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New Receptor Holds Clue to New Treatment for Sepsis

A newly discovered nociceptin receptor in the body might be important in the body's response to sepsis, according to researchers. The body's initial response to sepsis is to produce an intense reaction from the immune system to fight the infection. This involves activation of white blood cells, stress hormones and other substances, known as 'inflammatory mediators', which cause inflammation. It has already been found that nociceptin is involved in inflammation; it affects how white blood cells work. This suggests strongly that nociceptin has an important role in the body's response to inflammation and sepsis.

Professor David Lambert and Dr. Jonathan Thompson of the Department of Cardiovascular Sciences at the University of Leicester in the UK recently published two collaborative research papers. Their theory is that nociceptin makes inflammation or sepsis worse; by blocking the nociceptin system, the symptoms of sepsis could be reduced, which could lead to new treatments.

In the first paper, Professor Lambert, in collaboration with Dr. Zoë Brookes at the University of Sheffield and Dr. Girolamo Calo and Dr. Remo Guerrini at the University of Ferrara, has shown for the first time using fluorescent chemistry, which was designed in Ferrara, that nociceptin receptors are found on blood vessels with no nerve supply and that in a laboratory model of sepsis, blocking these receptors is protective. In the second paper, Dr. Thompson and Professor Lambert have discovered that nociceptin levels in the bloodstream are elevated in patients with sepsis in Intensive Care, demonstrating that nociceptin activation might be important in critically ill patients suffering from sepsis.

Dr. Thompson said, "Clinicians are making progress in the early recognition and treatment of sepsis, but we have no specific drugs that effectively stop the spread of inflammation, or the biological processes involved. We have found that nociceptin, a chemical similar to endorphins produced in the body, is increased in inflammation and sepsis. This suggests that drugs which block the nociceptin receptor could dampen the widespread inflammation that occurs in sepsis, and improve outcome. More work is needed, but these drugs are being developed. If they are effective then we could potentially save many lives."

Professor Lambert added, "I am particularly excited by these findings as they translate many years of laboratory work into a possible target for this disease."

References

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