

Sepsis: Leaking Blood Vessels May Be Cause of Infection-Spreading Condition, Researchers Suggest



Researchers at St. Michael's Hospital have put forward a new theory as to what causes sepsis, an often fatal condition that occurs when infection spreads throughout the body.

Leaking blood vessels may actually be a cause of sepsis, rather than a symptom as previously thought, said Dr. Warren Lee. Dr. Lee's hypothesis and a review of recent research on sepsis were published in the journal *Science Translational Medicine*.

Sepsis kills about 1,400 people a day worldwide and is the second-leading cause of death in intensive care units in Canada. Despite intense research, the death rate remains high, between 30 and 50 per cent. Treatments largely consist of surgical removal or drainage of the infected site, antibiotics and supportive care. "The lack of therapies is not for want of effort. On the basis of promising in vitro and animal studies, many drugs have entered clinical trials only to fail, resulting in the description of sepsis research as a 'graveyard' of discovery," said Dr. Lee, a critical care physician and researcher in the hospital's L Ka Shing Knowledge Institute.

"The repeated failure of clinical trials suggests that some fundamental knowledge is lacking in our current understanding of the pathogenesis of human sepsis," Dr. Lee said one reason previous trials may have failed is that they haven't taken into account a key feature of sepsis in humans -- diffuse microvascular leakage (widespread leakage from small blood vessels) leading to swelling in tissues and organs (edema). This causes organs throughout the body to malfunction. There have been no clinical trials of drugs designed to prevent or treat leaky blood vessels.

"This is a major change in our thinking about sepsis that could lead to novel treatments to save lives," Dr. Lee said. "Sepsis is a devastating illness. If we could develop drugs to stop blood vessels from leaking, we could save lives."

The above story is reprinted (with editorial adaptations by ScienceDaily staff) from materials provided by St. Michael's Hospital. The original article was written by Leslie Shepherd.

Journal Reference:

N. M. Goldenberg, B. E. Steinberg, A. S. Slutsky, W. L. Lee. Broken Barriers: A New Take on Sepsis Pathogenesis. *Science Translational Medicine*, 2011; 3 (88): 88ps25 DOI: 10.1126/scitranslmed.3002011

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