Facial Palsy Reports With BCMA×CD3 and GPRC5D×CD3 Bispecific Antibodies In Relapsed/Refractory Multiple Myeloma: A FAERS Disproportionality Analysis

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INTRODUCTION

BCMA and GPRC5D are two distinct transmembrane receptor proteins which are often expressed at high levels on the surface of malignant plasma cells.

BCMAxCD3 and GPRC5DxCD3 are bispecific antibodies that engage T-cells to malignant plasma cells; these agents have been approved for refractory/relapsed multiple myeloma (RRMM).

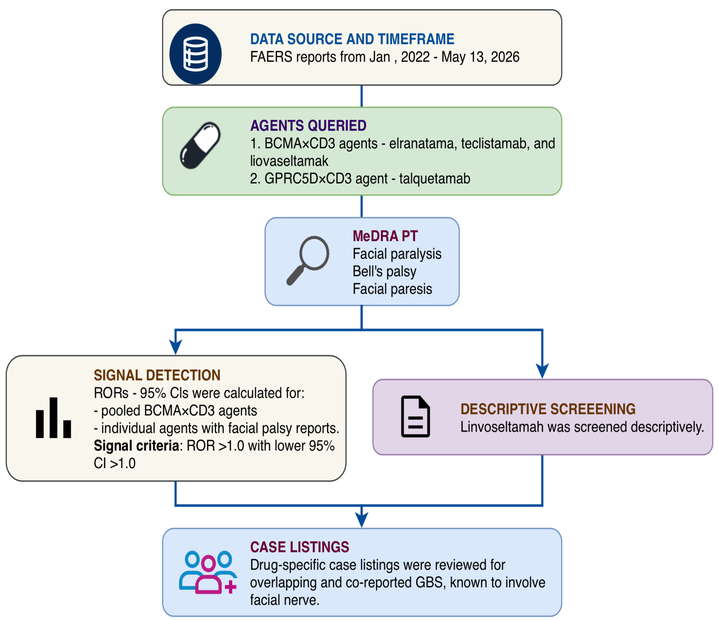
Neurotoxicity, particularly ICANS, is a well-recognized adverse effect secondary to these agents; however facial palsy, as a discrete cranial neuropathy, has not been specifically reported in trial safety data.

A 2024 Elranatamab case series described 3 incidences of lower motor neuron facial palsy preceding severe neurologic toxicity

AIM

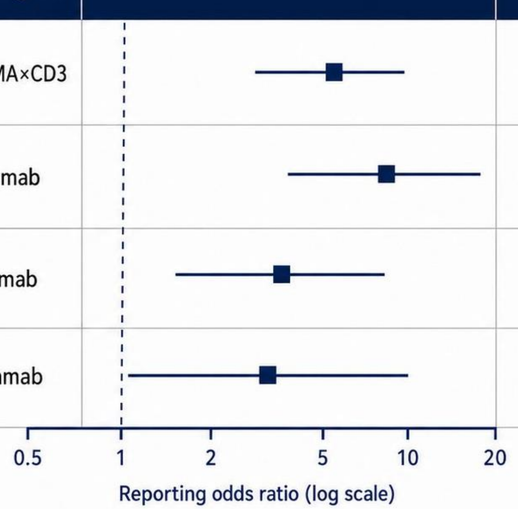
To evaluate facial palsy reporting signals associated with BCMA×CD3 and GPRC5D×CD3-directed bispecific antibodies in the FAERS database

METHODS



RESULTS

Facial palsy reports	Total FAERS reports	Analysis / agent	ROR (95% CI)
14	5,158	Pooled BCMA×CD3	5.42 (3.21–9.17)
8	1,846	Elranatamab	8.58 (4.28–17.20)
6	3,278	Teclistamab	3.61 (1.62–8.05)
3	1,820	Talquetamab	3.25 (1.05–10.10)



Linvoseltamab: 0 facial palsy reports among 34 total FAERS reports.

Signal criterion: ROR > 1.0 with lower 95% CI > 1.0.

Case-level findings

- 17 drug-specific reports
- 16 unique cases after 1 overlapping teclistamab/talquetamab report
- 1 case co-reported Guillain-Barré syndrome (GBS)

CONCLUSIONS

- Facial palsy may represent an underrecognized focal cranial neuropathy with RRMM bispecific antibody therapy, beyond broader ICANS or peripheral neuropathy categories
- Elranatamab demonstrated the strongest signal
- Signals were also detected for Teclistamab and Talquetamab
- No signals were detected for Linvoseltamab
- Limitation: FAERS lacks exposure denominators and causal determination
- These signal-generating findings warrant validation through prospective studies or registries capturing cranial nerve events

REFERENCES

DISCUSSION

Prior FAERS searches identified broad neurologic signals - including ICANS and neurotoxicity - however it did not report facial palsy as a discrete signal; our event-specific analysis therefore refines the neuologic safety phenotype (Zhou et al. 2025).

This FAERS analysis detected facial palsy signals for three of the BCMAxCD3 and GPRC5DxCD3 bispecific antibodies; the strongest signal detected was for Elranatamab, among reports listing it as the sole suspect agent.

An immune-mediated mechanism is plausible: a BCMA CAR-T facial palsy case demonstrated BCMA-directed CAR-T cells in the CSF, together with chemokine and trafficking pathways consistent with neuroinflammation; whether a similar mechanism occurs with bispecific antibodies remains unknown (Kathari YK et al. 2024).

The Talquetamab signal warrants caution or limiting inference that the signal is independent of BCMA targeting; 2 of its 3 facial palsy reports also involved BCMA-directed therapies (Teclistamab or Ciltacabtagene Autoleucel).

Glossary: BCMA, B-cell maturation antigen; GPRC5D, G protein–coupled receptor class C group 5 member D; FAERS, FDA Adverse Event Reporting System; ROR, reporting odds ratio; CI, confidence interval; ICANS, immune effector cell-associated neurotoxicity syndrome.