

Thinking Problems

By Dr. Richard Bruno

Polio Survivors' "THINKING PROBLEMS" are similar to those in Parkinson's disease, not Alzheimer's disease.

In a paper published in the August issue of *The American Journal of Physical Medicine and Rehabilitation*, Drs. Richard Bruno and Jerald Zimmerman found word finding difficulty – the “tip-of-the-tongue” phenomenon (knowing the word you want to say but not being able to say it) – in polio survivors that is identical to that in Parkinson's disease patients.

Thirty-three polio survivors were given neuropsychologic tests of word finding, attention and thinking speed and had the blood hormone prolactin measured. An elevated prolactin level indicates low levels of neurochemical dopamine in the brain. “Polio survivors with severe daily fatigue had significant word finding difficulty,” said Dr. Bruno, Director of The Post-Polio Institute at Englewood (NJ) Hospital and Medical Center. “Those with word finding difficulty also had impaired attention, thinking speed and higher prolactin levels, suggesting that they had lower brain dopamine.” Bruno thinks that word finding difficulty, impaired attention and slower thinking speed, as well as disabling fatigue, result from polio survivors' brains making too little dopamine. This conclusion is supported by two other Post-Polio Institute studies. A 1998 study found that polio survivors with severe fatigue have higher prolactin levels and slowing of their brain waves. A 1996 study showed that bromocriptine, a dopamine-replacing drug used to treat Parkinson's disease, reduced fatigue, word finding difficulty and attention problems in polio survivors with severe fatigue. “Autopsies performed fifty years ago on patients who died after having had polio show that the polio virus damaged brain neurons that make dopamine,” said Bruno. “Dopamine-producing neurons were killed in the brain whether or not the polio virus damaged the spinal cord and caused paralysis.”

The Post-Polio Institute's 1990 National Post-Polio Survey found that 91% of the estimated 1.8 million North American polio survivors report fatigue and that 70% to 96% of survivors with fatigue report difficulty with work-finding, attention and thinking quickly. “Since fatigue is the most commonly reported and most disabling symptom of PPS, many polio survivors have “thinking problems” and are afraid they have Alzheimer's”, said Bruno. But Bruno's work has found that polio survivors' thinking problems are similar to those with Parkinson's disease, which is known to be caused by low levels of brain dopamine. “Fortunately, the polio virus did not kill enough dopamine producing neurons to cause the physical symptoms – tremor and rigidity- that are seen in Parkinson's.”

“Thinking problems in polio survivors are not symptoms of a dementia, like Alzheimer's,” said Bruno. “And our work over the past 15 years shows that reducing physical overexertion can decrease word finding difficulties, problems with attention and fatigue in polio survivors.”

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