

# Jefferson scientists studying the effects of high-dose vitamin C on non-Hodgkin lymphoma patients

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## **Vitamin C's low toxicity lends high hopes to pioneering study**

Scientists at Thomas Jefferson University Hospital and Jefferson's Kimmel Cancer Center have received approval for a first-of-its kind study on the effect high dose vitamin C has on non-Hodgkin lymphoma patients. Researchers from the Jefferson-Myrna Brind Center of Integrative Medicine and Kimmel Cancer Center in conjunction with the National Institutes of Health will study whether high doses of vitamin C can slow the progression of the deadly disease.

“This is a very unique study for a set of patients who have really run out of options,” said Daniel Monti, M.D., director of the Myrna Brind Center of Integrative Medicine, and primary investigator of the study.

“Vitamin C administered intravenously has shown great promise in the laboratory and there has been some anecdotal data in cancer patients, but no one has really ever run a detailed study on humans. Vitamin C doesn't cost much and is very low in toxicity, making it a particularly desirable agent for further study.”

Recent research conducted by the NIH collaborators of this study has shown that when given in sufficient amounts intravenously, vitamin C converts to hydrogen peroxide. When applied to certain non-Hodgkin lymphoma cells in the laboratory, the converted hydrogen peroxide kills them while leaving the surrounding healthy cells intact.

“Previous human studies have been flawed because the vitamin C was given orally versus intravenously,” said Monti. “The problem with that is the oral route tightly limits the amount of vitamin C that can get into the bloodstream. When vitamin C is given intravenously you can get up to 70 times more of the vitamin into the blood versus the same dose given orally. It is these high blood levels that are required to get the mechanism of action, vitamin C converting to hydrogen peroxide around the cancer cells, to occur. Although other cancers could be a contender for this intervention, the preliminary data on non-Hodgkin lymphoma cells is why we decided to start with this disease.”

The study will begin with 20 non-Hodgkin lymphoma patients who have failed standard therapy. Each study participant will be given varied intravenous doses of vitamin C three times a week. The patients will be evaluated and monitored for progression of their disease. The study’s goals are to show diminished progression of the disease in participating patients.

“As leaders in the field of integrative medicine, Jefferson is always seeking new and innovative therapies for our patients,” concluded Monti. “We want to look in every corner for solutions. This study is a unique collaboration of several clinical and research specialists. If this study yields positive data we will do further studies to expand the availability of this intriguing therapy.”

Source: Thomas Jefferson University

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