

New cannabis-like drugs could block pain without affecting brain, says study

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A new type of drug could alleviate pain in a similar way to cannabis without affecting the brain, according to a new study published in the journal *Pain* on Monday 15 September.

The research demonstrates for the first time that cannabinoid receptors called CB2, which can be activated by cannabis use, are present in human sensory nerves in the peripheral nervous system, but are not present in a normal human brain.

Drugs which activate the CB2 receptors are able to block pain by stopping pain signals being transmitted in human sensory nerves, according to the study, led by researchers from Imperial College

London.

Previous studies have mainly focused on the other receptor activated by cannabis use, known as CB1, which was believed to be the primary receptor involved in pain relief. However, as CB1 receptors are found in the brain, taking drugs which activate these receptors can lead to side-effects, such as drowsiness, dependence and psychosis, and also recreational abuse.

The new research indicates that drugs targeting CB2 receptors offer a new way of treating pain in clinical conditions where there are currently few effective or safe treatments, such as chronic pain caused by osteoarthritis and pain from nerve damage. It could also provide an alternative treatment for acute pain, such as that experienced following surgical operations.

The new study showed that CB2 receptors work to block pain with a mechanism similar to the one which opiate receptors use when activated by the powerful painkilling drug morphine. They hope that drugs which target CB2 might provide an alternative to morphine, which can have serious side effects such as dependency, nausea and vomiting.

Praveen Anand, Professor of Clinical Neurology and Principal Investigator of the study from the Division of Neurosciences and Mental Health at Imperial College London, said: "Although cannabis is probably best known as an illegal recreational drug, people have used it for medicinal purposes for centuries. Queen Victoria used it in tea to help with her period pains, and people with a variety of conditions say that it helps alleviate their symptoms.

"Our new study is very promising because it suggests that we could alleviate pain by targeting the cannabinoid receptor CB2 without causing the kinds of side-effects we associate with people using cannabis itself."

The researchers reached their conclusions after studying human sensory nerve cells in culture with CB2 receptor compounds provided by GlaxoSmithKline, and also injured nerves from patients with chronic pain.

The researchers are now planning to conduct clinical trials of drugs which target CB2 in patients with chronic pain at Imperial College Healthcare NHS Trust, which has integrated with Imperial College London to form the UK's first Academic Health Science Centre.

Source: Imperial College London

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