
From Berlin to London: HIV-1 Reservoir Reduction Following Stem Cell Transplantation.

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Public Summary:

PURPOSE OF REVIEW: Few interventional strategies lead to significant reductions in HIV-1 reservoir size or prolonged antiretroviral (ART)-free remission. Allogeneic stem cell transplantations (SCT) with or without donor cells harboring genetic mutations preventing functional expression of CCR5, an HIV coreceptor, lead to dramatic reductions in residual HIV burden. However, the mechanisms by which SCT reduces viral reservoirs and leads to a potential functional HIV cure are not well understood. **RECENT FINDINGS:** A growing number of studies involving allogeneic SCT in people with HIV are emerging, including those with and without transplants involving CCR5(Delta32/Delta32) mutations. Donor cells resistant to HIV entry are likely required in order to achieve permanent ART-free viral remission. However, dramatic reductions in the HIV reservoir secondary to beneficial graft-versus-host effects may lead to loss of HIV detection in blood and various tissues and lead to prolonged time to HIV rebound in individuals with wild-type CCR5 donors. Studies of SCT recipients and those who started very early ART during hyperacute infection suggest that dramatic reductions in reservoir size or restriction of initial reservoir seeding may lead to 8-10 months of time prior to eventual, and rapid, HIV recrudescence. Studies of allogeneic SCT in people with HIV have provided important insights into the size and nature of the HIV reservoir, and have invigorated other gene therapies to achieve HIV cure.

Scientific Abstract:

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