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Scientists find potential benefit of hypericin for recurrent brain tumors

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Researchers have found that a synthetic version of hypericin, a compound naturally found in St. John's wort, may be a promising treatment for patients with recurrent malignant brain tumors. Their findings were published online on March 31, 2011 in the journal *Cancer*.

Malignant gliomas, tumors that arise in the brain or spine, are largely incurable cancers with a poor prognosis. An estimated 10,000 Americans are diagnosed each year with malignant gliomas, and their average one-year survival is approximately 50 percent. Laboratory studies have shown that synthetic hypericin strongly inhibits the growth of gliomas, due in part to its inhibitory effect on protein kinase C, a family of enzymes that promotes tumor proliferation.

"Because hypericin has shown dramatic results in stopping tumor growth in gliomas in the laboratory, we wanted to examine the safety and potential antitumor activity of synthetic hypericin in patients with recurrent malignant gliomas," says William T. Couldwell, MD, PhD, professor and chairman of neurosurgery at the University of Utah School of Medicine, and lead author on the study.

In this study, Couldwell and a team of scientists from across the US and Canada administered oral synthetic hypericin to patients with two types of gliomas, anaplastic astrocytoma and glioblastoma, whose tumors had recurred or progressed despite standard treatment. In order to evaluate the safety and tolerability of the drug, the researchers gave the patients gradually increasing dosages of synthetic hypericin and monitored them

for adverse effects. Forty percent of the study participants were able to complete a three-month treatment regimen, demonstrating that hypericin is well-tolerated as an oral medication in this patient group.

Couldwell and his colleagues also examined response to treatment among this group of glioma patients. They found that 22 percent of all study participants achieved either stable disease or a partial response during treatment with hypericin. Of the 18 patients who completed at least 60 days of hypericin treatment, 50 percent achieved either stable disease or a partial response.

"The patients enrolled in our study were all individuals whose tumors had recurred or progressed after extensive prior therapy," says Couldwell.

"Finding evidence of potential antitumor activity among this very ill population of patients who had failed conventional treatment is a promising sign that hypericin could be useful as an adjunct to the current standard of care."

Gliomas are typically treated with a combination of surgery, radiation therapy, and chemotherapy. The investigators suggest that the future of hypericin in the treatment of malignant gliomas will most likely focus on the use of the synthetic compound either in conjunction with radiation therapy or other chemotherapeutic agents or in patients with resistant tumors.

"Despite advances in care, the prognosis for patients with malignant glioma remains poor. The next step is to examine the effect of hypericin if given earlier in the course of therapy," says Couldwell. "Since different chemotherapy agents have different mechanisms of action, it would be interesting to see if adding hypericin to existing treatment regimens for malignant glioma would have an additive or synergistic

effect."

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