Marijuana may block Alzheimer's

The active ingredient in marijuana may stall decline from Alzheimer's disease, research suggests.

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Scientists showed a synthetic version of the compound may reduce inflammation associated with Alzheimer's and thus help to prevent mental decline.

They hope the cannabinoid may be used to developed new drug therapies.

The research, by Madrid's Complutense University and the Cajal Institute, is published in the Journal of Neuroscience.

"We would warn the public against taking marijuana as a way of preventing Alzheimer's" – Dr. Sorensen

The scientists first compared the brain tissue of patients who died from Alzheimer's disease with that of healthy people who had died at a similar age.

They looked closely at brain cell receptors to which cannabinoids bind, allowing their effects to be felt.

They also studied structures called microglia, which activate the brain's immune response.

Microglia collect near the plaque deposits associated with Alzheimer's disease and, when active, cause inflammation.

The researchers found a dramatically reduced functioning of cannabinoid receptors in diseased brain tissue.

This was an indication that patients had lost the capacity to experience cannabinoids' protective effects.

The next step was to test the effect of cannabinoids on rats injected with the amyloid protein that forms Alzheimer's plaques.

Those animals who were also given a dose of a cannabinoid performed much better in tests of their mental functioning.

The researchers found that the presence of amyloid protein in the rats' brains activated immune cells.

However, rats that also received the cannabinoid showed no sign of microglia activation.

Using cell cultures, the researchers confirmed that cannabinoids counteracted the activation of microglia and thus reduced inflammation.

Drug target

Researcher Dr Maria de Ceballos said: "These findings that cannabinoids work both to prevent inflammation and to protect the brain may set the stage for their use as a therapeutic approach for Alzheimer's disease."

Dr Susanne Sorensen, head of research at the Alzheimer's Society, said: "This is important research because it provides another piece of the jigsaw puzzle on the workings of the brain.

"There is no cure for Alzheimer's disease, so the identification of another target for drug development is extremely welcome.

"The Alzheimer's Society looks forward to seeing further research being carried out on cannabinoid receptors as drug targets for Alzheimer's disease but would warn the public against taking marijuana as a way of preventing Alzheimer's.

"It is now generally recognised that as well as providing a 'high', long-term use of marijuana can also lead to depression in many individuals."

Different receptors

Harriet Millward, of the Alzheimer's Research Trust, said there were two main types of cannabinoid receptor, CR1 and CR2.

"It is CR1 that produces most of the effects of marijuana, including the harmful ones.

"If it is possible to make drugs that act only on CR2, as suggested by the authors of this study, they might mimic the positive effects of cannabinoids without the damaging ones of marijuana.

"However, this is a fairly new field of research and producing such selective drugs is not an easy task.

"There is also no evidence yet that cannabinoid-based drugs can slow the decline in human Alzheimer's patients."