CAR-T CELL THERAPY FOR REFRACTORY DLBCL COMPLICATED WITH AIHA

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Case Report: The case is a man in his 60s. In 200X, he was found to have examination abnormalities including pancytopenia, high LD levels, and elevated serum sIL-2R, leading to a pathological diagnosis of CD5 positive diffuse large B-cell lymphoma (DLBCL) by bone marrow aspiration and biopsy. Positron Emission Tomography-Computed Tomography (PET-CT) revealed accumulation in the whole-body including bones and splenomegaly, presenting high tumor volume. The R-CHOP therapy and chemotherapy aimed at preventing central nervous system infiltration were administered, achieving the first metabolic complete remission (CMR). Due to early relapse identified 12 months later in 200(X+1), he was transferred to our hospital, where it was discovered that he had developed autoimmune hemolytic anemia (AIHA) based on hemolytic findings, low haptoglobin, and a positive direct Coombs test. Salvage chemotherapy was initiated, achieving a second CMR, leading to the administration of autologous peripheral blood stem cell transplantation (auto-SCT) combined with high-dose chemotherapy. However, a second early relapse was recognized 6 months after auto-SCT in 200(X+2). He was referred to Kyushu University Hospital for CAR-T cell therapy, and since abnormal cells were found in peripheral blood, sufficient tumor reduction was performed using prednisolone, rituximab, and cyclophosphamide before meeting the criteria for Tisagenlecleucel (Tisa-cel), which was followed by lymphocyte apheresis. As a bridging therapy, a total of three courses of chemotherapy utilizing polatuzumab vedotin, rituximab, and bendamustine were conducted, achieving a third CMR. After lymphocyte-depleting therapy with fludarabine and cyclophosphamide, Tisa-cel was infused. Although grade 1 cytokine release syndrome was observed, treatment-related complications such as immune cell-related neurotoxicity syndrome were not noted. Moreover, the continuity of the third CMR was confirmed. Regarding AIHA, low haptoglobin was noted after subsequent relapses, but it was confirmed that haptoglobin returned to normal levels on day 132 of laboratory tests.
Discussion: The effectiveness and safety of CAR-T cell therapy are being investigated in clinical trials as a strategy to achieve drug-free remission in the treatment of autoimmune diseases. In our case, AIHA associated with DLBCL was observed, but due to disease control with Tisa-cel, no hemolysis or renal impairment was noted.