



MANAGING BRAIN TUMORS MIGHT BE BEST

Eric Laywell

One day you wake up and notice a change in your vision. You visit the optometrist seeking a solution, but she refers you to a neurosurgeon.

The neurosurgeon informs you of a mass in your brain putting pressure on the area controlling your vision. He schedules a biopsy.

Later, your doctor breaks the news: You have a glioblastoma multiforme (GBM) brain tumor, the most common and lethal form of brain cancer. He has already “de-bulked,” or trimmed, it as much as possible, and wants to discuss treatment options. Vision is suddenly your last concern.

This cancer spreads rapidly; the prognosis is usually one to two years. Treatment is complicated. Chemotherapy, radiation and surgery are options, but these treatments are just as taxing as the tumor itself. The tumor may also impair functioning of the affected area, such as vision. Areas controlling personality and mood may also be affected, further diminishing quality of life and straining relationships.

What else can be done? A College of Medicine researcher wants to explore a different approach.

Eric Laywell, associate professor in the Department of Biomedical Sciences, received a \$430,000 grant from the National Institutes of Health to study a new therapeutic agent and treatment method focused on the GBM brain tumor.

“Now we’re just looking at animals that have tumors and seeing if we can reduce their drug burden, increase their life span, and keep them healthier while they’re being treated,” said Laywell. “But ultimately, using this on humans is the goal.”

The new therapeutic agent Laywell is exploring is EdU (pronounced E-D-U). It is most commonly used to track and label cells that divide, but his lab observed that over a longer period of time, it slows the growth of dividing cells, killing some in the process.

“When we realized that was happening, we thought, ‘That sounds like a great thing to try on cancer cells,’ and it worked on every kind of cancer cell,” said Laywell. “It also crossed the blood-brain barrier, which is sometimes a limitation for drugs.”

EdU was chosen as the therapeutic agent, but Laywell also wanted to try a new method of treatment.

“Adaptive therapy is actually based on the way environmentalists approach eradicating pest species,” said Laywell. “They don’t try to kill all of them at once. They try to manage the population, so there is never that emergence of resistance.”

Likewise, if Laywell and his lab see the population of cancerous cells growing, they administer more EdU. If tumor growth slows, they decrease the dosage, always leaving room for treatable cells.

“The idea is to manage it, and treat it as a chronic disease,” said Laywell. “There will still be cancer there, but it won’t escape into this untreatable tumor that is no longer affected by drugs.”

Despite the current eradication mentality, he believes brain tumor management will be well received among clinicians and patients in the future.

“When I bring this idea up with people who treat cancer patients, they get it,” Laywell said. “If the patient can get past the idea that they have a tumor that’s never going away, but it is being managed, they’ll essentially be healthier, and probably happier, too.”

IN OTHER NEWS

For the fourth time since 2007, *Hispanic Business* magazine has listed Florida State among the Top Ten U.S. medical schools for Hispanics. “Our students value the FSU College of Medicine environment,” said Ricardo Gonzalez-Rothi, chair of the college’s Department of Clinical Sciences, “because they feel engaged and because we value and respect the cultural nuances of the patients we serve.”