

Scientists link fat hormone to death from potentially deadly blood infection

October 23 2009

A new Canadian study has found that lower-than-normal levels of a naturally-occurring fat hormone may increase the risk of death from sepsis—an overwhelming infection of the blood which claims thousands of lives each year.

The study by researchers at St. Michael's Hospital and the University of Toronto focused on adiponectin, a hormone secreted by visceral fat surrounding the abdominal organs. The findings were presented this week at the 2009 Clinical Congress of the American College of Surgeons held in Chicago.

Using an animal model designed to mimic what occurs in people with low levels of adiponectin, the scientists observed that:

- o Mice with low levels of the hormone were at much greater risk of dying from a [blood infection](#).
- o [Sepsis](#) could be prevented if the animals were given additional adiponectin.

The risk of dying from sepsis after surgery is known to be two-and-a-half to three times higher in people with "metabolic syndrome"—a combination of factors including abdominal obesity, high blood fat composition, high blood pressure, diabetes, and high inflammatory and blood clot indicators. People with these conditions tend to have lower levels of adiponectin which may prime them to greater sepsis related complications.

"We hypothesized that low adiponectin levels might predispose such individuals to develop sepsis and sepsis-related problems," says Dr. Subodh Verma, a [cardiac surgeon](#) at St. Michael's Hospital and associate professor of surgery at the University of Toronto who holds the Canada Research Chair in Atherosclerosis. "This initial hypothesis was borne out by our latest research."

Dr. Verma and his colleagues believe the implications of their study are two-fold: first, low adiponectin levels may help predict which patients are vulnerable to sepsis-related inflammation and are at a greater risk of dying from sepsis; second, treatment strategies or approaches that cause an increase in adiponectin levels may lower a person's risk of death from severe sepsis.

Any discovery that might help predict or prevent sepsis-related death would be welcome, Dr. Verma adds, particularly since in certain parts of North America, 40 to 50 percent of the population has the major risk factors of metabolic syndrome. "We need treatments that are going to be effective and hopefully, reduce mortality rates in this high-risk population," he says.

Dr. Verma and his colleagues are hoping to be the first group to conduct studies of adiponectin in humans. They are currently seeking approval to mount a small clinical trial where a purified form of adiponectin will be given to patients in the early stages of sepsis. If the treatment is found to be safe, a larger trial may follow, says Dr. Verma.

Sepsis is a term used to describe the presence of bacteria (bacteremia) or other infectious organisms or their toxins in the blood (septicemia) or in other body tissues. Infection spreads throughout the body and can lead to organ failure.

Sepsis and sepsis-related mortality are serious potential complications

following major surgery. Based on U.S. data it is estimated that there are 75,000 cases of sepsis in Canada annually, with a mortality rate of approximately 30 percent.

Worldwide, sepsis kills at least 1,400 people every day. It is especially deadly in the critically ill and those with weakened immune systems. Severe sepsis ranks among the top 10 causes of death in the United States, and is a leading cause of death among patients admitted to intensive care units.

Source: St. Michael's Hospital

Citation: Scientists link fat hormone to death from potentially deadly blood infection (2009, October 23) retrieved 20 April 2024 from <https://medicalxpress.com/news/2009-10-scientists-link-fat-hormone-death.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.