

Quicker detection and treatment of severe sepsis

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Sepsis is the name of an infection that causes a series of reactions in the body, which in the worst case can prove fatal. The problem for both patients and doctors is that the early symptoms are difficult to distinguish from less dangerous infections such as a severe flu or winter vomiting disease. A researcher at Lund University in Sweden has now discovered a substance in the blood which shows both whether a patient has sepsis and how serious the case is.

"Approximately one in five patients with [sepsis](#) who are admitted to hospital are at risk of developing severe sepsis within the first 24 hours. If the doctor doesn't immediately understand that the patient is seriously ill, the risk is that he or she does not receive adequate treatment. The patient could also end up on a ward with lower staffing levels and thus less close supervision", says doctor and researcher Adam Linder.

In sepsis (formerly called blood poisoning), the immune system overreacts to an infection, which triggers a series of events in the body. Among other things, the blood vessels begin to leak, resulting in a fall in blood pressure that eventually damages the kidneys, heart and brain. Sepsis is the tenth most common cause of death in the world, and the most common cause of death among already weak patients in hospital intensive care units.

Sepsis is treated with antibiotics, fluids and oxygen. But first, the patients must be diagnosed with sepsis, yet the markers used do not always give a correct diagnosis. Adam Linder has found a better

biomarker in protein HBP (heparin-binding protein). This is released by a certain type of white blood cell in amounts which correspond to the immune system's reaction: the greater the overreaction – and thus the risk of sepsis – the greater the amount of HBP in the blood of a patient.

Measurements of HBP can also be used in connection with meningitis. There are two forms of the disease, bacterial meningitis and viral meningitis. Again, it is important to get a quick and accurate diagnosis in order to reduce the risk of complications and death. The amount of HBP in a patient's spinal fluid has been shown to provide a more accurate diagnosis than the methods currently used.

However, for HBP measurements to be used successfully in hospitals it must be possible to perform the analysis quickly.

"I analysed my samples in the lab, which took six hours. A doctor in an accident and emergency department cannot wait that long. The time must be reduced to no more than one hour", says Adam Linder.

Hansa Medical, a company in Lund, is currently developing patented methods to quickly analyse HBP in connection with both meningitis and sepsis.

Provided by Lund University

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