Hippocampus yields clues to treatment strategies for cognitive deficits in multiple sclerosis

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Dr. John DeLuca is senior vice president of Research & Training at Kessler Foundation. Credit: Kessler Foundation

A recent article by a team of international experts on multiple sclerosis (MS) underscores the importance of expanding the knowledge base

about the hippocampus in order to better understand the genesis of cognitive deficits and develop new treatment strategies.

The article, "The hippocampus in multiple sclerosis", was published in *The Lancet Neurology* 2018;17:918-926.

The burgeoning field of neuroimaging has fueled cognitive research in MS, including details of the involvement of the hippocampus and associated changes in cognition, as well as the effects of different types of interventions. Techniques such as magnetic resonance imaging (MRI), functional MRI, and diffusion tensor imaging are yielding fundamental in-vivo information about hippocampal pathology and links with clinical manifestations. The authors examine the literature on neuroimaging of the hippocampus in MS, including studies of focal lesions, structural abnormalities, atrophy, and abnormalities of functional connectivity. There is growing evidence that the hippocampus can be modified by aerobic exercise and memory retraining, suggesting the potential for the development of effective cognitive rehabilitative strategies.

"Recent advances in neuroimaging have greatly improved our understanding of the involvement of the hippocampus in MS," said John DeLuca, Ph.D., senior VP of Research and Training at Kessler Foundation, and a co-author of the article. "Now we are aware of subregions with different levels of susceptibility to damage, for example, and the potential for hippocampal plasticity and neurogenesis," noted Dr. DeLuca. "The challenge is to correlate these findings with clinical manifestations and renew our efforts toward improving outcomes for the population with MS."

More information: Maria A Rocca et al, The hippocampus in multiple sclerosis, *The Lancet Neurology* (2018). DOI: 10.1016/S1474-4422(18)30309-0

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