Safety and Effectiveness of Bispecific Antibody Therapy Across the Spectrum of Kidney Function in Relapsed/Refractory Multiple Myeloma

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BACKGROUND

- Bispecific antibodies (BsAbs) have transformed treatment of relapsed/refractory multiple myeloma (RRMM), yet pivotal trials excluded patients with creatinine clearance ≤30 mL/min/1.73 m².
- Teclistamab, talquetamab, and elranatamab are approved BsAbs for RRMM, but real-world data in patients with chronic kidney disease (CKD) remain limited.
- We evaluated whether baseline eGFR impacts overall survival (OS), time to next treatment (TTNT), and safety following BsAb therapy.

OBJECTIVES

- Compare OS at 1, 2, and 3 years across eGFR strata after BsAb therapy
- Evaluate TTNT at 1 year across eGFR strata
- Assess safety profile including CRS, ICANS, AKI, cytopenias, infections, and hypogammaglobulinemia by eGFR category

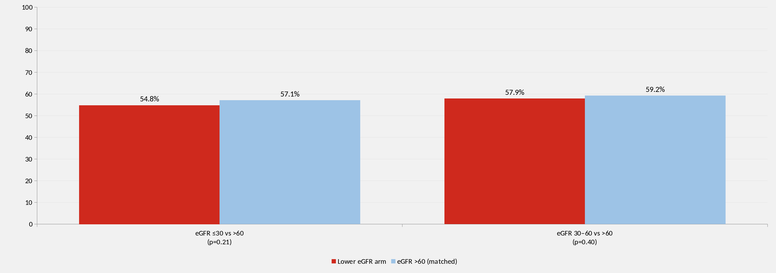
METHODS

- Retrospective propensity score-matched cohort study using **TriNetX** (accessed April 2026)
- Adults with RRMM receiving teclistamab, talquetamab, or elranatamab stratified by eGFR: **≤30, 30–60, and >60 mL/min/1.73 m²**
- Pairwise 1:1 propensity score matching: eGFR ≤30 vs >60 (n=649/arm); eGFR 30–60 vs >60 (n=1,252/arm)
- Covariates balanced: demographics, comorbidities, ECOG status, high-risk cytogenetics, prior transplant, and myeloma therapies
- 97 patients in the eGFR ≤30 cohort required dialysis
- **Primary endpoint:** OS at 1, 2, 3 years; TTNT at 1 year
- **Safety:** CRS, ICANS, AKI at 1 month; grade ≥3 cytopenias, infections, hypogammaglobulinemia at 1, 3, 6 months

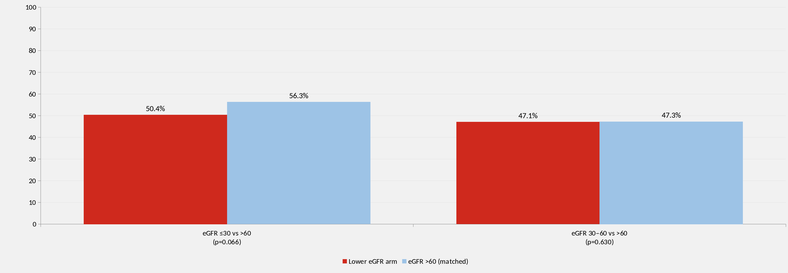
RESULTS

Efficacy Outcomes

Overall Survival at 3 Years



Time to Next Treatment (1-Year)



Safety Outcomes

CRS and ICANS

CRS — eGFR ≤30 vs >60: 16.5% vs 19.9% (p=0.11); 30–60 vs >60: 17.6% vs 20.1% (p=0.10)
ICANS — eGFR ≤30 vs >60: 3.4% vs 4.0% (p=0.56); 30–60 vs >60: 3.0% vs 3.0% (p=0.91)
Rates **comparable** across all eGFR strata

Acute Kidney Injury (1 mo)

eGFR ≤30 vs >60: **33.0% vs 14.0%**; RR 2.35 (**p<0.0001**)
eGFR 30–60 vs >60: **19.9% vs 11.9%**; RR 1.67 (**p<0.0001**)
AKI is the **most consistent safety signal** with lower eGFR

eGFR ≤30 vs >60 (%, lower vs higher eGFR)

Outcome	1 mo	3 mo	6 mo
Anemia	53.5 vs 36.1 (p<0.0001)	57.9 vs 39.2 (p<0.0001)	60.8 vs 41.8 (p<0.0001)
Thrombocytopenia	32.3 vs 25.2 (p=0.0047)	37.0 vs 29.3 (p=0.0032)	39.8 vs 31.0 (p=0.0009)
Neutropenia	23.1 vs 21.1 (p=0.38)	34.1 vs 32.7 (p=0.60)	42.4 vs 40.3 (p=0.43)
Infections	25.8 vs 18.8 (p=0.0027)	36.1 vs 30.2 (p=0.025)	43.4 vs 37.0 (p=0.020)
Hypogammaglobulinemia	26.1 vs 22.4 (p=0.12)	35.2 vs 32.4 (p=0.29)	40.3 vs 37.0 (p=0.23)

eGFR 30–60 vs >60 (%, lower vs higher eGFR)

Outcome	1 mo	3 mo	6 mo
Anemia	37.5 vs 32.7 (p=0.012)	42.7 vs 37.8 (p=0.013)	45.7 vs 41.4 (p=0.030)
Thrombocytopenia	26.8 vs 23.3 (p=0.047)	31.5 vs 27.8 (p=0.040)	33.6 vs 30.1 (p=0.060)
Neutropenia	23.6 vs 23.2 (p=0.85)	34.9 vs 35.0 (p=0.93)	41.9 vs 42.8 (p=0.66)
Infections	20.0 vs 18.0 (p=0.20)	30.4 vs 30.3 (p=0.97)	36.9 vs 37.0 (p=0.93)
Hypogammaglobulinemia	25.2 vs 23.5 (p=0.31)	36.6 vs 35.0 (p=0.38)	40.8 vs 39.7 (p=0.57)

CONCLUSIONS

- Baseline renal impairment did **not adversely impact OS, TTNT, CRS, or ICANS** following BsAb therapy
- Lower eGFR was associated with higher rates of AKI, anemia, thrombocytopenia, and infections, underscoring the need for **intensified renal, hematologic, and antimicrobial surveillance**
- These findings **support use of BsAbs irrespective of kidney function**, with appropriate monitoring