

Title: “Hope for People Suffering from Memory and Learning Problems Associated With MS”

Host: Dale Connelly

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Dale: “From the Johns Hopkins University Brain Science Institute.”

Dr. Rahn: “It’s estimated that anywhere from 40-70% of Multiple Sclerosis patients experience some degree of cognitive impairment. And many studies have been done to measure how this affects their quality of life. Patients with cognitive impairment are more likely to have a mental disability as well.”

Dale: “Kristen Rahn is an instructor of psychiatry and neurology at Johns Hopkins University who specializes in studying aspects of Multiple Sclerosis.

Today on Brain Talk: hope for people suffering from the memory and learning problems associated with MS.

Multiple Sclerosis – or MS – is a disease of the nervous system that can leave people with physical impairments such as slurred speech and numbness and weakness in their limbs. Dr. Rahn says ‘MS has more serious consequences on mental functioning than people realize.’”

Dr. Rahn: “They’re less likely to participate in social functions, and they’re less likely to be employed ten years after their diagnosis. In fact over half of all MS patients are unemployed within ten years of being diagnosed with MS, and studies have demonstrated that only 14% of that actually accounts for physical disability, so it’s not just that the patients can’t get around so they can’t go to their job and work, the other portion is due to cognitive impairments, these patients can’t do their job anymore. So it has a huge impact on their quality of life and the overall economy.”

Dale: “Dr. Rahn is working with Dr. Adam Kaplin and a team of researchers at Johns Hopkins to find a potential drug to help MS patients. In their most recent study, using a type of MRI scanner, they looked at brain chemicals associated with MS in the region of the brain connected to learning and memory. They found that levels of a neurotransmitter known as NAAG were lower here. They injected an experimental compound to alter the NAAG in mice with MS, and then tested the memory and learning abilities in the mice. One of these tests involved the Barnes maze.”

Dr. Rahn: “And in the Barnes maze there are 40 holes around the perimeter of this circular table, and underneath one of these holes is an escape hatch; and so we trained the animals with visual clues around the maze to find this one specific hole. And we can measure the path efficiency, so how efficient the mouse can find the hole, the exact number of seconds that the animal takes to find the hole, the number of errors...”

Dale: “Dr. Kahn and the team found that the mice injected with the experimental compound had improved memory and learning skills, as compared to the mice that were not injected. This finding gives hope that this experimental compound could be a breakthrough to help people suffering from MS.”

Dr. Rhan: “As of right now there are 10 FDA approved treatments for Multiple Sclerosis, but none of them are approved to treat cognitive impairment in the disease. Some of them have shown some very mild effects on cognitive functions, they do improve slightly, but there’s no treatment that’s been approved that has shown significant improvements in cognitive function.”

Dale: “The researchers caution that their treatment has so far only been used in mice. Clinical trials in people are still years away. And still, Dr. Rahn is cautiously optimistic.”

Dr. Rhan: “It’s very exciting to be at the front of research that’s targeting the very common side effects of Multiple Sclerosis like cognitive impairment that are understudied. As recently as forty years ago it was thought that only 3% of MS patients have cognitive impairment and now it’s accepted that approximately half of all MS patients have cognitive impairment, so this is a huge unmet need.”

Dale: “For more information on MS and the brain, log onto brainscienceinstitute.org. I’m Dale Connelly and from Johns Hopkins University... this is Brain Talk.”

Additional Information:

[Johns Hopkins Multiple Sclerosis Center](#)

[What is MS? - Hopkins Health Library](#)

[Johns Hopkins Department of Psychiatry and Behavioral Science](#)

[Read “Cognitive Impairment in Multiple Sclerosis: A Forgotten Disability Remembered” | Dana Foundation Article](#)