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Researchers propose novel new treatment of stroke and other neurological diseases

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Medicine should reconsider how it treats stroke and other neurological disorders, focusing on the intrinsic abilities of the brain and nervous system to heal themselves rather than the "modest" benefits of clot-busting drugs and other neuroprotective treatments.

Michael Chopp, Ph,D., internationally renowned stroke researcher and scientific director of the Neuroscience Institute at Henry Ford Hospital, and Zhenggang Zhang,M.D., Ph.D., senior scientist at Henry Ford's Department of Neurology, make their case for the change in treatment strategy in an editorial published online in *Expert Opinion on Biological Therapy*.

The co-authors argue that pharmacologically enhancing the brain's own restorative abilities could benefit not only stroke patients, but those suffering other neurological damage or disease including traumatic brain injury (TBI), multiple sclerosis (MS) and peripheral neuropathy - nerve damage that afflicts the elderly, chemotherapy patients and especially diabetics.

Central to their proposal is a new pharmacological agent developed by Dr. Chopp and his colleagues, a synthetic version of a peptide that occurs naturally in humans and other mammals called Thymosin beta-4.

"Pioneering animal studies at Henry Ford have shown Thymosin beta-4 is highly effective for the treatment of neurological diseases in part by increasing the formation of protective myelin around nerve fibers in the

central and peripheral nervous systems," says Dr. Chopp.

In their editorial, the authors first detail the limited effectiveness of current standard drug therapy, using tissue plasminogen activator (tPA), more commonly known as a "clot buster," to treat neurological disease.

Offering stroke as an example, they cite research showing that only about 5 percent of patients receive tPA, and of those only about 30 percent show significant improvements.

Similar conditions exist for nerve injury after TBI, MS and peripheral neuropathy, the authors write, and for those patients "there is a paucity of therapeutic options."

Among tPA's limitations is that it must be administered within a very short time after stroke to prevent "cascades" of irreversible cell damage.

In contrast, "restorative therapies" such as dosing with Thymosin beta-4 "may be applied well after the onset of injury or the onset of clinical symptoms for degenerative diseases" including stroke and others.

Says Dr. Chopp: "Rather than focusing on destroying clots or other lesions leading to nerve damage, restorative therapies are designed to 'remodel' or rebuild the nervous system by stimulating self-healing processes that already exist in the brain, spinal cord and the peripheral nerves connected to them."

"It is therefore time to reconsider how we think about treating neural injury and disease," the authors contend.

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