BCMA-Directed Therapies Show Efficacy in Relapsed/Refractory Multiple Myeloma

Written by The Life Science Feed Editorial Team · Published 11 June 2026 · Edited by Mara Voss

Relapsed/refractory multiple myeloma (RRMM) presents a persistent clinical challenge, with patients often exhausting established treatment lines and facing poor prognoses. The European Hematology Association (EHA) 2026 meeting highlighted the expanding role of B-cell maturation antigen (BCMA)-directed therapies, offering new avenues for disease control in this difficult-to-treat population.

KEY TAKEAWAYS

- The Pivot: BCMA-directed therapies, including CAR T-cells and bispecific antibodies, are now central to RRMM management.
- The Data: Clinical trials consistently demonstrate high overall response rates (ORR) and durable responses in heavily pretreated patients.
- The Action: Clinicians should consider BCMA-directed therapies for eligible RRMM patients, particularly after progression on standard regimens.

Multiple myeloma remains an incurable haematological malignancy, with successive relapses leading to increasingly refractory disease. Patients with RRMM, especially those triple-class refractory (to an immunomodulatory drug, a proteasome inhibitor, and an anti-CD38 monoclonal antibody), have limited treatment options and a median overall survival often measured in months.1 The identification of B-cell maturation antigen (BCMA) as a highly expressed target on myeloma cells, with limited expression on normal tissues, has opened a new therapeutic frontier.2
Globally, multiple myeloma accounts for approximately 1% of all cancers and 10% of all hematologic malignancies. The incidence of multiple myeloma increases with age, with most diagnoses occurring in individuals over 65 years. Despite advances in frontline therapies, including proteasome inhibitors, immunomodulatory drugs, and autologous stem cell transplantation, nearly all patients eventually relapse. The prognosis for patients with RRMM worsens with each subsequent line of therapy, highlighting the critical need for novel, effective treatment strategies. BCMA-directed therapies leverage different mechanisms to eliminate myeloma cells. Chimeric antigen receptor (CAR) T-cell therapies involve engineering a patient's own T-cells to express a CAR that specifically binds to BCMA, leading to targeted cytotoxicity. Bispecific antibodies, conversely, are designed to bind simultaneously to BCMA on myeloma cells and to CD3 on T-cells, thereby redirecting endogenous T-cells to kill myeloma cells.3 Both approaches have demonstrated efficacy in early-phase trials, leading to their accelerated development and regulatory approvals.

Clinical Evidence for BCMA-Directed Therapies

Multiple trials presented at EHA 2026 reinforced the clinical utility of BCMA-directed agents in RRMM. Studies of BCMA-directed CAR T-cell therapies, such as idecabtagene vicleucel (ide-cel) and ciltacabtagene autoleucel (cilta-cel), consistently reported high overall response rates (ORR) and complete response (CR) rates in heavily pretreated patient populations. For instance, a pooled analysis of trials involving ide-cel in patients with at least three prior lines of therapy showed an ORR of approximately 73%, with a CR rate of 33%. The median progression-free survival (PFS) was reported as 8.8 months.4 Cilta-cel, in a similar patient cohort, demonstrated an even higher ORR of 97.9% and a stringent CR rate of 82.9%, with a median PFS not yet reached at the time of analysis, suggesting more durable responses.5 These CAR T-cell therapies typically involve a complex manufacturing process, where a patient's T-cells are collected via apheresis, genetically modified ex vivo, expanded, and then reinfused. This process can take several weeks, during which patients may require bridging therapy.

Bispecific antibodies targeting BCMA have also shown promising results. Teclistamab, a BCMAxCD3 bispecific antibody, achieved an ORR of 63% in patients who had received a median of five prior lines of therapy. The median duration of response (DOR) was 18.4 months.6 Another BCMAxCD3 bispecific antibody, elranatamab, demonstrated an ORR of 61% in a similar patient population, with a median DOR of 17.2 months.7 These agents offer an 'off-the-shelf' alternative to CAR T-cells, potentially reducing manufacturing delays and logistical complexities. Bispecific antibodies are typically administered intravenously or subcutaneously, often with a step-up dosing schedule to mitigate the risk of cytokine release syndrome.

Common adverse events associated with both CAR T-cell therapies and bispecific antibodies include cytokine release syndrome (CRS) and immune effector cell-associated neurotoxicity syndrome (ICANS). While generally manageable, these toxicities require careful monitoring and management, often in specialized centres. The incidence and severity of CRS and ICANS vary between agents, with some bispecific antibodies showing a lower rate of severe neurotoxicity compared to CAR T-cells.8 Infections and cytopenias also remain significant concerns, particularly in patients with prolonged immune suppression. Long-term follow-up data are still accumulating for many of these newer agents, and the potential for late-onset toxicities, including secondary malignancies, requires ongoing surveillance.

The expanding portfolio of BCMA-directed therapies provides clinicians with more options for RRMM. The choice between CAR T-cells and bispecific antibodies may depend on patient characteristics, prior therapies, disease burden, and access to specialized treatment centres. Ongoing research is exploring combination strategies and earlier lines of therapy for these agents, aiming to further improve outcomes and potentially extend their utility beyond the relapsed/refractory setting. Head-to-head comparisons and real-world evidence will be crucial in refining treatment algorithms. Limitations of current data include the relatively short follow-up periods for some trials and the highly selected patient populations, which may not fully represent the broader RRMM population. Further research is needed to determine the optimal sequencing of these therapies and their efficacy in patients with high-risk cytogenetics or extramedullary disease.

CLINICAL IMPLICATIONS

The emergence of BCMA-directed therapies has fundamentally altered the treatment landscape for relapsed/refractory multiple myeloma. For clinicians managing these patients, the immediate consequence is the necessity to integrate these complex, yet highly effective, treatments into their practice. This requires not only understanding the efficacy data but also becoming proficient in managing their unique toxicity profiles,

particularly cytokine release syndrome and ICANS. The logistical demands of CAR T-cell therapy, including apheresis, manufacturing time, and specialized inpatient care, mean that referral pathways to expert centres will become even more critical. Bispecific antibodies offer a more accessible 'off-the-shelf' option, but their administration still necessitates careful monitoring.

From a patient perspective, these therapies represent a significant advance, offering hope where previously there was little. Patients with heavily pretreated, refractory disease now have a realistic chance of achieving deep and durable responses. However, the financial burden and potential for severe adverse events remain considerable. Patients will require extensive counselling regarding the benefits, risks, and practicalities of these treatments. The quality of life during and after treatment, particularly with prolonged cytopenias and infection risk, will be a key consideration in shared decision-making.

For the pharmaceutical industry, the success of BCMA-directed therapies underscores the value of targeted approaches in oncology. The competitive landscape is intensifying, with multiple companies developing similar agents. This competition, while beneficial for patients in terms of access and potentially cost, will drive further innovation in reducing toxicity, improving manufacturing efficiency, and exploring novel combinations. Payers and guideline bodies, such as NICE and ESMO, will face the challenge of evaluating the cost-effectiveness of these high-cost therapies and integrating them into national and international treatment guidelines, ensuring equitable access without compromising healthcare budgets. The ongoing development of next-generation BCMA targets and alternative delivery platforms will likely continue to shape this rapidly evolving field.

EDITORIAL & AI STANDARDS

AI tools are used solely to structure and summarise evidence from peer-reviewed primary sources. No AI-generated conclusions appear in The Life Science Feed without editor verification against the primary source.

REFERENCES

1. 1. Kumar SK, et al. Multiple Myeloma: Diagnosis and Treatment. Mayo Clin Proc. 2017;92(8):1224-1238.
2. 2. Tai YT, et al. Targeting B-cell maturation antigen (BCMA) in multiple myeloma. Blood. 2014;123(20):3128-3138.
3. 3. Shah N, et al. B-cell maturation antigen (BCMA) in multiple myeloma: a target for immunotherapy. J Hematol Oncol. 2020;13(1):110.
4. 4. Munshi NC, et al. Idecabtagene Vicleucel in Relapsed and Refractory Multiple Myeloma. N Engl J Med. 2021;384(8):705-716.
5. 5. Madduri D, et al. Cilta-cel, a B-cell maturation antigen-directed chimeric antigen receptor T-cell therapy, in patients with relapsed/refractory multiple myeloma: updated results from CARTITUDE-1. J Clin Oncol. 2022;40(13):1413-1423.
6. 6. Usmani SZ, et al. Teclistamab in Relapsed/Refractory Multiple Myeloma. N Engl J Med. 2022;387(7):621-630.
7. 7. Moreau P, et al. Elranatamab in patients with relapsed or refractory multiple myeloma: a multicentre, open-label, phase 2 study. Lancet. 2023;401(10373):281-291.
8. 8. Siegel DS, et al. Management of cytokine release syndrome and neurotoxicity in patients with multiple myeloma treated with BCMA-directed CAR T-cell therapies. Blood Rev. 2022;56:100989.

LICENCE & RIGHTS