Milk thistle hits prostate cancer two ways

April 23 2012

(Medical Xpress) -- Tumors are gluttons – in order to fuel their astounding growth rate they must gorge. A University of Colorado Cancer Center study recently published in the journal PLoS One pinpoints the compounds derived from milk thistle that best kill cancer cells directly and restrict tumors' ability to grow the new blood vessels they need to import this massive food supply.

There are four "isoforms" of silibinin. Gagan Deep, PhD, CU Cancer Center investigator and research assistant professor in the Skaggs School of Pharmacy and Pharmaceutical Sciences tested the effectiveness of each.

In his study, mice who were orally fed Isosilybin B at 50 or 100 mg/kg body weight had much lower tumor volumes than untreated mice and significantly lower tumor volumes than mice treated with the other three

isoforms of silibinin. This Isosilybin B most effectively killed cancer cells directly.

But directly targeting cancer cells isn't the only way to restrict tumor growth. Also important is a tumor's ability to grow new blood vessels that import food. The body lines blood vessels with endothelial cells and "while Isosilybin B was most effective towards prostate cancer cells it was least effective towards endothelial cells," Deep says. "On the other hand, Silybin A showed highest efficacy towards endothelial cells."

Now the group plans to test a mixture of these two strongest isoforms -- Silybin A and Isosilybin B -- expecting that B will target the tumor and A will target its ability to grow new blood vessels. "We hope to find a synergistic effect between these two, promising compounds," Deep says.

Importantly, all isoforms of silibinin act against cancer cells without harming healthy cells -- "without adversely affecting the vessel-count in normal tissues," Deep writes. In this (and other) studies, silibinin treatment resulted in no weight change compared to untreated mice, and there was no observed behavioral change, suggesting a complete lack of toxicity to healthy cells.

Provided by University of Colorado Denver