Tocilizumab for Teclistamab-Related Cytokine Release Syndrome: Real-World Survival Outcomes in Relapsed/Refractory Multiple Myeloma

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INTRODUCTION

- **Teclistamab is a bispecific antibody** approved for triple-class–exposed relapsed/refractory multiple myeloma (RRMM) after ≥4 prior lines of therapy, with an overall response rate of ~62–63% in MajesTEC-1
- **Cytokine release syndrome (CRS) is a signature early toxicity** (~72% of teclistamab-treated)
- **Tocilizumab (anti–IL-6R) is the mainstay of CRS management** and reduces recurrent CRS when given for the first event (20.0% vs 62.2%) without compromising response

AIM

- To evaluate whether **tocilizumab use for CRS is associated with overall survival (OS)** among patients with RRMM receiving teclistamab in a large real-world cohort

METHOD

- **Retrospective cohort** study using TriNetX Research Network (155,670,170 patients across 173 healthcare organizations at time of analysis)
- **Population:** adults ≥18 years with RRMM treated with teclistamab who developed CRS.
- **Outcome:** OS estimated by Kaplan–Meier, compared with log-rank testing
- **1:1 propensity score matching** balanced age, comorbidities, and number of prior treatment lines between tocilizumab and non-tocilizumab groups

CONCLUSIONS

- **Tocilizumab use was not associated with a statistically significant difference in OS** after adjustment for key baseline factors
- **Survival was comparable despite higher acuity** in the tocilizumab group, suggesting **no obvious detrimental effect of IL-6 blockade on teclistamab efficacy**
- Findings are **hypothesis-generating** for **prospective** evaluation of **early or prophylactic tocilizumab** to improve CRS management and potentially facilitate outpatient teclistamab delivery

RESULTS

Study Cohort

- 270 patients (mean age 69.4 ± 9.87 years; 154 [57.04%] male) with RRMM received teclistamab -> matched 85 + 85
- Fifteen patients had bone metastases, 78 died, and 263 developed CRS

Characteristic	Tocilizumab (n = 85)	No Tocilizumab (n = 85)
Age at index, mean ± SD, years	68.9 ± 9.7	69.7 ± 10.3
Male sex, n (%)	53 (62.4)	51 (60.0)
White race, n (%)	57 (67.1)	59 (69.4)
Chronic kidney disease, n (%)	27 (31.8)	26 (30.6)
Heart failure, n (%)	20 (23.5)	23 (27.1)
Type 2 diabetes mellitus, n (%)	20 (23.5)	23 (27.1)

Table 1. Selected post-match characteristics among patients with available covariate data

Clinical Acuity Context

- Among patients treated with tocilizumab, markers of acute clinical severity included:

Acute Care Event	Patients
ICU Admission	26
Vasopressor Support	16

Table 2. Markers of acute clinical severity

Overall Survival After 1:1 Propensity-Score Matching

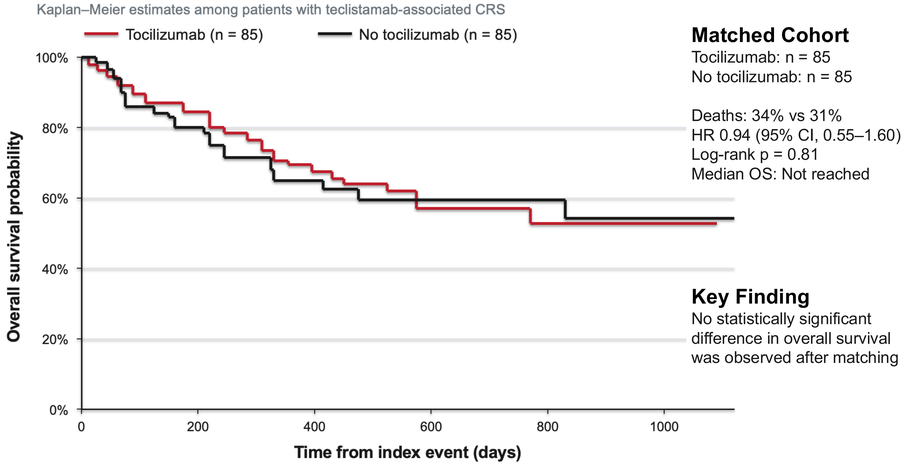

Figure 1. Overall survival after 1:1 propensity-score matching

- In the matched cohort, there were 29 (34%) deaths in the tocilizumab group and 26 (31%) in the non-tocilizumab group
- Median OS was not reached in either matched group during the observed follow-up period, and survival did not differ significantly (HR 0.94, 95% confidence interval 0.55-1.60; p=0.81)

After 1:1 propensity-score matching, tocilizumab use for teclistamab-associated CRS was not associated with a statistically significant difference in overall survival

The wide confidence interval does not exclude clinically meaningful benefit or harm.

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