There's hope for a breast cancer vaccine

By Jonathan LaPook

Cancer kills about 570,000 Americans each year, but there's hope that an experimental treatment could bring those numbers down.

The idea is to train the body's own immune system to fight the disease, and if it works, it might be a way to prevent cancer from occurring at all.

Dr. Jon LaPook reports that one of the first patients to receive it, 47-year-old Karen Gentile, was diagnosed with breast cancer four months ago. At the time, the Pennsylvania mother of two faced the biggest decision of her life: Whether to delay the surgery and try an experimental vaccine.

More information about the early breast cancer vaccine study

"You wish you had a crystal ball to figure out what's the best route to go so you don't have a recurrence. My husband kept saying if you don't do this, you're cutting yourself short," Gentile said.

New cancer treatment reprograms immune system

Gentile had an early form of breast cancer called DCIS; It's confined to the milk ducts, but her type is aggressive and likely to recur. The therapy could lead to a cure. But signing the consent form - with its list of risks - scared her.

"I just kept thinking, what if something bad happens down the road? All those emotions and thoughts were going through my mind for many weeks as I was trying to decide what to do," Gentile said.

More about immunity vaccines from the Mayo Clinic

Gentile is one of the first women in the world to get a DCIS breast cancer vaccine. Her husband John joined her when she went for the painful shots. Her hope is that the vaccine may not only treat cancer, but one day stop it from occurring in the first place.

"I hope it does come to that, that there is a vaccine - that people can be vaccinated against breast cancer and they'll never have to make some of these decisions," Gentile said.

Here's how it works: the immune system often doesn't attack deadly cancer cells because they look so similar to normal tissue. They're basically invisible. To make the vaccine, white blood cells are taken from a patient and engineered to recognize breast cancer proteins. Once injected into the patient, these cells help the immune system identify and attack the tumor.

"It may change the way we think about and treat DCIS," said Dr. Brian Czerniecki.

A University of Pennsylvania researcher, Czerniecki is leading this first-ever DCIS vaccine study.

When he first looked under the microscope and saw the immune system was actually destroying the cancer cells, Czerniecki said it was "one of those 'ah ha!' moments where you look at it and you say, 'Wow! This is really doing what we thought it was going to do.'"

The hope is to teach the immune system to stand guard against a recurrence.

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"They're watch dogs for the body and they will protect anywhere they see a problem with the cancer proteins coming back," Czeniecki said.

Next month, Karen Gentile will have a lumpectomy and will find out if the vaccine is starting to work. She has no regrets about taking some risk for a dream.

Gentile said she hopes "that I am cancer free and that I won't have a re-occurrence and have to deal with this ever again."

All optimism aside, there have been a good number of cancer vaccine failures. But the hope is using these vaccines a lot earlier will lead to more successful results. More than 200 cancer vaccine trials are underway in brain, lung, pancreatic cancers; namely those, that have been hardest to treat.

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