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Study shows vitamin E may decrease cancer risk in Cowden syndrome patients

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Cleveland Clinic researchers have discovered that vitamin E may prevent cancer in patients with an under-recognized genetic disorder.

Several genetic mutations are known to be present in Cowden Syndrome (CS) – a disease that predisposes individuals to several types of cancers, including breast and thyroid cancers. One type of mutation in the succinate dehydrogenase (SDH) genes may be responsible for cancer development, according to research by Charis Eng, M.D., Ph.D., Hardis Chair and Director of the Genomic Medicine Institute and Director of its Center for Personalized Genetic Healthcare at Lerner Research Institute, published today in Clinical Cancer Research.

Dr. Eng discovered that mutations in SDH genes, responsible for energy production, result in an accumulation of reactive oxygen species (ROS). These changes damage the cells and make them resistant to apoptosis – our bodies' natural method of weeding out cancerous cells.

However, when vitamin E was applied to the mutant cells, ROS accumulation decreased, as well as the accompanying cellular damage.

"These findings support the notion that vitamin E may be useful as an anti-cancer therapeutic adjunct or preventive agent, especially for CS patients harboring SDH mutations, and its protective properties should be further explored," said Dr. Eng.

CS predisposes individuals to several types of cancers – an 85 percent

lifetime risk of breast cancer, a 35 percent risk for epithelial thyroid cancer, and increased risk of other cancers as well. Approximately one in 200,000 people are affected by CS.

Provided by Cleveland Clinic