Dynamic Changes In Bcma Levels: Implications For Assessing Therapeutic Outcomes In Multiple Myeloma

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Abstract

Background: Multiple myeloma is a type of blood cancer characterized by the uncontrolled proliferation of plasma cells in the bone marrow, leading to various clinical challenges. Despite advancements in therapies, such as monoclonal antibodies conjugated to cytotoxic agents, bispecific antibodies, and CAR-T cell treatments, the disease remains largely incurable. The absence of reliable biomarkers beyond paraproteins underscores the necessity for innovative methods to track disease progression in multiple myeloma. B-cell maturation antigen (BCMA) is notably overexpressed on myeloma cells and is also released into the bloodstream as part of the cargo of extracellular vesicles (EVs).

Aims: This research aims to examine the levels of soluble BCMA (sBCMA) and BCMA-expressing EVs in relation to anti-BCMA therapies.

Methods: A total of 20 patients diagnosed with multiple myeloma and receiving anti-BCMA therapy were enrolled in this study. Serum samples were collected before and during treatment. EVs were isolated and purified from these samples, and their BCMA expression levels were analyzed alongside sBCMA using advanced analytical techniques.

Results: The findings showed significant fluctuations in the expression levels of both sBCMA and BCMA-associated EVs throughout anti-BCMA therapy. Initial results indicate that variations in the levels of these biomarkers may correlate with therapeutic responses, suggesting their potential role in monitoring treatment effectiveness.

Summary/Conclusion: The study suggests that assessing circulating BCMA and BCMA-positive extracellular vesicles could be a valuable strategy for evaluating responses to targeted therapies in multiple myeloma patients. However, due to the limited sample size, further investigation is needed to validate these results. Notably, employing novel analytical technologies to study individual vesicles may deepen our understanding and bolster the promising insights derived from this research.

Do you have any conflicts of interest?

No, I do not have a conflict of interest.