account the use of hematopoietic stem cell transplantation as well as targeted and immunotherapy.

Patients and Methods

The study included 204 patients with aggressive variants of peripheral T-cell lymphomas. Histological distribution was as follows: peripheral T-cell lymphoma, not otherwise specified — 33%; anaplastic large-cell lymphoma ALK+— 15%; anaplastic large-cell lymphoma ALK- — 19%; angioimmunoblastic T-cell lymphoma — 17%; and other rare forms — 16%. The median age was 47 years (range 1–76), and the median follow-up for surviving patients was 46 months (range 7–234). Primary refractory or relapsed disease was observed in 172 patients (84%). Autologous hematopoietic stem cell transplantation was performed in 79 patients, and allogeneic hematopoietic stem cell transplantation in 28 patients. In 76 cases (37%), targeted and immunotherapy were administered based on the biological features of the tumor.

Results

Five-year overall survival and progression-free survival for the entire cohort were 49.5% and 32.4%, respectively. Subgroup analysis of first-line therapy demonstrated the benefit of consolidating the initial chemosensitive response with autologous hematopoietic stem cell transplantation (progression-free survival 57.9% versus 21%; p = 0.024). Comparison of autologous hematopoietic stem cell transplantation performed in first versus subsequent lines of therapy showed five-year progression-free survival rates of 60% and 37%, respectively (p = 0.026). Experience with targeted and immunotherapy demonstrated overall response rates of 48% for brentuximab vedotin monotherapy and 52% in combination, 50% for nivolumab monotherapy and 22% in combination, and 83% for ALK inhibitors in monotherapy and 100% in combination. Among 15 patients (60%) with chemoresistant disease who underwent allogeneic hematopoietic stem cell transplantation, targeted and immunotherapy were used as preparation for transplantation. Allogeneic hematopoietic stem cell transplantation with graft-versus-host disease prophylaxis based on post-transplant cyclophosphamide, performed in complete remission, yielded a progression-free survival probability of 73.3%. Comparative analysis of autologous versus allogeneic hematopoietic stem cell transplantation in second and subsequent lines of therapy showed a trend favoring allogeneic transplantation but without achieving statistical significance (p = 0.11).

Conclusion

This case illustrates the rare coexistence of multiple myeloma and T-cell lymphoblastic leukemia/lymphoma, underscoring the importance of timely diagnostics, diagnosis verification, and a comprehensive treatment approach.

Standard chemotherapy regimens demonstrate limited efficacy in the treatment of aggressive peripheral T-cell lymphomas. Performing autologous hematopoietic stem cell transplantation as consolidation in first-line therapy is considered the preferred clinical approach. The appropriateness of autologous transplantation at later stages remains a matter of debate and requires further investigation. Allogeneic hematopoietic stem cell transplantation is an effective method with curative potential for relapsed or refractory aggressive peripheral T-cell lymphomas. The use of targeted and immunotherapy improves the prognosis of patients with refractory or relapsed disease, particularly in preparation for allogeneic transplantation.

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Conference Abstract A30

Assessment of Quality of Life in Patients with Oncohematological Diseases at Different Stages of Treatment and Rehabilitation in the Republic of Tajikistan

N.N. Khojaeva[1], N.M. Sodikov[1], S.V. Tyurina[1]

[1]*Avicenna Tajik State Medical University, Dushanbe, Tajikistan*

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Corresponding author's email: nizkan.khojaeva@gmail.com

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Background

Quality of life (QOL) for patients with oncohematological diseases, especially in the pediatric population, is an important prognostic and socially significant indicator (1,3,5). Modern protocols for acute leukemia therapy, despite high efficacy, are accompanied by pronounced side effects and prolonged hospital stays, substantially affecting the physical, psycho-emotional, and social states of patients (2,4). In the evolving healthcare system of Tajikistan, QOL assessment enables objective insight into the impact of treatment and rehabilitation on patients' overall condition.

Aim

To assess the dynamics of quality of life scores among children with acute leukemias at different phases of chemotherapy and rehabilitation at the National Medical Center of Tajikistan.

Materials and Methods

A prospective cohort study included 50 patients, aged 3–16 years, newly diagnosed with acute leukemia (38 acute lymphoblastic leukemia cases, 12 acute myeloblastic leukemia cases), hospitalized in the pediatric hematology department of the NMC from 2023 to 2025. QOL was evaluated using adapted and validated PedsQL™ 4.0 Generic Core Scales and PedsQL™ Cancer Module at three key stages:

1. Induction of remission;
2. Consolidation/intensification of therapy;

Early and late rehabilitation.

Statistical analysis used SPSS 26.0 software.

Results

The prospective study revealed significant changes in QOL indices among children with acute leukemias as a function of treatment phase. During induction of polychemotherapy (30–45 days from start), 78% of patients demonstrated reduced physical functioning scores (PedsQL scale—Pediatric Quality of Life Inventory) below 60 points, correlating with marked myelosuppression, infectious complications (febrile neutropenia episodes in 62%) and toxic hepatitis (observed in 38%). At the consolidation stage, partial restoration of physical functioning scores (up to 70–75) was observed, but emotional and social distress persisted. Over 50% of children reported anxiety, decreased interest in daily activities, and difficulty communicating. Parents noted sleep disturbances, loss of appetite, and increased irritability. During maintenance therapy (6 months after start), positive trends in general well-being were noted; 68% of children restored physical and cognitive function to threshold (over 80 on PedsQL). However, 23% experienced chronic fatigue and reduced activity, requiring multidisciplinary support (psychotherapy, nutritional correction, individual exercise therapy). Post-rehabilitation QOL analyses (12 months after start) showed that with appropriate multidisciplinary care (psychologist, physiotherapist, clinical pharmacologist), 82% of children achieved stable high QOL. Conversely, those from socially vulnerable families without ongoing support experienced worsened emotional states and lower PedsQL scores (<70).

Conclusion

QOL in children with acute leukemia varies substantially across treatment stages. The induction of remission is the most vulnerable phase, requiring special attention to physical and psycho-emotional health. Comprehensive QOL assessment should become an integral part of treatment and diagnostics, enabling therapy and rehabilitation to be tailored to individual patient needs.