

Predictive role of absolute lymphocyte counts in daratumumab-treated patients with multiple myeloma

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Background/Aims: Daratumumab, an IgGκ monoclonal antibody that targets CD38-expressing myeloma cells, has shown a promising antitumor effect in multiple myeloma (MM) patients. Daratumumab also targets immunosuppressive cells that express CD38 and thus results in T-cell subpopulation skewness. This study observes the change of absolute lymphocyte counts (ALC) in daratumumab-treated patients with relapsed/refractory MM (RRMM) and reports its clinical impact.

Methods: Between 2018 and 2021, medical records of RRMM patients treated with daratumumab were reviewed from 10 centers. We collected the value of ALC at pre- and post- of the first infusion of daratumumab, and at post- of the 2nd cycle of daratumumab.

Results: Fifty patients who have administrated at least 2 cycles of daratumumab were included. The average age at the first infusion was 64.5 years (range, 40-86). The median number of treatment cycles of daratumumab was 4.5 (range, 2-25). Twenty-seven patients (46.0%) achieved the treatment response (equal to more than partial response) after two cycles of daratumumab treatment. During the treatment, the value of ALC tended to sharply drop at post- of the first infusion and recovered when 2nd cycle of daratumumab ended (Fig. 1). The estimated cut-off value of ALC at post- of the 2nd cycle based on treatment response was 0.690 (103/ μ L) which was calculated by applying a receiver-operation curve analysis. Patients with more than 0.690 of ALC at post- of the 2nd cycle showed a prolonged progression-free survival (PFS) versus those with 0.690 and less than 0.690 [hazard ratio (HR) 0.36, $p=0.021$] (Fig. 2). In multivariate analysis, revised international staging system (R-ISS), prior use of pomalidomide, and the value of ALC at post- of the 2nd cycle were significantly associated with PFS (R-ISS I,II vs. III, HR 9.405, $p=0.001$; no use vs. use of pomalidomide, HR 3.442, $p=0.014$; ALC < 0.69 vs. ≥ 0.69 , HR 0.237, $p=0.005$).

Conclusions: T cell subpopulation could be altered owing to the off-target effect of daratumumab. Elevated ALC value at post- 2nd cycle of daratumumab could be a significant marker for predicting a prolonged use of daratumumab.

Fig. 1 Trend of ALC at pre- and post- of the first infusion of daratumumab, and at post- of the 2nd cycle of daratumumab according to treatment response.

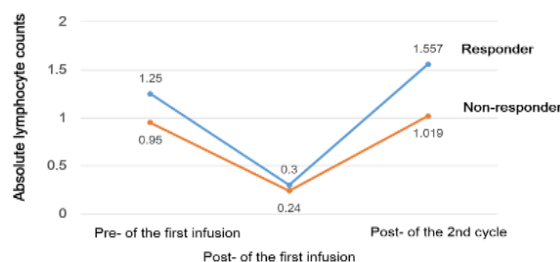


Fig. 2 Progression-free survival according to the value of ALC at 2nd cycle of daratumumab

