Dr. Q: “Brain tumors despite all our advances in science, in medicine, technology, in our understanding of cancer they still remain the most devastating cancer affecting the human body.”

Dale: “Dr. Alfredo Quinones-Hinojosa, who’s known by his patients and colleagues as Dr. Q., is a professor of neurosurgery at Johns Hopkins University. He’s developing a new way to treat the most common and aggressive form of brain cancer: by using a patient’s own fat.

Today on Brain Talk: how fat can help fight brain cancer.

Dr. Q. is studying glioblastoma (Gli-OH-Blas-TOME-a) the lethal type of brain cancer that took Senator Edward Kennedy’s life a few years ago. It’s a type of cancer that’s born in the brain, and can spread across it creating new tumors along the way.”

Dr. Q: “We are having a difficult time understanding the way these tumors grow and also we are having a difficult time understanding how, despite our best efforts with surgery, radiation, and chemotherapy, despite all this, they continue to grow and invade and take over the functional parts of the brain.”

Dale: “Dr. Q. and his team are researching how the patient’s own body fat can attack and stop this cancer. They’ve found that by engineering a specific type of stem cell found in someone’s fat, that stem cell is able to seek out and attack brain cancer cells.”

Dr. Q: “What we realize is that they also have the ability, these fat cells, have the ability to also carry cargo, and we realized that we can use them as Trojan horses, and we can load them with an agent that we believe can have an effect on brain cancer.”

Dale: “That agent is a protein secreted by the stem cells. Studies have shown that this protein is effective at holding back the malignant characteristics of brain cancer. Dr. Q. says this new technique for treating brain cancer, if it proves to be successful, is far less invasive than any technique we use today.”

Dr. Q: “What we do today is radiation and chemotherapy and they are the best things that we have, but they are almost like using a shotgun approach. We go through a lot of collateral damage to kill some cancer cells and this is probably why we can’t defeat these disease cause we give them radiation and chemotherapy and these cancers keep coming back and our patients just don’t have long-term survival.”

Dale: “So far, testing the use the harvested fat cells to fight brain cancer has been successful in animal models. What’s next is testing with humans. And Dr. Q. is already looking ahead at when doctors won’t need to engineer brain cells for this type of treatment.”

Dr. Q: “The next step and the next frontier is to be able use the cells that already exist in the brain. So I think about gradual steps and I try to be optimistic but at the same time I try to be cautious about this.”

Dale: “Dr. Q. says doctors still don’t know who will get brain cancer or why they do. But he feels it’s only a matter of time before we understand how these tumors originate and how they continue to grow.”
Dr. Q: “Brain Science is a relatively new field and thanks to places like the Brain Science Institute where you’re bringing people from different types of understanding of the brain that I think that we’re putting a new way of understanding the human brain… and that will lead to new understanding of human diseases.”

Dale: “To learn more about fighting brain cancer, log on to brainscienceinstitute.org. I’m Dale Connelly and this is Brain Talk from Johns Hopkins University.

Learn more about Dr. Q’s Quest
Follow Dr. Q on Facebook
Read a scholarly article on the MSCs taken from fat cells vs. bone marrow
Read a scholarly article in Nature on the produced proteins from MSCs, like BMP4, inhibiting the growth of a brain tumor

http://www.brainscienceinstitute.org