Research identifies potential new treatment for sepsis

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Sepsis is the leading cause of in-hospital death and there is no specific treatment for it. Now, research led by Dr. Qingping Feng of Western University (London, Canada) suggests a protein called recombinant human annexin A5 may have therapeutic potential for the treatment of this disease. The paper is published in advance, online in *Critical Care Medicine*.

Sepsis is caused by an overwhelming immune response to an existing infection. It's estimated there are 18 million cases annually worldwide. The mortality rate is 30 to 40 per cent for severe sepsis and 40 to 80 per cent for septic shock. Dr. Feng, a professor in the Departments of Physiology and Pharmacology, and Medicine at Western's Schulich School of Medicine & Dentistry and a scientist at Lawson Health Research Institute is particularly interested in how sepsis causes cardiac dysfunction.

Annexin A5 is a lipid-binding protein produced by cells. Using mice with induced sepsis, Dr. Feng, Dr. Xiangru Lu, and Paul Arnold, MSc, studied the effects of annexin A5 on cardiac function and animal survival.

"We treated the septic animals and to our surprise we found a dramatic, significant effect in improving cardiac function during sepsis and improved survival rates in the mice," says Dr. Feng. "We also found it helped even if administered hours after the septic infection. This is important because the delayed treatment simulates what usually happens

in a clinical setting. The patient often has had sepsis for several hours, or a few days when they seek treatment."

Annexin A5 is not currently used as a therapeutic agent, but its safety has been tested in humans. It's currently used in imaging studies to identify cells undergoing apoptosis (cell death).

While this study looked at the heart, Dr. Feng believes annexin A5's beneficial properties could apply to multiple organs including liver, lungs and kidney, all which can all be affected by sepsis.

A patent for this discovery has been filed by WORLDiscoveries®. The Canadian Institutes of Health Research helped fund the research.

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