Patients with acute myeloid leukemia who receive a stem cell transplant from a donor with activating killer-cell immunoglobulin-like receptor genotype KIR2DS1, which has ligand specificity for human leukocyte antigen-C2 antigen, have a lower rate of relapse, according to a study published in the Aug. 30 issue of the New England Journal of Medicine. (HealthDay)—Patients with acute myeloid leukemia who receive a stem cell transplant from a donor with activating killer-cell immunoglobulin-like receptor (KIR) genotype KIR2DS1, which has ligand specificity for human leukocyte antigen (HLA)-C2 antigen, have a lower rate of relapse, according to a study published in the Aug. 30 issue of the New England Journal of Medicine.

Jeffrey M. Venstrom, M.D., from the Memorial Sloan-Kettering Cancer Center in New York City, and colleagues reviewed data from 1,277 patients with acute myeloid leukemia who had received an allogeneic hematopoietic stem-cell transplant from an unrelated donor. They performed genotyping of KIR and assessed the clinical impact of donor KIR genotype.

The researchers found that the relapse rate was significantly lower for patients whose donors were positive for the KIR2DS1 genotype (hazard ratio, 0.76). This effect appeared to be mediated through HLA-C, with significant protection observed from donors homozygous or heterozygous for HLA-C1 antigens (rate of relapse, 24.9) but not those homozygous for HLA-C2 antigens (rate of relapse, 37.3 percent; hazard ratio [HR], 0.46). In those with a mismatch at a single HLA-C locus, the relapse rate was significantly lower if the donor was positive for KIR2DS1 (HR, 0.40). The KIR3DS1 genotype in positive genetic linkage disequilibrium with KIR2DS1 was associated with significantly lower mortality (HR, 0.83).

"Activating KIR genes from donors were associated with distinct outcomes of allogeneic hematopoietic stem-cell transplantation for acute myeloid leukemia," Venstrom and colleagues conclude.

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