[MUSIC PLAYING]

TERENCE C. BURNS: I define regenerative medicine as efforts to maintain the function of the tissues that, in the case of the brain, make us who we are. One of the key regenerative strategies that has been developed at Mayo are strategies to promote the rejuvenation of the immune response against the tumor.

Innovative as they are, brain tumors have figured out ways to survive by taking the immune response that should be attacking it and killing it. And making it essentially exhausted to the point where it's not functional anymore. And that includes treatments with dendritic cells-- and these are all experimental-- as well as treatments with oncolytic viruses, like measles virus, to re-energize that immune response, to help attack the tumor. This is an ongoing process. And so what the patients who come to Mayo have is the opportunity to participate in really this groundbreaking research that we believe is going to be the future of brain tumor care.

We are continuing to push the envelope in terms of how to mitigate the injury and increase the efficacy of the treatments that we do perform. For example, one of the side effects of treating metastatic brain tumor with radiation is radiation necrosis. And so we recently started a trial to determine whether treating the tumor prior to taking it out with the radiation can actually decrease the level of radiation necrosis compared to treating the cavity after that treatment comes out.

The latest basic science research includes efforts to rejuvenate the radiated, as well as the chemotherapy inflicted brain. There are changes in the metabolic profile of the cells that are being manipulated. There are efforts to use cell therapies to rejuvenate cell types that are lost. We're very excited about strategies to clear away those injured and disease-promoting cells, to allow people to have their optimal cognitive function in the long term. We're pushing forward very aggressively because we want patients to have the greatest quality of life for as long as possible.

For us, the patients are our family and the care of the patient is such a privilege. And I'm still in contact with patients who were frightened when they first met me years ago. And I get notes from them at Christmas about how well they're doing and how wonderful their experience was here at Mayo. We don't take that lightly. And so what I would say is that coming to Mayo is an opportunity to be a part of a family that cares about you.

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