Can Viruses Help Treat Cancer?

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It’s well known that some viruses can cause cancer—but others are cancer killers. Oncolytic viruses both destroy cancer cells directly and promote immune responses against tumors—an approach known as immunovirotherapy. G207 is an engineered form of herpes simplex virus type 1—the virus that causes cold sores—that’s been modified so that it only infects cancer cells while leaving normal cells unharmed.

A Phase I study presented at the American Association for Cancer Research annual meeting enrolled 12 pediatric patients ages 7 to 18 years old with high-grade glioma brain tumors. Gliomas are so-called cold tumors that don’t provoke a strong immune response. The participants received a single infusion of G207 administered into the brain through a catheter; half also received a small dose of radiation.

Eleven of the children experienced tumor shrinkage or clinical improvement. The median overall survival time was 12.2 months—more than twice the expected duration for untreated patients—and four were still alive 18 months or more after treatment. What’s more, they showed strong local immune responses, with an increase in cancer-fighting T cells.

“This treatment can transform immunologically ‘cold’ pediatric high-grade gliomas with very few immune cells into ‘hot’ tumors with an abundance of immune cells, which is a critical step in the development of effective immunotherapy for children with brain tumors,” says Gregory Friedman, MD, of the University of Alabama at Birmingham.

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