T cell-based HIV gene therapy safe over long term

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(HealthDay) -- T cell-based gene therapy for HIV seems safe, with no evidence of vector-induced cell immortalization more than a decade after treatment, according to a study published in the May 2 issue of *Science Translational Medicine*.

John Scholler, from the University of Pennsylvania Perelman School of Medicine in Philadelphia, and colleagues performed a follow-up of HIV-infected patients who had received gene therapy consisting of T cells engineered with CD4 linked to the CD3ζ signaling chain as part of three clinical trials at least eleven years earlier.

The researchers found that the engineered T cells were still detectable in 98 percent of samples, with no evidence of vector-induced

immortalization. There was no evidence of persistent clonal expansion or enrichment for integration sites near genes implicated in transformation or growth control. The modified cells were stably engrafted, with a half-life of at least 16 years, and remained functional.

"Our results emphasize the safety of T cells modified by retroviral gene transfer in clinical application, as measured in >500 patient-years of follow-up," Scholler and colleagues conclude. "Thus, previous safety issues with integrating viral vectors are hematopoietic stem cell or transgene intrinsic, and not a general feature of retroviral vectors."

One author is employed by Celgene; another author disclosed working as an advisor and clinical investigator for biopharmaceutical companies.

More information: Abstract
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