Efficacy and Safety of Anti-CD38 Monoclonal Antibodies in Adults with Immune Thrombocytopenia: A Systematic Review and Single-Arm Meta-Analysis

H. ARSHAD[1], M. AFFAN[2], B. TARIQ[3], P. KOTAK[4], M. JAWAD[4], K. BAI[5], H.W. SAQIB[6], M.A. RAZA[2], S. SANI[7], D.K. KURAKU[8]

[1] Sargodha Medical College, Sargodha, Punjab, Pakistan
[2] Ayub Medical College, Abbottabad, Khyber Pakhtunkhwa, Pakistan
[3] Fatima Jinnah Medical University, Lahore, Punjab, Pakistan
[4] Liaquat University of Medical and Health Sciences, Jamshoro, Sindh, Pakistan
[5] People's University of Medicine and Health Sciences for Women, Nawabshah, Sindh, Pakistan
[6] Islamic International Medical College, Rawalpindi, Punjab, Pakistan
[7] KMU Institute of Medical Sciences, Kohat, Khyber Pakhtunkhwa, Pakistan
[8] National Pirogov Memorial Medical University, Vinnytsya, Ukraine

INTRODUCTION

• Persistent or relapsed immune thrombocytopenia (ITP) remains difficult to manage, with some patients having inadequate or non-durable responses to available therapies.

• Long-lived autoreactive plasma cells may continue producing pathogenic antiplatelet antibodies despite B-cell-directed treatment. CD38 is highly expressed on plasmablasts and plasma cells, providing a rationale for CD38-targeted therapy.

• Early studies of CM313, daratumumab, and mezagitamab have shown promising platelet response, but the available evidence has not previously been quantitatively synthesized.

AIM

To evaluate the efficacy and safety of anti-CD38 monoclonal antibodies in adults with ITP.

METHOD

• Design: PRISMA-guided Systematic review and single-arm meta-analysis; PROSPERO CRD420261448457.

• Search: PubMed/MEDLINE, Embase, Scopus, Web of Science, and the Cochrane Library were searched from inception to April 20, 2026.

• Eligibility: Adults (≥18 years) with persistent, chronic, relapsed or refractory ITP receiving anti-CD38 monoclonal antibodies.

• Analysis: DerSimonian-Laird random-effects model; heterogeneity was assessed using the I2 statistic. ROB 2 and JBI tools were used for quality assessment.

CONCLUSIONS

• Anti-CD38 monoclonal antibodies demonstrated promising efficacy with manageable toxicity in adults with persistent, chronic, relapsed or refractory ITP.

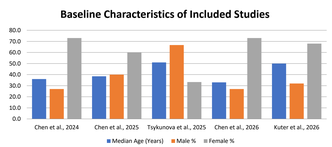
• High overall and platelet response rates were observed, while grade ≥3 treatment-related adverse events were uncommon.

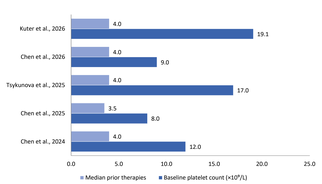
• Larger randomized trials are needed to confirm response durability and establish the role of anti-CD38 therapy in the ITP treatment pathway.

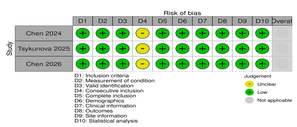
RESULTS

• **Sample Size**: 164 patients from 5 studies

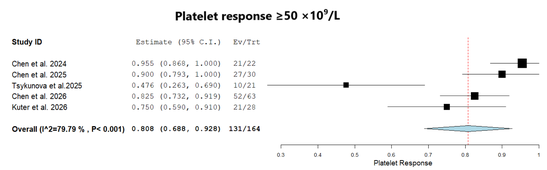
• **Agents Used**: CM313, Daratumumab, and Mezagitamab

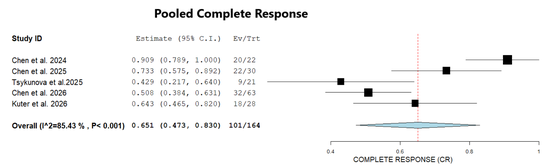


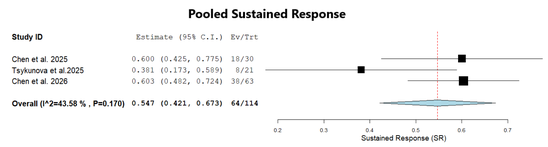




Efficacy Outcomes





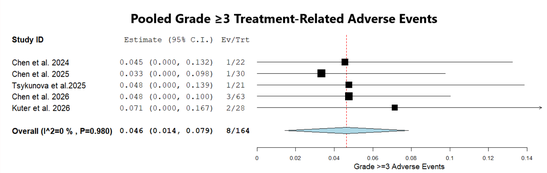


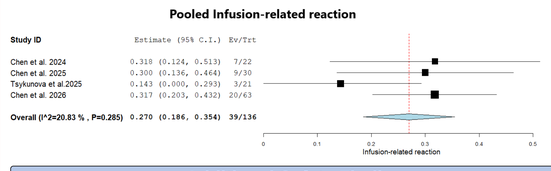
Additional Efficacy Findings

Overall Response Rate (ORR): 89.2% (95% CI 78.8–99.5)

Rescue therapy use: 25.9% (95% CI 12.9–39.0)

Safety Outcomes





Additional Safety Findings

Any Treatment-related Adverse Events: 59.2% (95% CI: 45.2–73.2)

Pooled Upper Respiratory Tract Infection: 16.9% (95% CI: 5.7–28.2)

Key Findings

80.8% Platelet response ≥50 ×10⁹/L

65.1% Complete response

4.6% Grade ≥3 treatment-related AEs

Encouraging efficacy with infrequent severe treatment-related toxicity.

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CONTACT INFORMATION

Heena Arshad, MBBS
Sargodha Medical College, Sargodha, Pakistan
Email: Heenaarshad1234@gmail.com
ORCID: 0009-0003-3136-2872

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