Important NK and KIR effects in HCT

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Natural killer (NK) cells lyse malignant target cells and release immunologically potent cytokines. They are regulated by balanced stimulation from both activating and inhibitory receptors, predominantly Killer Immunoglobulin-like receptors (KIR). KIR interactions are the primary regulators NK function and reconstitution of NK activity after allogeneic hematopoietic cell transplantation (HCT). KIR donor and recipient interactions can directly influence clinical HCT outcomes. Donors with favorable (generally activating) KIR haplotypes have been associated with protection against relapse following allografts for AML and other diseases. As transplant techniques change, reanalysis has focused further attention on whether KIR immmunogenetic features should guide donor selection. Recent updated analyses confirm favorable relapse protection using KIR B haplotype donors for unrelated donor HCT in AML. Notably, in the most modern series, the favorable effect was seen only following reduced intensity conditioning.
Donor KIR haplotype and genotype identification may still be advised as it has consistently (over numerous analyses including thousands of patients) been shown to reduce relapse risks and improve leukemia free survival. While further study is needed, these genetic elements consistently improve the outcome of transplantation and should not be ignored.