HAEMATOLOGICAL CANCER

Anti-BCMA CAR T cells show promise in MM

Despite substantial improvements in the management of patients with multiple myeloma (MM), this disease remains largely incurable, thus new treatment approaches with curative intent are required. Now, data from a first-in-human study investigating anti-B-cell maturation antigen (BCMA) chimeric antigen receptor (CAR) T cells in patients with MM reveal promising effectiveness at the highest doses used.

BCMA is a cell-surface antigen that is normally expressed only by certain types of B cells, including healthy plasma cells, but is not expressed by other malignant or non-malignant tissues; however, BCMA is also uniformly expressed by the malignant plasma cells of most patients with MM. This dose-escalation cohort consisted of 12 patients with MM who had received a median of seven prior lines of therapy. Treatment was commenced at a dose of 0.3×10^6 CAR T cells per kg of body weight, and escalation occurred after 3 consecutive patients had no dose-limiting toxicities.

At the first two dose levels, anti-BCMA CAR T cells were neither effective nor toxic; however, one patient had a very good partial response at the third dose level. Two patients received the maximum dose, and both responded to treatment: one patient had a stringent complete response that lasted for 17 weeks before relapse and the other had an ongoing very good partial response. Both patients had heavily pretreated and resistant disease: 90% and 80% of each patient's bone marrow cells were affected, respectively. Both patients had toxicities suggestive of cytokine-release syndrome, such as fever and hypertension, in addition to prolonged cytopenias. These data indicate a need for further investigation of the clinical effectiveness of anti-BCMA CAR T cells.

Peter Sidaway

“...patients with MM reveal promising effectiveness at the highest doses used”

ORIGINAL ARTICLE Ali, S. A. et al. T cells expressing an anti-B-cell-maturation-antigen chimeric antigen receptor cause remissions of multiple myeloma. *Blood* <http://dx.doi.org/10.1182/blood-2016-04-711903> (2016)