Heart medication converts cancer cells into vaccine

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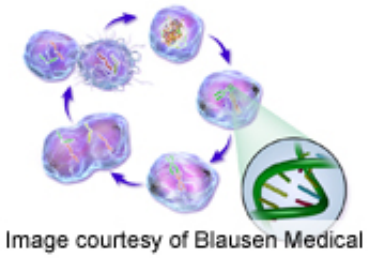

Image courtesy of Blausen Medical

A class of heart medications, cardiac glycosides, can induce immunogenic cell death, whereby dying cancer cells are converted into a vaccine that stimulates antitumor response, according to a study published in the July 18 issue of *Science Translational Medicine*.

(HealthDay) -- A class of heart medications, cardiac glycosides, can induce immunogenic cell death (ICD), whereby dying cancer cells are converted into a vaccine that stimulates antitumor response, according to a study published in the July 18 issue of *Science Translational Medicine*.

Laurie Menger, from INSERM U848 in Villejuif, France, and colleagues developed and used an automated epifluorescence microscopy-based platform to identify inducers of ICD.

The researchers found that cardiac glycosides were potent inducers of ICD, and this effect correlated with inhibition of plasma membrane sodium and potassium-dependent adenosine triphosphatase. Their anti-

cancer effect was observed in combination with DNA-damaging agents only in immunocompetent mice, and cancer cells treated with chemotherapy and cardiac glycosides were effective as a vaccine in mice challenged with live cancer cells of the same type. In addition, a retrospective analysis of 145 cancer patients treated with a cardiac glycoside and 290 cancer patients who did not receive the drug showed improved five-year survival in patients treated with the cardiac glycoside (hazard ratio, 0.62).

"It will be interesting to determine the ICD-inducing capacity of large collections of cytotoxic agents to identify new drugs that elicit an immunological bystander effect," Menger and colleagues write. "Moreover, in the pipeline of drug discovery, it might be advisable to decide on the clinical development of compounds that share target and mechanism of action based on their (perhaps differential) ICD-stimulatory capacity."

Several of the authors hold a patent related to the study.

More information: Abstract
Full Text (subscription or payment may be required)