PATHWEL CENTER OF HEMATOLOGY
& BONE MARROW TRANSPLANT
A project of Pakistan Thalassaemia Welfare Society

PATHWEL *times*

BIMONTHLY NEWSLETTER 2026 | May - Jun | Vol 3.3

Maj Gen (R) Suhaib Ahmed

President, Pakistan Thalassemia Welfare Society

International Thalassemia Day 2026: From Care to Prevention

On International Thalassemia Day, we reaffirm our commitment to the thousands of children and families affected by thalassemia across Pakistan. These brave children remain at the heart of everything we do at PATHWEL.

Over the past three decades, with the support of generous donors, dedicated healthcare professionals, and compassionate volunteers, PATHWEL has grown into a state-of-the-art center providing comprehensive care, including transfusion and bone marrow transplant services. Yet our mission extends beyond treatment.

Thalassemia is a preventable disease. Every year, thousands of children are born with thalassemia major despite the availability of effective screening and prenatal diagnostic options. Prevention remains our greatest challenge and our greatest opportunity.

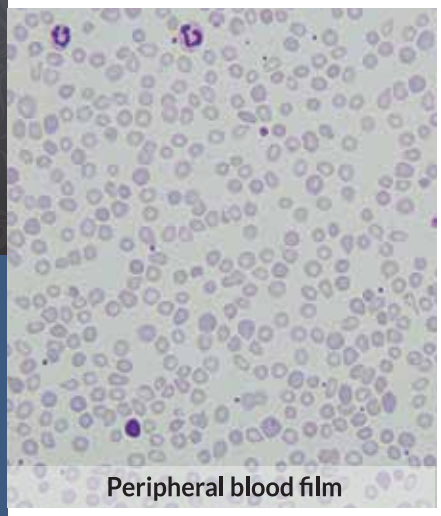
On this day, we call upon philanthropists, policymakers, healthcare providers, and the public to join hands in supporting awareness, screening, and prevention programs. Together, we can move from managing thalassemia to preventing it, ensuring a healthier future for generations to come.

8th May World Thalassemia Day

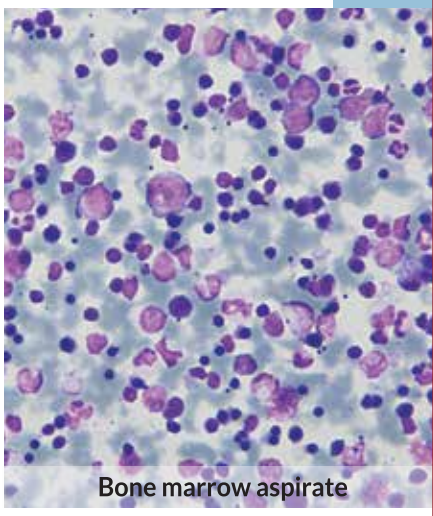
Picture Quiz by Dr Laila Bahadur

A 9-year-old girl presented with chronic anemia. Her complete blood count revealed a hemoglobin level of 3.0 g/dL, for which she received four units of red cell concentrate (RCC). On physical examination, she was pale, and spleen was palpable 5 cm below left costal margin. Post-transfusion CBC showed WBC count of 9×10^9/L, hemoglobin of 7.0 g/dL, platelet count of 325×10^9/L, and MCV of 95.2 fL. Images of peripheral blood film and BM aspirate are given below.

Question: What is the most likely diagnosis? **(Answer: page 06)**



Peripheral blood film



Bone marrow aspirate

International Thalassemia Day 2026

Report on page 09-12

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Dr Syed Kamran Mahmood

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From Editor's Desk

Silent Suffering: Pakistan's Thalassemia Crisis Demands Urgent Action

Each year in Pakistan, approximately 5,000 to 6,000 children are born with thalassemia major — roughly 17 every day — condemned to a life of fortnightly transfusions, iron overload, and an uncertain future. These children are not statistics. They are our collective failure as a society, a health system, and a state.

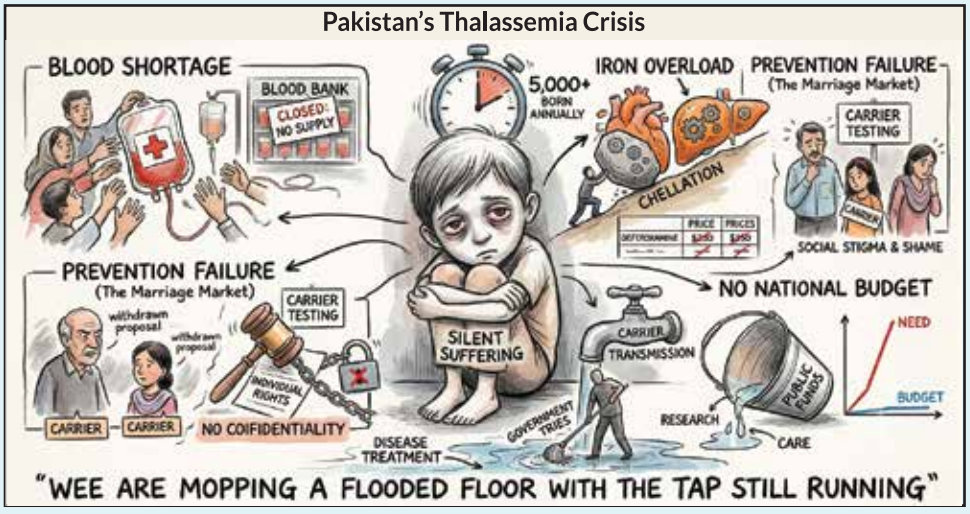
The most immediate burden is blood. Securing safe, compatible, and regular supply for thalassemics remains an uphill battle. Voluntary donation culture is weak, families are left scrambling, and blood banks in smaller cities are chronically understocked.

Iron chelation — the cornerstone of preventing organ damage — is woefully inadequate. Deferoxamine remains unaffordable for many; oral chelators like deferasirox are beyond the reach of most families. Non-compliance driven by poverty results in iron-laden hearts and livers failing in young children — a preventable tragedy.

The emerging debate around thalidomide as a fetal hemoglobin inducer offers cautious hope, yet remains hampered by regulatory hesitancy and limited local trial data. This conversation deserves more honest, evidence-based engagement from Pakistani clinicians and policymakers.

Prevention is where the greatest failure lies. Premarital carrier screening exists as policy on paper and nowhere in practice. In Pakistan's marriage market, a positive carrier test carries crushing social consequences — for an unmarried girl, it can mean withdrawn proposals and family shame; for a boy, quiet questions about lineage. These fears drive families away from testing altogether. Meanwhile, legislation for mandatory screening raises legitimate human rights concerns: compulsory genetic testing without confidentiality protections, anti-discrimination safeguards, and genetic counselling is not health policy — it is coercion. The answer lies in making testing safe, stigma-free, and voluntary.

No meaningful national budget exists for this disease. Public awareness is negligible. Political will is absent. The science is established and the tools exist. Without national resolve, we are mopping a flooded floor with the tap still running.



Lifetime Achievement Award – A Landmark Recognition for PATHWEL's Medical Director

PATHWEL proudly congratulates our Medical Director, Maj Gen (Retd) Prof. Dr. Parvez Ahmed, on being conferred the Lifetime Achievement Award by the Pakistan Society of Haematology at the 28th Annual Conference, HAEMCON 2026.

This prestigious honour recognizes his decades-long dedication to advancing clinical hematology, bone marrow transplantation, medical education, and patient care in Pakistan.

Throughout his distinguished career, he has trained generations of hematologists and played a pioneering role in strengthening transplant services and academic excellence in the country.

As Medical Director of PATHWEL Center of Hematology & Bone Marrow Transplant, he continues to provide visionary leadership, fostering innovation, compassionate care, and the development of high-quality, accessible hematology services.

The recognition, presented among leading national and international experts, reflects his enduring impact on the specialty and his lifelong commitment to patients and medical education.

With profound respect and admiration... The PATHWEL Family.

PATHWEL joins PRCS in marking International Thalassemia Day 2026

The Pakistan Red Crescent Society marked International Thalassemia Day 2026 with an awareness programme focused on early diagnosis, prevention, voluntary blood donation, and patient care. Mrs. Farzhana Naek, Chairperson PRCS, attended as Chief Guest and reaffirmed support for inherited blood disorder initiatives. PATHWEL was represented by Dr. Syed Kamran Mahmood and Ms. Nigar Shah. The programme ended with a mock disaster drill demonstrating first aid, triage, evacuation, and emergency response preparedness.

One Drop of Humanity—But Are We Doing Enough? World Blood Donor Day 2026

Every year on 14 June, the world pauses to thank millions of voluntary blood donors whose simple act of generosity saves countless lives. This year's World Blood Donor Day theme, "One Drop of Humanity. Give Blood. Save Lives.", is a reminder that blood donation is not merely a medical procedure—it is one of humanity's purest expressions of compassion.

Yet, for Pakistan, this occasion should be more than a celebration. It should also be a moment of honest reflection.

A Donation System Built on Students

Pakistan's voluntary blood donation system relies largely on college and university students. Educational institutions provide the backbone of the nation's blood supply, and these dedicated young volunteers deserve recognition for their lifesaving contribution.

However, a troubling question remains.

Why does voluntary blood donation often end at graduation?

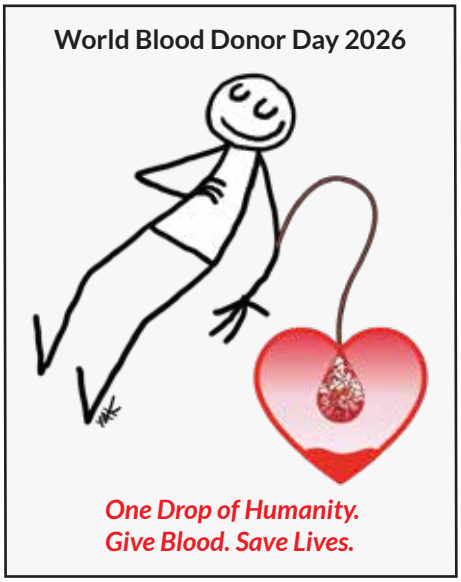
A sustainable blood transfusion system requires year-round public participation. Regular blood donation should become a civic responsibility shared by professionals, government employees, business leaders, religious organizations, workers, and healthy citizens from every segment of society.

The Children Who Cannot Wait

Nowhere is the shortage felt more painfully than among children living with thalassemia.

Children with thalassemia depend on blood transfusions every three to four weeks to survive. Blood shortages force many families into repeated searches for donors, delaying essential treatment & increasing the risk of anaemia, organ damage, serious complications, and reduced quality of life across Pakistan.

For these families, World Blood Donor Day



is not merely a symbolic event. It represents hope.

Beyond Shortages: The Quality Challenge

Quantity is only one part of the equation. Safe blood demands safe blood banks.

Pakistan has strengthened transfusion medicine, yet significant challenges persist. Blood banking infrastructure, quality systems, trained personnel, equipment, and regulatory oversight remain uneven. Many blood banks operate commercially, while consistent screening to internationally accepted quality standards is still limited across the country.

Safe blood should never depend on geography. Whether a patient lives in Islamabad, Gilgit, Quetta, interior Sindh, southern Punjab, or rural Balochistan, the expectation should be exactly same:

Every unit should be safe.

Replacement Donation Is Not the Answer

Pakistan still relies heavily on replacement donors, despite their goodwill. A sustainable blood supply requires regular voluntary unpaid donors, who provide the safest source of blood and ensure patients receive timely transfusions through a dependable, year-round donation system.

Replacement donation is an emergency response. Voluntary donation is a healthcare system. The difference matters.

Whole Blood Still Dominates

Many hospitals in Pakistan still rely on whole blood transfusions. Expanding blood component therapy nationwide would allow each donation to treat multiple patients, reduce wastage, improve efficiency, and ensure patients receive only the specific blood component required for effective care.

PATHWEL's Perspective

At PATHWEL, blood donation is not a one-day campaign. It is a daily necessity.

Every blood camp organised, every volunteer recruited, every donor counselled, and every unit safely collected translates into another child receiving a life-saving transfusion.

The Way Forward

Pakistan needs a bold national vision for blood transfusion services. That vision should include:

- Expanding voluntary donor recruitment beyond educational institutions.
- Establishing regional blood centres with modern quality systems.
- Strengthening regulation and accreditation of blood banks.
- Universal screening using internationally accepted standards.
- Expanding blood component preparation nationwide.
- Creating a national repeat voluntary donor registry.
- Investing in public awareness throughout the year—not only on 14 June.

These are achievable goals if governments, healthcare providers, educational

institutions, civil society, and communities work together.

A Final Thought

Every healthy adult carries within them the power to save lives.
--- Not through extraordinary wealth.
--- Not through fame.
--- Not through influence.
Simply by donating blood.

As we mark World Blood Donor Day 2026, let us thank those who already donate regularly. But let us also recognise that gratitude alone will not solve Pakistan's blood crisis. Only action will.

Because every unit collected represents far more than 450 millilitres of blood. It represents
--- Courage.
--- Compassion.
--- Hope.

And, for someone waiting in a hospital bed, another chance to live.

Cook Safeer Awan of PATHWEL donating blood for thalassemia patients

Blood Camps' Diary

By Ms Nigar Shah PRO & Camp Coordinator
Pakistan Thalassemia Welfare Society

A single act of blood donation can become someone's lifeline in their most critical moment. Your generosity has the power to restore strength, renew hope, and give families more time together. Step forward, donate with purpose, and be part of a silent force that saves lives—one drop, one patient, one future at a time.

CUST University, Islamabad | 14 April 2026

On April 14, 2026 PATHWEL arranged a blood donation camp at Capital University of Science and Technology (CUST) Islamabad followed by an awareness lecture delivered by Brig (R) Dr Syed Kamran Mahmood. Volunteer students from CUST actively participated throughout whole drive resulting a huge number of 88 donations were collected. Directorate VIS-CUST University collaborated for this drive under the mutual understanding between PATHWEL and CUST.

SNGPL Regional Office Rawalpindi | 30 April 2026

PATHWEL team successfully arranged a blood donation camp at Sui Northern Gas Pipelines Limited (SNGPL) Regional Office Rawalpindi. We really appreciate the initiative of General Manager SNGPL Rawalpindi Distribution for organizing this drive. Mr Omar Farooq EE (HSE) coordinated with PATHWEL team to make this camp successful. PATHWEL collected 46 pints during this drive.

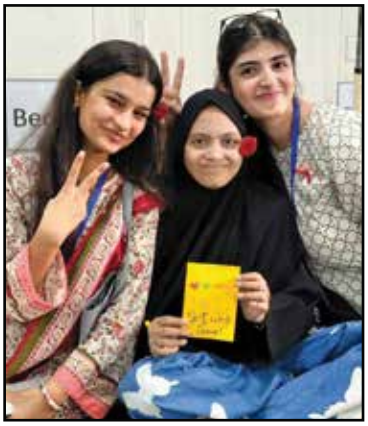
IIUI Students Bring Smiles to PATHWEL

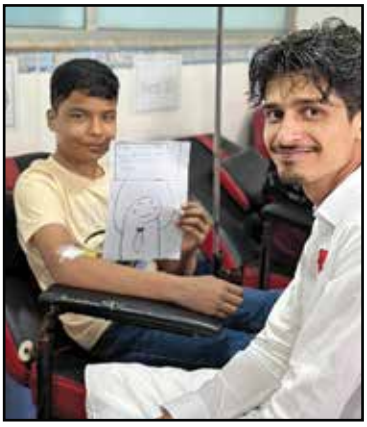
On 21 May 2026, students from the Department of Computer Science, International Islamic University Islamabad, visited PATHWEL as part of a community outreach initiative.

They spent quality time with patients and their families, distributed gifts to children, and attended an educational lecture on thalassemia, blood donation and bone marrow transplantation, gaining valuable insight into compassionate care of patients with thalassemia and other blood diseases.

NDU Students Engage in SDG-Based Community Visit to PATHWEL

A group of 15 students from the National Defence University Islamabad visited PATHWEL on 18 May 2026 as part of an SDG-based initiative aligned with Good Health and Well-being (SDG 3), Reduced Inequalities (SDG 10), and Partnerships for the Goals (SDG 17). The delegation received an orientation lecture by Brig (R) Dr Syed Kamran Mahmood, spent meaningful time with thalassemia patients, and distributed gifts and fruits. Led by Muhammad Mudassar, Team Lead, Raah-e-Taraqqi Community Service Project, the visit promoted compassion, awareness, and community engagement.





A Day of Compassion: Mashal and FJWU Volunteers at PATHWEL

PATHWEL warmly welcomed Mr. Muhammad Ali, Founder and President of Mashal, a sub-wing of the Human Rights Council of Pakistan, along with Dr. Anum Zaffar, Director International Affairs Mashal, and volunteers from Fatima Jinnah Women University on 21 May 2016. Their visit brought smiles to thalassemia patients through ward activities, gift distribution, and meaningful interaction. The day concluded with an orientation lecture and the presentation of a shield to PATHWEL in appreciation of its services.

Picture Quiz: Answer *By Dr Laila Bahadur, Consultant Hematologist PATHWEL*

Answer: Congenital Dyserythropoietic Anemia Type II (CDA II)
Next-generation sequencing (NGS) identified a pathogenic variant in the SEC23B gene

Grand Round

The Hidden Cause of Pancytopenia: Low-Dose Methotrexate Toxicity in RA

Dr. Hina Tariq, Resident, Clinical Haematology — PATHWEL Center of Haematology and BMT

Case Presentation

A 70-year-old male driver from Abbottabad was started on methotrexate (MTX) 10 mg/week plus folic acid in October 2025 for seropositive rheumatoid arthritis, without baseline or interval monitoring. Seven months later (May 2026) he developed fever, mucositis and epigastric pain; CBC showed pancytopenia (WBC 1.7×10^9/L, Hb 10.1 g/dL, platelets 121 ×10^9/L). MTX was withheld locally and he received transfusions, low-dose folinic acid (15 mg × 8 doses), antimicrobials and steroids, without adequate recovery, prompting referral.

At presentation to PATHWEL (6 June 2026), one week into worsening illness, he had grade 3 oral mucositis, dysphagia, epigastric tenderness and two episodes of melaena, with ECOG performance status 3. CBC revealed severe pancytopenia (WBC 0.9, Hb 8.1, platelets 21 ×10^9/L) with CRP 215 mg/dL; renal and liver function were preserved.

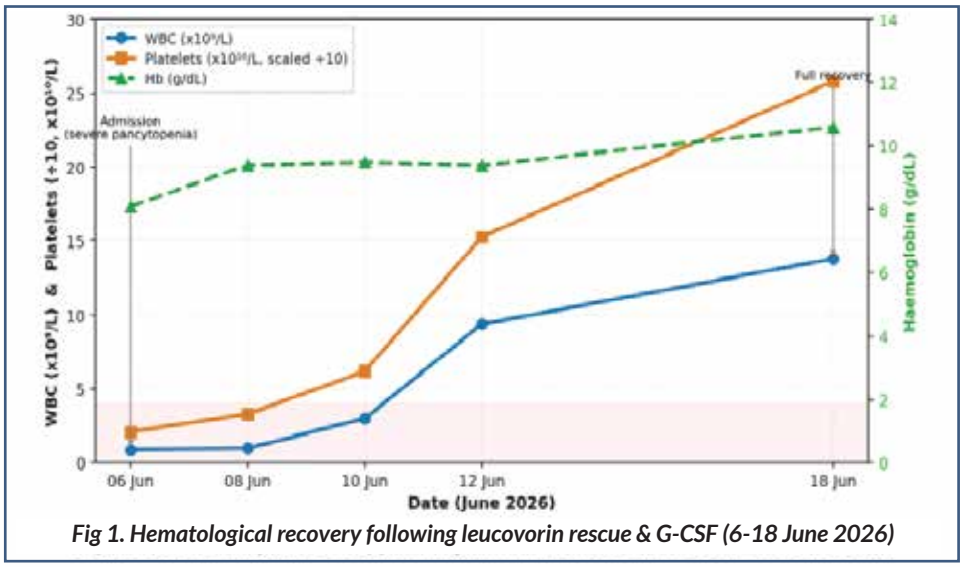


Fig 1. Hematological recovery following leucovorin rescue & G-CSF (6-18 June 2026)

Management and Outcome

Treatment included high-dose folinic acid (leucovorin) 50 mg IV four times daily, G-CSF, broad-spectrum antimicrobial cover, IV fluids and blood products. Bone marrow examination confirmed a hypocellular marrow with depressed trilineage haematopoiesis, consistent with iatrogenic hypoplasia; endoscopy showed severe ulcerative oesophagitis and antral gastritis. Counts recovered rapidly, with WBC rising from 1.0 to 9.4 ×10^9/L and platelets from 33 to 153 ×10^9/L within four days (Figure 1). By day 12 he had achieved full haematological recovery (WBC 13.8, Hb 10.6, platelets 258 ×10^9/L).

Literature Review

MTX inhibits dihydrofolate reductase, blocking folate-dependent synthesis of purines and pyrimidines; leucovorin bypasses this block and remains the definitive rescue agent. Toxicity from "low-dose" MTX, though uncommon, is well described and can affect bone marrow, gut, liver, lungs, skin and kidneys, and is potentiated by renal impairment, drug interactions and folate deficiency.

Individual variation in MTX metabolism contributes substantially to unpredictable toxicity. Polymorphisms in folate-pathway and transporter genes — including MTHFR (C677T, A1298C), the reduced folate carrier SLC19A1, efflux transporters ABCB1 and ABCG2, and the hepatic uptake transporter SLCO1B1 — alter intracellular retention and renal clearance of MTX. Patients homozygous for MTHFR 677TT, and carriers of decreased-function SLCO1B1 variants, are slower metabolizers who clear MTX less efficiently; these "slow metabolizers" show significantly higher rates of mucositis, hepatotoxicity and myelosuppression, even at conventional 7.5–15 mg/week doses (Franco et al., J Rheumatol 2009; van de Meeberg et al., Pharmgenomics Pers Med 2022). The 2025 British Society for Rheumatology guideline reinforces mandatory folic acid co-prescription and regular CBC, renal and liver monitoring, noting that dosing errors and unrecognised slow metabolism account for most severe reactions. Pharmacogenetic testing is not yet routine but merits consideration after unexplained toxicity, alongside dose reduction and close monitoring on any re-challenge.

Take-Home Message

Even conventional-dose methotrexate can cause life-threatening pancytopenia, particularly in slow metabolizers. Regular CBC, renal and liver monitoring, combined with prompt leucovorin and G-CSF when toxicity occurs, permits full recovery, as demonstrated in this case.

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PATHWEL Stars

Defying the Odds: A Journey from High-Risk Disease to Successful Recovery

by Dr Khalil Ur Rahman, Clinical Hematologist and BMT Specialist, PATHWEL

At PATHWEL, every successful transplant tells a unique story. Some, however, stand out because of the extraordinary challenges involved. Mr. Asif Bashir's journey is one such example—a patient considered by many to be too high-risk for transplantation, yet who continues to do well after a successful haploidentical bone marrow transplant.

The patient, a 46-year-old gentleman from Lahore, was diagnosed with Primary Myelofibrosis (PMF) in 2013. His disease was associated with the JAK2 V617F mutation and progressive enlargement of the spleen. For over 10 years, he remained on ruxolitinib (Jakavi), which controlled his symptoms but could not cure the disease.

Over time, his condition became increasingly complex. His platelet count gradually declined, additional genetic mutations appeared, and circulating blasts suggested progression toward acute leukemia. Bone marrow examinations continued to show increased blasts, dense fibrosis, and severe osteosclerosis.

Challenges Before Transplant
The decision to proceed with transplant was exceptionally challenging. Mr. Asif had several major co-morbidities, including long-standing diabetes mellitus, chronic hypertension, a previous history of abdominal tuberculosis, a massively enlarged spleen, and advanced myelofibrosis with severe marrow osteosclerosis. In addition, no fully HLA-matched donor was available. These factors led many physicians to question the safety and feasibility of transplantation. However, without it, he had no curative option.

Finding hope in a Half-Matched Donor
Hope emerged when his brother, Mr. Shahzad Bashir, was identified as a half-matched donor. After extensive counselling, careful risk assessment, and informed consent, the transplant team proceeded with a haploidentical bone marrow transplant on 8 January 2025. A combination of bone marrow and peripheral blood stem cells was used to deliver a high stem cell dose and maximize successful engraftment.

Early Transplant Recovery
The early transplant course was encouraging. Conditioning chemotherapy was completed smoothly, donor cells engrafted promptly, and liver, kidney, heart, and neurological functions remained stable. No major early complications occurred.

Post-Transplant Complications
Recovery was not without challenges. Mr. Asif developed acute gut graft-versus-host disease (GVHD), which responded well to steroid therapy, followed by chronic skin and oral GVHD. Around nine months after transplant, he experienced severe Pneumocystis jirovecii pneumonia (PCP) requiring ICU-level care. With timely treatment, he recovered successfully.

Before Transplant

After Transplant

Evidence of Lasting Success
Serial donor chimerism assessments consistently demonstrated more than 95% donor engraftment. His spleen returned to normal size, and the previously extensive bone marrow osteosclerosis reversed, confirming durable transplant success.

Where He Stands Today
Nearly 18 months after transplantation, Mr. Asif remains well with sustained donor engraftment. His GVHD has resolved, his disease remains under control, and he continues regular follow-up with the PATHWEL Bone Marrow Transplant team.

A Story of Courage and Clinical Excellence
Mr. Asif's journey reflects perseverance, family support, donor commitment, and the expertise of a dedicated multidisciplinary transplant team. Above all, it demonstrates that carefully planned haploidentical transplantation can offer a second chance at life, even for patients facing seemingly overwhelming odds.

Survivo

International Thalassaemia Day: Raising Awareness, Inspiring Hope

Overview

Pakistan Thalassaemia Welfare Society (PATHWEL) observed International Thalassaemia Day 2026 with a ceremony held on 12 May 2026 at Pearl Continental Hotel, Rawalpindi. The event brought together a broad cross-section of stakeholders united by a shared comonmitment to combating thalassaemia — a condition that continues to place a heavy burden on Pakistani families and the national healthcare system. The occasion served simultaneously as a platform for awareness, advocacy, recognition of patient resilience, and a call to action for the business community, government, and civil society.

Chief Guest, Sardar Yasir Ilyas Khan
Advisor and National Coordinator to the Prime Minister on Tourism

Attendance and Participation

The event was well attended by a diverse audience reflecting the wide reach of PATHWEL's mission. Those present included thalassaemia patients — many of them children — accompanied by their families, who lent the occasion its most poignant dimension. The gathering also included representatives of non-governmental organisations, members of the business community and philanthropists, media representatives, practising haematologists, and staff from across the PATHWEL Centre of Haematology and Bone Marrow Transplant. The presence of prominent dignitaries and invited guests underscored the growing recognition of thalassaemia as a public health priority requiring sustained national attention.

Programme of Events

The programme commenced with a brief welcome, followed by recitation from the Holy Quran, a Naat, and the National Anthem, setting a solemn and patriotic tone. A documentary on PATHWEL's work was screened, offering attendees a visual overview of the centre's facilities, achievements, and patient care activities over the past year.

The Welcome Address was delivered

Maj Gen (R) Suhaib Ahmed
President PTWS

Prof Dr Parvez Ahmed
MD PATHWEL

Dr Jamal Nasir
Vice President PTWS

Dr Abdul Qayyum Awan
Member EC PTWS

Maj Gen (R) Abid Latif Khan
Chairman H2F

by Maj Gen Suhaib Ahmed (Retd), President of PATHWEL, who set the context for the day's proceedings and highlighted the society's long-standing commitment to patient welfare. A tableau and cultural performance by children living with thalassaemia followed, drawing an emotional and appreciative response from the audience and powerfully conveying the spirit of courage and hope that defines the thalassaemia community.

The centrepiece of the formal proceedings was the Annual Performance Briefing delivered by the Medical Director of PATHWEL. The ten-minute presentation covered the centre's activities and achievements over the preceding year, including significant milestones such as the acquisition of two new ambulances, the upgradation of molecular and PCR laboratory facilities, the establishment of haematopoietic stem cell cryopreservation capability, registration with the Pakistan Red Crescent & PHOTA, and the inclusion of PATHWEL patients under Punjab Health Card scheme. The briefing also highlighted enhanced financial support from Pakistan Bait-ul-Mal and increased funding from DKMS Germany for bone marrow transplantation and high-resolution HLA typing, as well as Memoranda of Understanding signed with several academic institutions. Patient workload data and laboratory statistics for 2025 were also presented, reflecting a consistently growing service demand.

Speeches and Addresses

A deeply moving speech was delivered by a child living with thalassaemia, whose personal narrative of resilience, hope, and gratitude resonated profoundly with all in attendance. The address served as a reminder of the human stakes underlying every clinical decision and every fundraising effort made on behalf of the thalassaemia community.

Speeches were also delivered by Maj Gen Parvez Ahmed (Retd), Managing Director of PATHWEL, and by three invited guest speakers. These addresses collectively emphasised the importance of voluntary blood donation, community-level awareness and screening programmes, and the urgent need for expansion of treatment facilities across Pakistan. A second PATHWEL documentary screened mid-programme reinforced the theme of institutional progress and mission continuity.

A cultural performance — a Meddy Zee song accompanied by a dress show — added colour and vibrancy to the proceedings, celebrating the spirit and identity of the thalassaemia community.

Address by the Chief Guest

The address by the Chief Guest, Sardar Yasir Ilyas Khan, Advisor and National Coordinator to the Prime Minister on

Tourism, and a distinguished entrepreneur, philanthropist, and business leader, was a highlight of the proceedings. Sardar Yasir Ilyas Khan expressed heartfelt solidarity with thalassaemia patients and their families, and conveyed his deep appreciation for the services rendered by PATHWEL to one of Pakistan's most vulnerable patient populations. In a significant gesture of support, he announced a personal financial contribution to PATHWEL and called upon the business community at large to step forward and partner with the organisation in its three-pronged mission of care, cure, and prevention of thalassaemia.

Closing Ceremony

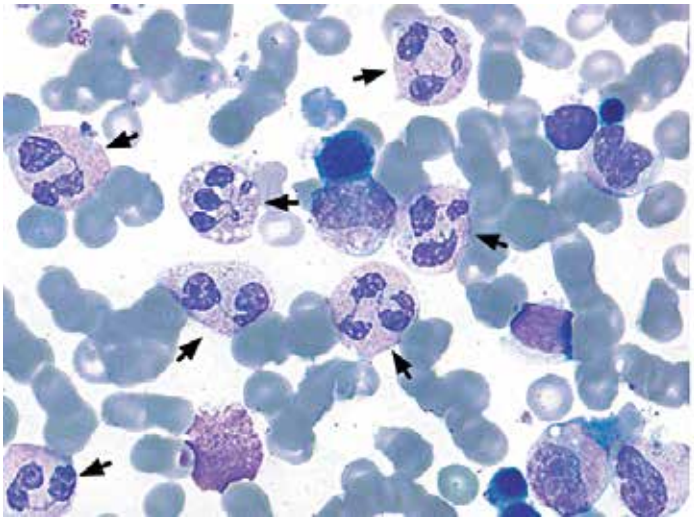
The programme concluded with a Vote of Thanks, distribution of shields to guests and dignitaries in recognition of their contributions and support, and the presentation of a shield to the Chief Guest. A group photograph brought together patients, families, dignitaries, and staff in a moment of collective solidarity before the gathering concluded over tea.

The event closed with a collective pledge by all present to work together towards a thalassaemia-free Pakistan — a vision that PATHWEL has upheld since its founding and continues to pursue through clinical excellence, community engagement, and institutional growth.

Myelokathexis in an 18-year-old male patient with severe neutropenia and lymphopenia

Endi Wang[1] | Yue Zhao[2] | Sophie Parks[1] | Imran Siddiqi [1]
1Dept. of Pathology, Keck School of Medicine, University of Southern California, Los Angeles, California, USA
2Dept. of Pathology, College of Basic Medical Sciences & the First Hospital, China Medical University, Shenyang, People's Republic of China

An 18-year-old male patient presented to clinic with an episode of self-inflicted injury. Routine laboratory evaluation with complete blood count demonstrated severe leukopenia to 0.9 x 10^9/L (0.1 x 10^9/L neutrophils, 0.3 x 10^9/L lymphocytes) with normal levels of hemoglobin (14.1 g/dL) and platelets (238 x 10^9/L). Lymphocyte enumeration demonstrated that B-cells accounted for 1.8% of total leukocytes (normal reference, 6.9%–14.9%), though his serum immunoglobulin profile was within normal range. He was asymptomatic and denied previous history of warts or recurrent infections except for a recent episode of scrotal abscess with mixed bacterial growth that resolved with drainage and antibiotics. Bone marrow examination was performed to evaluate the etiology of severe leukopenia. Review of the peripheral blood smear confirmed severe neutropenia and lymphopenia without circulating blasts. Bone marrow aspirate smear exhibited trilineage hematopoiesis with myeloid to erythroid (M:E) ratio of 2:1. Interestingly, granulopoiesis appeared to be right-shifted with many mature neutrophils displaying elongated thin filamentous connection between nuclear lobes, a feature suggestive of myelokathexis (Image 1). Significant dysplasia or increase in blasts was not otherwise identified. Cytogenetic studies were negative for abnormalities. Next generation sequencing analysis demonstrated frameshift mutation in CXCR4 with variant allele frequency (VAF) of 50%, and missense mutation of CSF3R with VAF of 49.8%. Given the clinical presentation, bone marrow morphology and molecular testing, the diagnosis of WHIM syndrome was established. Unfortunately, a test for hereditary CXCR4 mutation was not able to be performed in the parent, even though the VAF was highly suggestive of a germline mutation rather than a somatic event. Following the diagnosis, the patient began regular surveillance for leukopenia and opportunistic infections



The acronym WHIM is derived from the main features of the disease, which include Warts, Hypogammaglobulinemia, Infection, and Myelokathexis.1 Of these, myelokathexis refers to the abnormal retention of mature neutrophils in bone marrow, and is considered to be a pathognomonic finding for WHIM syndrome.2 The disease is an immunodeficiency disorder of autosomal dominant inheritance caused by germline mutations in CXCR4, which encodes a chemokine receptor. The pathogenesis of WHIM syndrome is mediated by gain of function mutation of CXCR4, resulting in increased response to its unique ligand CXCL12. The altered CXCR4/CXCL12 interaction likely impairs cellular homeostasis and trafficking, leading to immunological dysfunctions.3 WHIM patients often suffer from recurrent bacterial infections since childhood and show marked susceptibility to infection by human papilloma virus. Hematological manifestations usually include neutropenia, lymphopenia and hypogammaglobulinemia. However, the majority of the patients, including the one in this case, manifest an incomplete phenotype at the onset, leading to the diagnosis of WHIM to be often overlooked.1,3 Identification of myelokathexis may prompt a subsequent genomic analysis resulting in early diagnosis of WHIM syndrome and timely clinical management of the disease before complications arise. Such management includes G-CSF-induced granulocytic production and mobilization, immunoglobulin supplementation, antibiotic prophylaxis and specific antagonists targeting the underlying molecular pathogenesis: CXCR4 hyperfunction (plerixafor)

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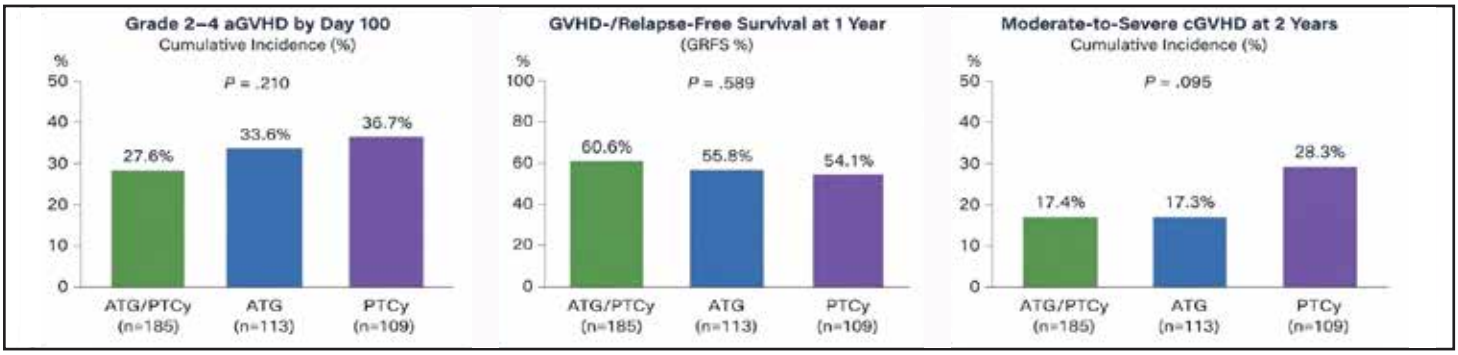
A randomized trial of GVHD prophylaxis in haploidentical PBSC transplantation: ATG, PTCy, and low-dose combination therapy

Yang J, et al | blood, 25 June 2026 | Volume 147, Number 26



In this open-label, phase 3 study, patients aged 14 to 70 years with AML or MDS with EB I or II were randomized (2:1:1) to receive low-dose ATG (5 mg/kg) plus posttransplant cyclophosphamide (PTCy; 50 mg/kg; referred to as ATG/PTCy), standard-dose ATG (total dose, 10 mg/kg), or a PTCy-based (total dose, 100 mg/kg) regimen for GVHD prophylaxis. The coprimary end points were the cumulative incidence (CI) of grade 2 to 4 acute GVHD (aGVHD) by day 100 & GVHD-free, relapse-free survival at 1 year after transplant. A total of 407 patients were randomized to receive an ATG/PTCy (185 patients), ATG (113 patients), or PTCy (109 patients) regimen for GVHD prophylaxis. By day +100, the CI of grade 2 to 4 aGVHD did not differ significantly among 3 groups (P = .210). Although the overall incidence of chronic GVHD (cGVHD) was comparable across all groups (P = .110), the 2-year CI of moderate-to-severe cGVHD was numerically lower in the ATG/PTCy (17.4%) and ATG (17.3%) groups than the PTCy group (28.3%), without reaching statistical significance (P = .095). No significant differences were observed in OS among the 3 groups. Notably, the CI of neutrophil and platelet recovery was significantly higher in the ATG/PTCy group than in the other groups (P < .001). This trial suggested that the 3 GVHD prophylaxis strategies presented similar efficacy in preventing grade 2 to 4 aGVHD and yielded comparable survival.

A randomized trial of GVHD prophylaxis in haploidentical PBSC transplantation: ATG, PTCy, and low-dose combination therapy

HLA Typing Resolution	Description	Example
Serological	Definition of a specific HLA antigen	HLA-A2 HLA-DQ9
Low	Result from DNA-based methodology predominantly targeting the antigen recognition domain (ARD), but that does not refine further than the first field	HLA-A*01 HLA-DRB1*15
Intermediate	Result from DNA-based testing of regions associated with the ARD often yielding ambiguous testing results. Often includes the use of MAC codes.	HLA-A*43:01/*43:02N HLA-A*02:01/*02:09 = A*02:AF
High	Result from DNA-based testing that resolves HLA alleles that encode the same protein sequence over the ARD, or a set of alleles that encode the same protein sequence for the ARD and excludes expression variants	HLA-A*02:01:02 G = A*02:01: 02:01/ A*02:01:02:02/ A*02: 01:207 DRB1*11:06:01 G = DRB1*11: 06:01/ DRB1*11: 129
Ultra-high	Resolution of all coding DNA sequence variation	HLA-A*01:01:01 HLA_DQB1*05:01:01
Allelic	Definitive HLA typing; single allele definition; Includes coding and non-cding sequence varient resolution	HLA-B*07:02:01:01 HLA-DRB1*10:01:01:01

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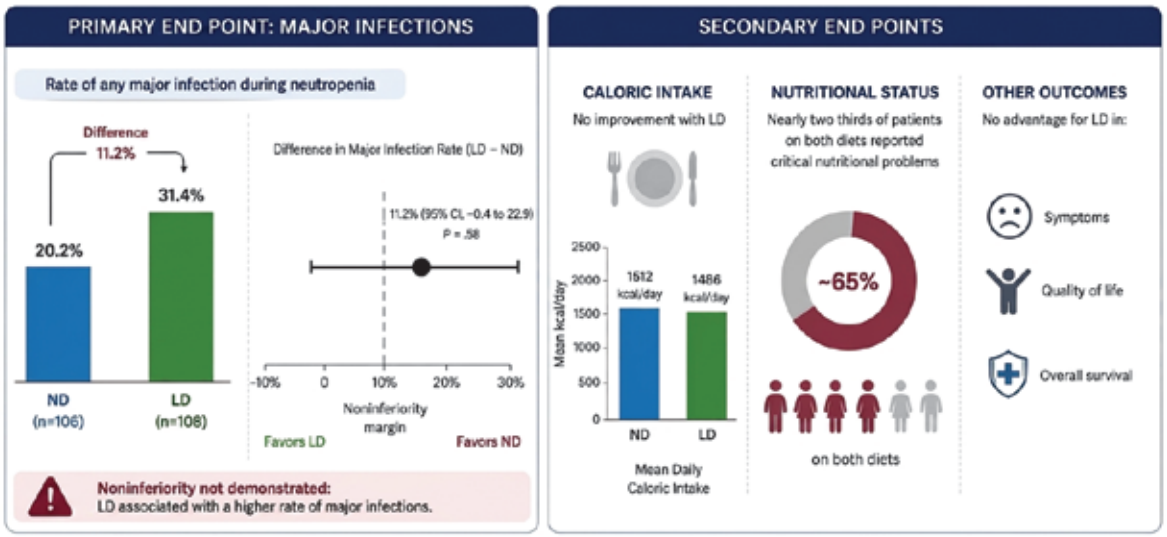
Liberalized vs Neutropenic Diest in HSCT / Acute Leukemia

John R. Wingard, MD et al; J Clin Oncol 44, 300-310(2026); DOI: 10.1200/JCO-25-00889

This randomized phase 3 noninferiority trial compared a liberalized diet (LD, including fresh fruits and vegetables) with the standard neutropenic diet (ND) in patients undergoing HSCT or induction chemotherapy for acute leukemia.

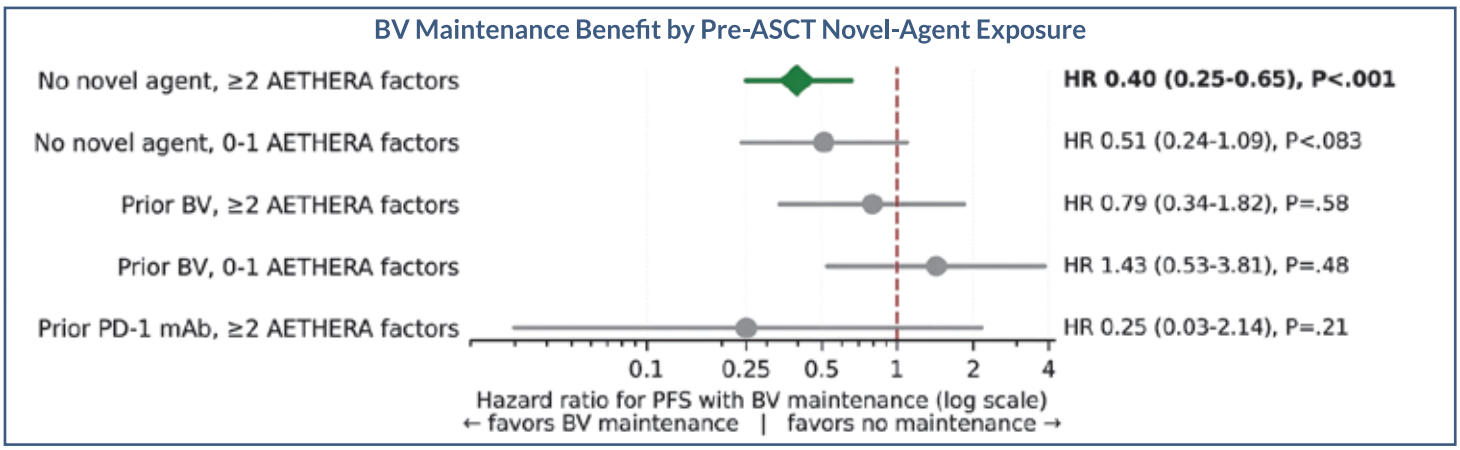
The primary endpoint was major infection during neutropenia, with a noninferiority margin of 10%. The trial was stopped early at the second interim analysis (214 evaluable patients) after the LD arm crossed the prespecified stopping boundary. Major infections occurred in 31.4% of LD patients versus 20.2% of ND patients (difference 11.2%; 95% CI, -0.4 to 22.9; P=.58). LD did not improve caloric intake, nutritional status, symptoms, quality of life, or survival. These findings confirm the neutropenic diet remains the safer standard of care, as liberalized diets raise infection risk without added nutritional benefit.



Impact of novel therapies on the efficacy of post-transplantation brentuximab vedotin maintenance in Hodgkin lymphoma

Falade AS, Redd R, Desai SH, et al. Blood Adv. 2026;10(11):3833-3844. doi.org/10.1182/bloodadvances.2025018683

This propensity-matched study evaluated whether pre-transplant exposure to brentuximab vedotin (BV) or PD-1 inhibitors affects the benefit of post-ASCT BV maintenance in 1,091 patients with relapsed/refractory classic Hodgkin lymphoma. Among 608 matched patients, 3-year PFS and OS were 73% and 95%. BV maintenance improved PFS only in patients naive to novel agents, especially those with 2+ modified AETHERA risk factors (HR 0.40; P<.001). No significant PFS benefit was seen in any subgroup previously treated with BV or PD-1 inhibitors. Patients achieving complete response after PD-1-based salvage had excellent outcomes regardless of maintenance (2-year PFS 100% vs 95%; P>.99). These findings support omitting BV maintenance in patients with prior novel-agent exposure and favorable response.



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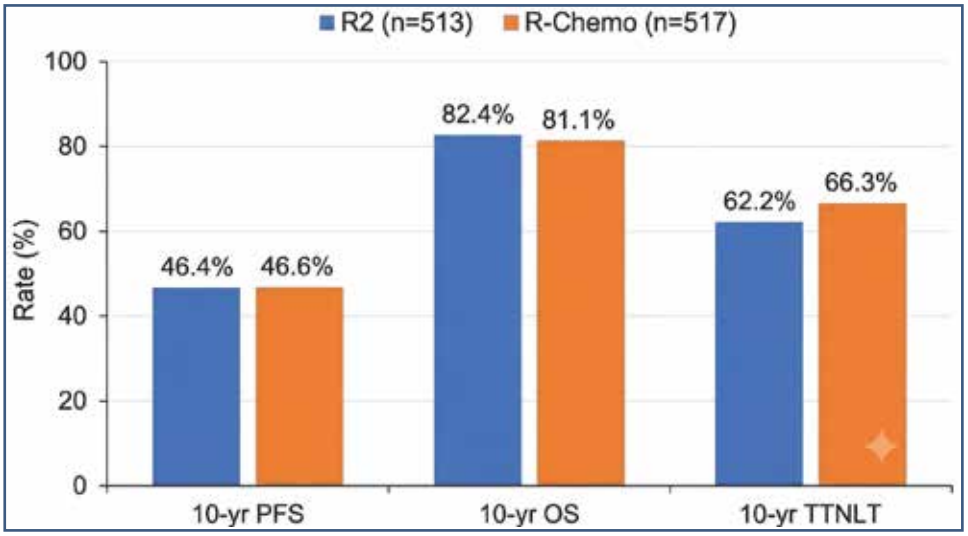
The 10-year RELEVANCE trial analysis: R² vs. Rituximab-Immunochemotherapy in Untreated Advanced Follicular Lymphoma

Gower N, et al; Blood (2026) 147 (25): 3061–3068; https://doi.org/10.1182/blood.2026033126

The 10-year follow-up of the phase 3 RELEVANCE trial confirms lenalidomide plus rituximab (R2) as a durable, chemotherapy-free option for previously untreated advanced follicular lymphoma (FL). Among 1,030 patients randomized to R2 (n=513) or rituximab-based immunochemotherapy (R-Chemo, n=517), long-term outcomes were comparable between arms.

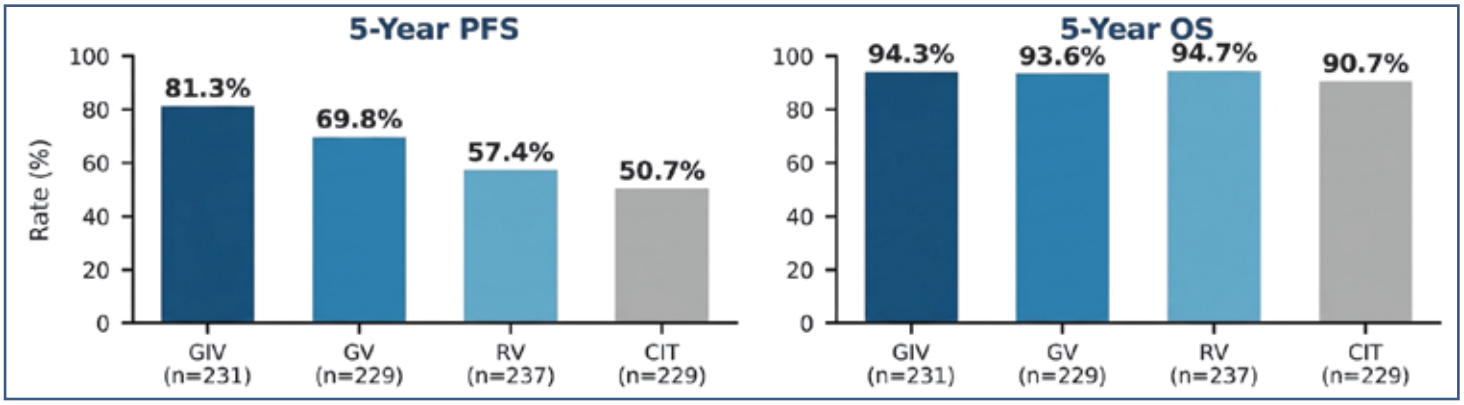


Median progression-free survival was 110.6 months with R2 versus 102.8 months with R-Chemo; 10-year PFS rates were 46.4% and 46.6%. Median overall survival was not reached in either arm; 10-year OS rates were 82.4% (R2) and 81.1% (R-Chemo). Ten-year time-to-next-treatment (TTNLT) rates were 62.2% and 66.3%. Progression of disease within 24 months of first treatment (POD24) predicted poorer prognosis regardless of arm (HR 6.215, P<0.0001). Second primary malignancy incidence was low (2.11/100 patient-years); 87 deaths occurred in each group, mainly from progression or malignancy. R2 remains a valid chemo-free standard for advanced FL.

Venetoclax combinations in untreated CLL: CLL13/GAIA trial – 5-year results

Fürstenau M, Niemann CU, Robrecht R, et al. Blood. 2026;147(25):3025-3038. doi.org/10.1182/blood.2025032160

The phase 3 CLL13/GAIA trial compared three time-limited venetoclax combinations, venetoclax-rituximab (RV), venetoclax-obinutuzumab (GV), and venetoclax-obinutuzumab-ibrutinib (GIV), against chemoimmunotherapy (CIT) in 926 fit, TP53-intact CLL patients. At a median 63.8-month follow-up, 5-year progression-free survival was 81.3% (GIV), 69.8% (GV), 57.4% (RV), and 50.7% (CIT); GV and GIV were superior to CIT and RV (P<.001), and GIV outperformed GV (P=.0046). Five-year overall survival did not differ across arms (90.7%-94.7%). Venetclax-based re-treatment after first-line venetoclax was highly effective, with over 80% two-year treatment-free survival. Severe infections were most frequent with CIT; cardiac events were highest with GIV. GV and RV produced faster, greater quality-of-life gains than CIT, while GIV's benefit was delayed to month 15 due to higher treatment-related symptom burden.



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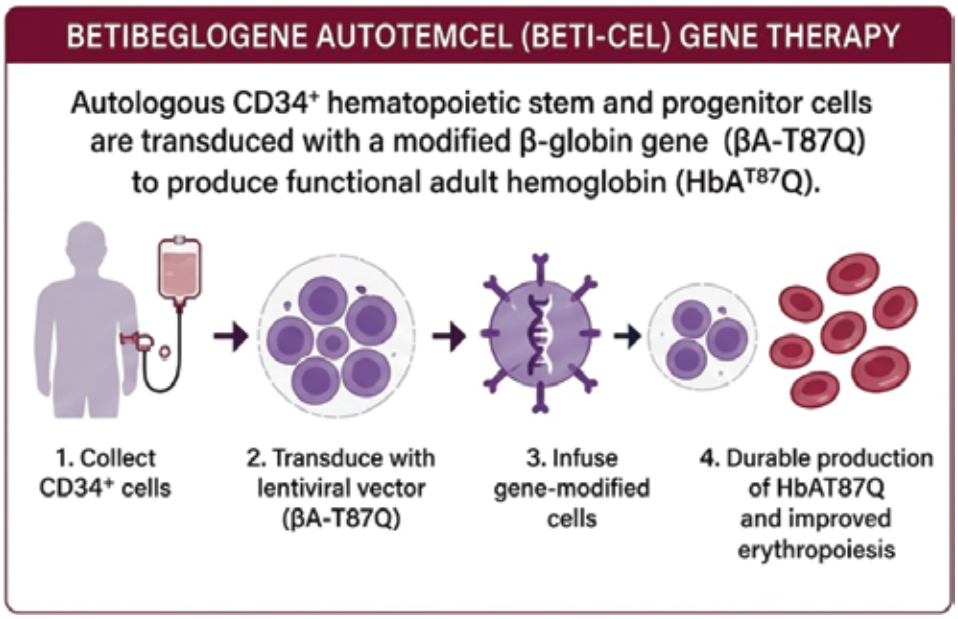
Long-term efficacy & safety results of betibeglogene autotemcel gene therapy for transfusion-dependent β-thalassemia

Kwiatkowski JL, et al. Blood. 2026;147(19):2203-2214. doi.org/10.1182/blood.2025029196 Beti

The 10-year follow-up of the phase 3 RELEVANCE trial confirms lenalidomide plus rituximab (R2) as a durable, chemo-therapy-free option for previously untreated advanced follicular lymphoma (FL). Among 1,030 patients randomized to R2 (n=513) or rituximab-based immunochemotherapy (R-Chemo, n=517), long-term outcomes were comparable between arms.

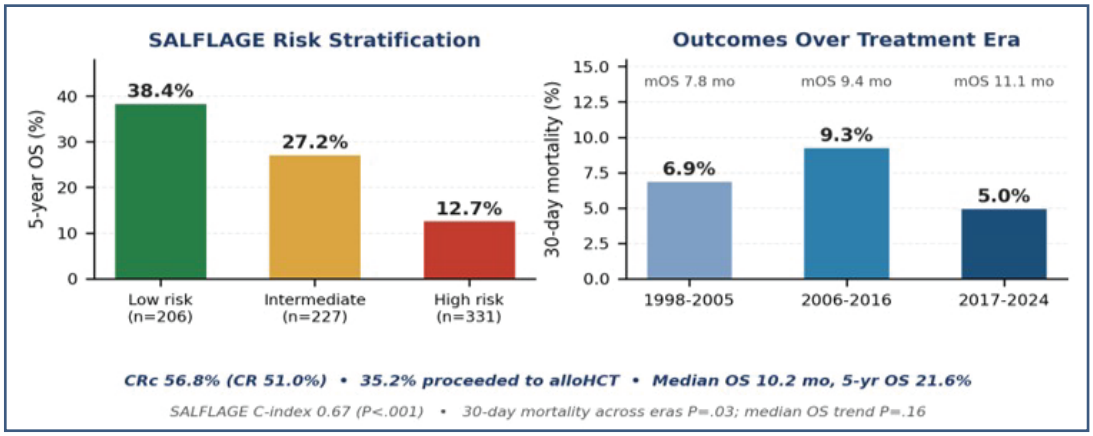
Median progression-free survival was 110.6 months with R2 versus 102.8 months with R-Chemo; 10-year PFS rates were 46.4% and 46.6%. Median overall survival was not reached in either arm; 10-year OS rates were 82.4% (R2) and 81.1% (R-Chemo). Ten-year time-to-next-treatment (TTNLT) rates were 62.2% and 66.3%. Progression of disease within 24 months of first treatment (POD24) predicted poorer prognosis regardless of arm (HR 6.215, P<0.0001). Second primary malignancy incidence was low (2.11/100 patient-years); 87 deaths occurred in each group, mainly from progression or malignancy. R2 remains a valid chemo-free standard for advanced FL.



Real-World Outcomes of FLAG-Ida Regimen in 1079 Adult Patients with First Relapsed/Refractory AML: A PETHEMA Study

Aspas Requena G, Rodríguez-Veiga R, Gil C, et al. Am J Hematol. 2026. doi.org/10.1002/ajh.70340

This PETHEMA real-world study analyzed 1,079 adults with relapsed/refractory AML treated with FLAG-Ida salvage therapy across 112 institutions over 26 years (median age, 52). Complete remission composite was 56.8%, enabling 35.2% of all patients to reach allogeneic transplantation. Median overall survival was 10.2 months, with 5-year OS of 21.6%. Prior transplant and relapse-free interval >=1 year predicted better survival; high-risk cytogenetics, FLT3-ITD, and age >=60 predicted worse survival. The SALFLAGE score showed moderate discrimination (C-index 0.67), separating 5-year survival into 38.4%, 27.2%, and 12.7% risk groups. Outcomes improved over time, with 30-day mortality falling from 6.9% to 5.0% across treatment eras. FLAG-Ida remains a valid reference salvage regimen, and SALFLAGE is validated for risk stratification in this setting.



Learning from New Zealand: Advancing Hemophilia Care Through Global Collaboration

Report by Ms. Hina Fatima

On 29 April 2026, Rawalpindi Medical University (RMU) hosted an educational seminar titled "Hemophilia Care in New Zealand", bringing together healthcare professionals, faculty members, and medical students to discuss international advances in bleeding disorder management. The session was delivered by Dr. Julia Katherine Phillips, Consultant Hematologist at Waikato Hospital, Hamilton, New Zealand.

Dr. Phillips outlined New Zealand's nationally coordinated model of hemophilia care, built around specialized treatment centers, multidisciplinary teams, and close collaboration between healthcare providers and patient organizations. She emphasized that timely diagnosis, continuous support, and patient-centered care are essential for improving long-term outcomes.

A key focus of the seminar was multidisciplinary care. Patients in New Zealand benefit from coordinated input by hematologists, nurses, physiotherapists, dentists, orthopedic surgeons, geneticists, psychologists, and social workers, ensuring that both medical and psychosocial needs are addressed.

HEMOPHILIA
PATIENTS WELFARE SOCIETY
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The session highlighted the importance of advanced laboratory diagnostics, including coagulation testing, inhibitor screening, and genetic analysis, in supporting early diagnosis, family screening, carrier identification, and timely treatment.

Recent therapeutic developments were also discussed. While factor replacement therapy remains central to treatment, newer options such as emicizumab have reduced treatment burden for many patients. Emerging approaches, including gene therapy and novel rebalancing agents, reflect the rapidly evolving landscape of hemophilia care.

Preventive care through prophylaxis and home-based treatment was presented as a cornerstone of modern management, helping reduce hospital visits while improving independence and quality of life.

The seminar also drew attention to women and girls with inherited bleeding disorders, particularly symptomatic carriers who require appropriate care during menstruation, pregnancy, and childbirth. Strong patient support systems, comprehensive follow-up, and coordinated care for surgical and dental procedures were identified as key contributors to better clinical outcomes.

The event was moderated by Ms. Hina Fatima, Research Officer at the Hemophilia Patients Welfare Society Pakistan, and concluded with a shield distribution ceremony recognizing distinguished guests and supporters of hemophilia care initiatives.

By sharing international experience and best practices, the seminar provided a valuable platform for learning and collaboration, highlighting opportunities to strengthen patient-centered hemophilia care in Pakistan.

A Challenging Case of Severe Menorrhagia in Type III von Willebrand Disease

Case Presentation
A 30-year-old female from Rawalpindi with blood group A negative, a rare blood type, was diagnosed with Type III von Willebrand Disease (vWD). She presented with severe menorrhagia, polymenorrhea, symptomatic anemia, & increasing transfusion requirements.

Her bleeding manifestations began at the age of four years with frequent episodes of epistaxis and easy bruising. During her childhood, treatment options for von Willebrand Disease were extremely limited in Pakistan, and specific von Willebrand factor concentrates were not available. As a result, management relied primarily on fresh frozen plasma (FFP), whole blood transfusions, and tranexamic acid to control bleeding episodes.

Menarche occurred at the age of 17 years and was followed by severe heavy menstrual bleeding lasting up to 21 days per cycle. Throughout her reproductive years, menstrual bleeding significantly disrupted her education, social activities and overall quality of life. During menstruation, her hemoglobin frequently dropped to critically low levels, reaching as low as 4 g/dL, necessitating repeated hospital admissions and blood transfusions. Investigations confirmed severe Type III von Willebrand Disease with a von Willebrand factor antigen level of 2.7% (reference range: 60–150%).

Despite hormonal therapy, factor replacement, iron supplementation, and antifibrinolytic treatment, she continued to experience recurrent menorrhagia and symptomatic anemia. On examination, the patient was alert and oriented. Vital signs were stable with a blood pressure of 110/65 mmHg, pulse rate of 98 beats per minute, respiratory rate of 16 breaths per minute, and oxygen saturation of 98% on room air. She appeared markedly pale. There was no jaundice, clubbing, lymphadenopathy, or hepatosplenomegaly. Cardiovascular, respiratory, & abdominal examinations were otherwise unremarkable.

Repeated exposure to blood products over many years resulted in transfusion-transmitted Hepatitis C infection, adding a significant long-term complication to her disease burden. In addition to gynecological bleeding, she experienced recurrent mucocutaneous bleeding and an episode of gastrointestinal hemorrhage in 2026, requiring further transfusion support and factor replacement therapy.
At presentation, she remained dependent on regular von Willebrand factor replacement therapy, hormonal treatment, iron supplementation and blood transfusions for the management of severe bleeding episodes and chronic iron deficiency anemia.

Discussion
This case illustrates the devastating lifelong consequences of severe Type III von Willebrand Disease in a woman living in a resource-constrained setting. The absence of disease-specific therapies during her early years resulted in dependence on plasma products and blood transfusions, exposing her to transfusion-related complications, including Hepatitis C infection.

The combination of severe menorrhagia, recurrent epistaxis, easy bruising, chronic anemia, and repeated hospitalizations profoundly affected her physical health, psychosocial well-being, educational opportunities and quality of life. Furthermore, her rare A negative blood group posed additional challenges in securing compatible blood products during emergency bleeding episodes.

This case emphasizes the importance of early diagnosis, access to specialized coagulation factor concentrates, comprehensive multidisciplinary care, and robust transfusion safety measures for patients with severe inherited bleeding disorders.

Upcoming Hematology Conferences (September–December 2026

Dates	Conference	Venue
9–12 Sep 2026	Society of Hematologic Oncology (SOHO 2026)	Houston, USA
18–19 Sep 2026	NCCN Annual Congress: Hematologic Malignancies	New York, USA (Hybrid)
23–26 Sep 2026	International Myeloma Society Annual Meeting	Glasgow, UK
9–11 Oct 2026	ASH Practice-Changing Updates in Hematology	Rawalpindi, Pakistan (Hybrid)
6–8 Nov 2026	Shaukat Khanum Cancer Symposium 2026	Lahore, Pakistan (Hybrid)
12–15 Dec 2026	American Society of Hematology (ASH 2026)	New Orleans, USA

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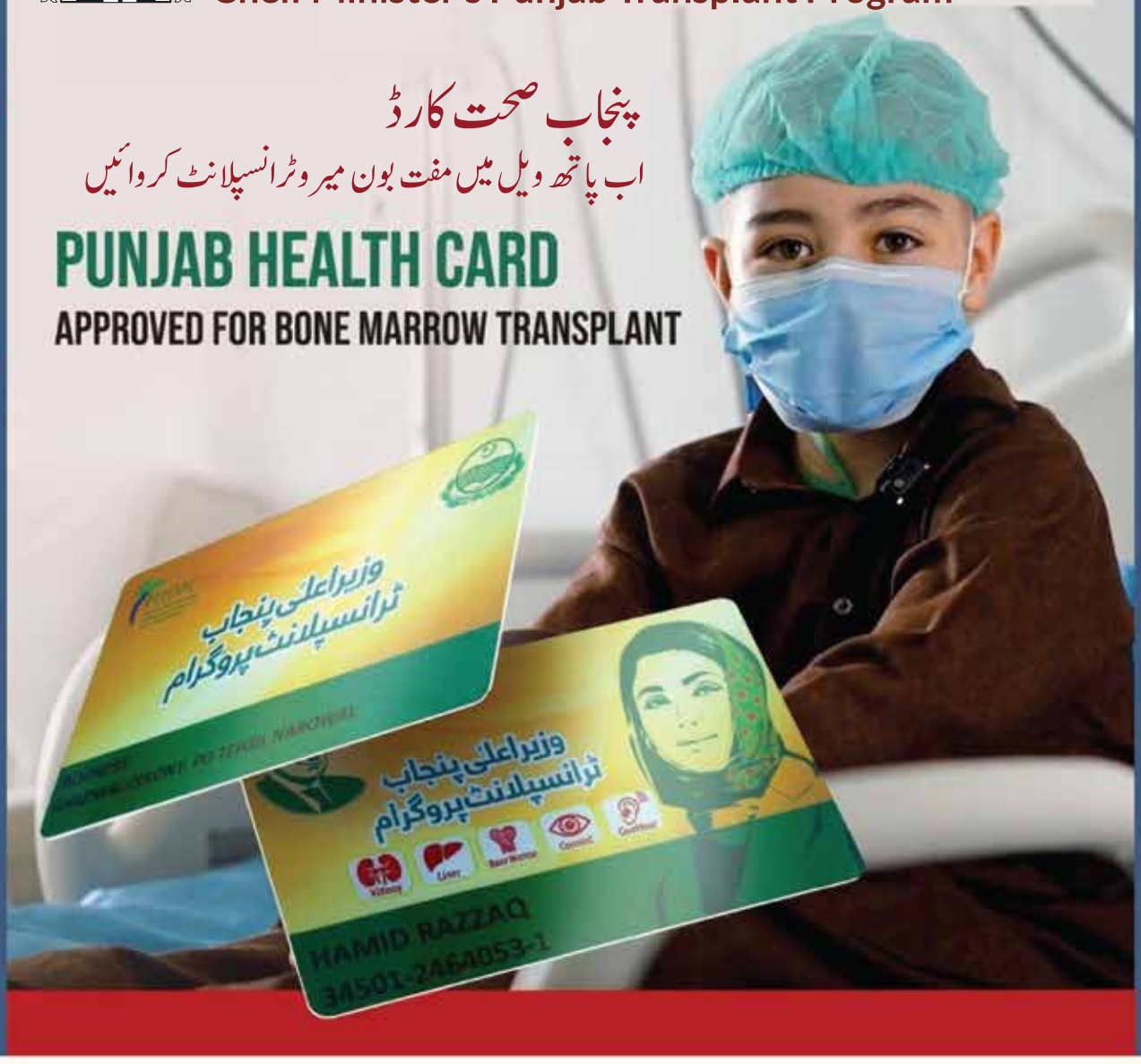
APPROVED FOR BONE MARROW TRANSPLANT



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