

FUNCTIONAL MEDICINE UPDATE

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Part Three in a Series on Functional Neurology

How the nervous system interfaces with the environment has been a key area of research among scientists who study cognitive decline. Will a better understanding of this interface lead to earlier—and more successful—intervention? Is it possible that clinicians will one day understand the pathology well before it becomes severe? This month's issues focuses on these questions. Dr. Bland interviews Dr. Gregory Jicha, who is both a neurology researcher (PhD) and a clinical neurologist (MD), as well as a recognized expert in Alzheimer's management care.

Clinician/Researcher of the Month

Gregory Jicha, MD, PhD

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Dr. Gregory Jicha is a Professor in the Department of Neurology and Sanders-Brown Center on Aging at the University of Kentucky, and is the Director of the Clinical Core of the university's NIA-funded Alzheimer's Disease Center. He also directs the Telemedicine Cognitive Clinic, which is designed to reach out to rural populations across Kentucky for both clinical and research-related activities in the area of Alzheimer's disease and related disorders. Dr. Jicha's current research interests lie in the areas of mild cognitive impairment, clinic-pathological correlations in early preclinical disease states, and clinical trials of disease modifying therapies for Alzheimer's disease. He has published more than 170 papers in the peer-reviewed medical literature. The mission of Dr. Jicha's laboratory is to focus on building a foundation for translational research in degenerative diseases, from bench to bedside, from bedside to practice, from medical centers to communities, in an effort to improve health care outcomes for all who suffer from Alzheimer's and other degenerative diseases.

Dr. Jicha became an Alzheimer's disease researcher because he found it to be the cruelest of all diseases—a disease that robs individuals, literally, of who they are. Throughout the course of his career he has cared for thousands of patients, and—yes, he explains to Dr. Bland—he frequently attends the funerals of his patients who have died following their struggles with Alzheimer's and other related dementias. With each passing year, his passion to find cures for these diseases strengthens.

One component of Dr. Jicha's research focuses on the field of behavioral neurology: how we receive sensory input and translate that into thought, convert that to actions that we may or may not want to

engage in, how we generate emotional context for the things we experience in our life. He explains that translational scientists and researchers who study brain connectivity seek to bring together aspects from the molecular and genetic side of things all the way through to the activities of day-to-day life. He states that behavioral neurology is not just the study of memory, but of all aspects of cognitive functioning: how we use language, how we process or are able to multitask, how we are able to manage our emotions, how we respond to emotionally or cognitively challenging situations.

Dr. Bland and Dr. Jicha discuss the current status of assessment for cognitive issues. Dr. Jicha explains the challenges clinicians face, and how these challenges often lead to late-stage diagnosis. He describes newer techniques and technologies that may support earlier diagnosis and intervention, and he suggests that we are nearly to the point where patients on the path to an Alzheimer's diagnosis can be identified 10 to 20 years in advance.

They go on to discuss the genetic component of Alzheimer's disease, and Dr. Jicha explains there continues to be significant debate about this within the field. Dr. Jicha provides his opinions about the current state of genetic testing to identify risk to Alzheimer's, as well as his thoughts about the future of testing. He also discusses the role of epigenetics—including lifestyle factors such as exercise and nutrition—and what the current consensus is with regard to the influence of epigenetic factors. He describes his own interactions with his patients when questions about lifestyle arise and the guidelines he uses for dispensing advice about things like dietary supplements.

Although he feels we may be many years away from being able to restore the brain or bring it back from a degenerative disease such as Alzheimer's, Dr. Jicha is optimistic about the development of a near-term model of pre-clinical biological detection and even secondary prevention in cases where the processes of decline may already be occurring, but the clinical symptomatology is not yet clearly evident. REF #1-4

Issue Synthesis

Following his interview with Dr. Jicha, Dr. Bland expands on the discussion surrounding the role of nutrition in neurological health. He cites a 2012 academic text titled *Phytochemicals, Signal Transduction, and Neurological Disorders*, which explores the role that phytochemicals (consumed as secondary metabolites from plants) play in gene expression across all cell types of the human body.

REF #5

References

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