Managing Myeloma

First-in-Human Multicenter Trial of CAR-T Cells in RRMM Patients

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Welcome to *Managing Myeloma*. My name is Noopur Raje. I am a Professor of Medicine at Harvard Medical School, and the Director of the Center for Multiple Myeloma at Massachusetts General Hospital in Boston, Massachusetts. Today, I will be reviewing the early results in a first-in-human multicenter study of bb2121, an anti-BCMA CAR T cell therapy for relapsed/refractory multiple myeloma. This is a very exciting trial. It is the first-in-human multicenter effort using a cellular therapy approach in patients who have relapsed/refractory multiple myeloma. The majority of patients included in this study were patients who were refractory to all previous lines of treatment. They had all received a proteosome inhibitor. They had also received an immunomodulatory drug, and a lot of these patients had also received an anti-CD38-based strategy such as daratumumab. We have results on about 21 patients who have been included, and this was a classic phase 1 dose escalation trial wherein the cellular therapy was tested at three different dose levels.

What we found in this very refractory patient population was an overall response rate of 100% in patients receiving more than 50 million of these CAR T-cells directed against anti-BCMA. What was also quite important here was the fact that a very good partial response rate was seen in excess of 70%, with complete response rates of nearly 30%. MRD was evaluated in a subset of these patients, and wherever we were able to evaluate MRD, we saw MRD negativity in four of the patients who were evaluated. Interestingly, given that this is cellular therapy, obviously we wanted to focus on toxicities associated with this. We did see a cytokine response syndrome (CRS) in over 70% of our patients, but the majority of CRS seen in these patients was either grade 1 or 2. There were a couple of patients who had grade 3 CRS and about 3 or 4 of these patients required the anti-IL6 antibody, tocilizumab. As far as CNS toxicity was concerned, we barely saw any CNS toxicity. There was, in fact, no grade 3 or grade 4 CNS toxicity associated with this anti-BCMA CAR T-cell approach.

In conclusion, I think what we have been able to demonstrate is that an anti-BCMA CAR T-cell approach was well-tolerated. We have seen remarkable efficacy in a very refractory patient population, and when you look at the data, we have gone out close to a year now and we have seen maintenance of response in this refractory patient population to close to one year. Thank you for viewing this activity.