Cytokine release syndrome (CRS) is a potentially life-threatening complication that can occur following certain medical treatments, including CAR-T cell therapy. CRS is caused by the release of large amounts of cytokines (proteins that regulate the immune response) into the bloodstream, leading to a systemic inflammatory response.

In the context of CAR-T cell therapy, CRS can occur when the engineered T cells recognize and attack cancer cells, leading to the release of cytokines as a result of the immune response. This can cause symptoms such as fever, low blood pressure, respiratory distress, and organ dysfunction.

The severity of CRS can vary from mild to severe, and in some cases, it can be fatal. Treatment for CRS may involve supportive care, such as oxygen therapy and fluids to maintain blood pressure, as well as medications to manage inflammation and immune reactions. In some cases, more intensive therapies, such as corticosteroids, may be necessary to manage severe CRS.

Preventing CRS is an active area of research, and strategies such as adjusting the dose of CAR-T cells and using medications to control the immune response are being studied. Additionally, early recognition and prompt treatment of CRS are essential for minimizing the risk of serious complications.