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ECGC In Green Tea Is Powerful Medicine Against Severe Sepsis, Lab Study Suggests

A major component of green tea called EGCG could help treat severe sepsis, a new study in mice suggests. (Credit: iStockphoto/Satu Knape)

ScienceDaily (Nov. 13, 2007) — A major component of green tea could prove the perfect elixir for severe sepsis, an abnormal immune system response to a bacterial infection. In a new laboratory study, Haichao Wang, PhD, of The Feinstein Institute for Medical Research, and his colleagues have been studying the therapeutic powers of dozens of Chinese herbal compounds in reversing a fatal immune response that kills 225,000 Americans every year. They found that an ingredient in green tea rescued mice from lethal sepsis -- and the findings could pave the way to clinical trials in patients.

Dr. Wang had previously discovered a late mediator of sepsis called HMGB1, a substance expressed in the late stages of lethal sepsis. They wanted to figure out a way to block this substance, which they felt would prevent the lethal sepsis process from moving forward. And it worked.

Scientists worldwide have been stumped by sepsis. Even with the most advanced medical techniques available, half of those who develop sepsis die of the massive assault on the body. Several laboratories at the Feinstein Institute are working on sepsis -- both on the basic biological level and in patients.

In the latest study, Dr. Wang's group gave a substance in green tea called EGCG to mice in the throes of severe sepsis. The dose was equivalent to 10 cups in a human. Survival jumped from 53 percent in those who didn't receive the green tea substance to 82 percent in those who did. "Clinically, even if we could save five percent of patients, that would be huge," said Dr. Wang. "In this study, we saved 25 percent more animals with the green tea." He said that the green tea component, EGCG, is readily available.

There have been more than 100 papers focusing on this natural substance and its anti-cancer benefits. "This compound prevents HMGB1 from being released by immune cells and it also prevents it from activating immune cells to produce more cytokines," he said. Cytokines are produced by immune cells and act as weapons to defend the body against invaders. "We are hoping to stimulate future interest in clinical studies," said Dr. Wang, who worked on the study in collaboration with Wei Li, PhD, Andrew Sama, MD, chairman of emergency medicine at North Shore University Hospital, and other Feinstein investigators.

The study was published in the Public Library of Science, or PLoS-One.

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