

Can We Silence The Genes That Cause Heart Attacks?

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You've heard about those young, ultra-fit people who suddenly have a heart attack. The 48-year-old guy who runs marathons, eats healthy, and never smoked a day in his life drops dead on a run one day. The 63-year-old woman whose very first symptom of any heart trouble is sudden cardiac death.

As a physician, I hear these stories all too often. If you have a family history of premature heart disease or early heart attacks, we can offer some insight by performing a blood draw to measure your lipoprotein(a)—also known as Lp(a)—which indicates a higher risk for heart disease and stroke. But even you have high levels of Lp(a), as 20-25 percent of people in the world likely do, there's not much to be done besides continued screening and ensuring risk factors, such as your “bad” cholesterol, are well managed. My patients who are committed to good health tend to be proactive types, so that's a hard pill to swallow.

At Cleveland Clinic, we ran a clinical trial to see if we could “silence” the gene responsible for Lp(a) production. In the trial, participants who received higher doses of SLN36—a small interfering RNA therapeutic that silences the gene responsible for making Lp(a)—saw their Lp(a) levels drop by as much as 96-98 percent. Five months later, their levels remained 71-81 percent lower than baseline.

The treatment is still undergoing testing, but the preliminary findings from that first trial are exciting! If this medication is approved, it would open up a world of opportunity for so many people. For example, let's say you have a family history of heart disease and you have one comorbidity, maybe you struggle with anxiety and depression. But overall you're a healthy, active person. Because of your family history, you get a blood test to measure your Lp(a) levels, which turn out to be high. You would make a great candidate for this gene silencing treatment.

Until now, we've mostly seen gene silencing therapy in the arena of cancer treatment and prevention. But now we're starting to see immense potential in other areas of health, and it's opening up lifesaving treatments in situations where before no one knew what to do. It's a thrilling time to be in medicine, especially at an outstanding academic research institution like the one where I am privileged to work.

Healthnetwork Foundation connects business leaders to the world's best health specialists and creates customized medical philanthropy opportunities. For more information, contact Healthnetwork President, Megan Frankel at mfrankel@healthnetworkfoundation.org