

Cannabis extract shrinks brain tumours

By **Shaoni Bhattacharya**

Cannabis extracts may shrink brain tumours and other cancers by blocking the growth of the blood vessels which feed them, suggests a new study.

An active component of the street drug has previously been shown to improve brain tumours in rats. But now Manuel Guzmán at Complutense University, Spain, and colleagues have demonstrated how the cannabis extracts block a key chemical needed for tumours to sprout blood vessels – a process called angiogenesis.

And for the first time, the team has shown the cannabinoids impede this chemical in people with the most aggressive form of brain cancer – glioblastoma multiforme.

Cristina Blázquez at Complutense University, and one of the team, stresses the results are preliminary. “But it’s a good point to start and continue,” she told **New Scientist**.

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“The cannabinoid inhibits the angiogenesis response – if a tumour doesn’t do angiogenesis, it doesn’t grow,” she explains. “So if you can improve angiogenesis on one side and kill the tumour cells on the other side, you can try for a therapy for cancer.”

“This research provides an important new lead compound for anti-cancer drugs targeting cancer’s blood supply,” says Richard Sullivan, head of clinical programmes, at Cancer Research UK.

Fat molecule

The team tested the effects of delta-9-tetrahydrocannabinol in 30 mice. They found the marijuana extract inhibited the expression of several genes related to the production of a chemical called vascular endothelial growth factor (VEGF).

VEGF is critical for angiogenesis, which allows tumours to grow a network of blood vessels to supply their growth. The cannabinoid significantly lowered the activity of VEGF in the mice and two human brain cancer patients, the study showed.

The drug did this by increasing the activity of a fat molecule called ceramide, suggests the study, as adding a ceramide inhibitor stifled the ability of the cannabinoid to block VEGF.

Small and pallid

“We saw that the tumours [in mice] were smaller and a bit pallid,” adds Blázquez. The paleness of the cancer reflected its lack of blood supply as a result of the treatment. In the human patients, she says: “It seems that it works, but it’s very early.”

Sullivan points out: “Although this work is at an early stage of development other research has already demonstrated that VEGF is an important drug target for a range of cancers.”

He emphasises the need for further work on cannabinoid combinations. “Cannabinoids would need to generate very strong data in the future as there are already a number of VEGF inhibitors in clinical development,” he says.

The two patients in the ongoing study are among 14 in a clinical trial of the drug. The patients are given one cycle of treatment, lasting a few days, and their survival and general health are being studied.

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