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Researchers Discover Clues to Explain Rare Form of Epilepsy

By WARREN E. LEARY
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WASHINGTON, Dec. 4 -- A rare form of epilepsy that fails to respond to most treatments appears to be caused by abnormal immune system activity, a report from the Duke University Medical Center says, and the researchers say the finding could lead to new therapy.

The report was delivered today at the annual meeting of the American Epilepsy Society in New Orleans. The researchers said the rare form of epilepsy, Rasmussen's encephalitis, appeared to result when a patient's immune system attacks his own brain cells.

The scientists said their finding was the first indication that a form of epilepsy was an autoimmune disease, one in which the immune system that normally attacks foreign tissue or germs turns on the host to assault normal tissue. Multiple sclerosis, rheumatoid arthritis and some forms of diabetes are autoimmune diseases.

Rasmussen's encephalitis often strikes children under 10, causing severe, frequent epileptic seizures and eventually leading to dementia and paralysis on one side of the body.

Rasmussen's is one of the rarest forms of epilepsy, a family of neurological disorders resulting from damaged cells in the brain. An estimated 2.5 million Americans are afflicted with a form of epilepsy, but Rasmussen's accounts for fewer than 1 percent of the cases. About 2,000 cases of Rasmussen's have been diagnosed in the United States in the 40 years since it has been recognized as a distinct disease.

Experts say Rasmussen's is particularly intractable to treatment. The disease does not respond well to anti-seizure medicine and the only treatment as it progresses is removal of large sections of the brain, with the resulting disabilities, experts say.

Dr. James 0. McNamara and Dr. P. Ian Andrews of Duke, and Dr. Scott W. Rogers of the University of Utah, found that patients with Rasmussen's had antibodies in their bodies targeted against a specific set of brain proteins called glutamate receptor GuR3. Researchers tested Rasmussen's patients for the antibodies after Dr. Rogers noticed that rabbits stimulated to generate antibodies to these brain proteins became ill and developed epileptic seizures. An examination of brain tissue from these rabbits showed that it was strikingly similar to tissue from human patients with Rasmussen's, the scientists said.

The Duke researchers found the antibodies to GuR3 in all patients with active Rasmussen's, but none in a control group of children who were healthy or had other forms of epilepsy or other brain diseases.

Suspecting that removal of the antibodies might ameliorate symptoms of the disease, the researchers did so, using a blood separation technique called plasmaphersis. They found that one girl with severe Rasmussen's experienced significant, rapid improvement after the treatment, resulting in improved brain

function and a temporary respite from her frequent seizures. Another child, more mildly affected, also showed transient improvement after the treatment.

Dr. Andrews said in an interview that the blood-cleansing technique provided only a temporary solution because the body soon begins to generate antibodies again. But he said it might find limited use in arresting severe, degenerating cases so that patients would have some temporary relief and doctors would get a chance to try alternative medications and treatments.

"The body should not make antibodies that eat up its own brain but, knowing this happens, it should point to other strategies for treatment," Dr. Andrews said, "Perhaps we can find a way to selectively remove the bad antibody or develop a substance to block its activity."

Dr. Andrews said antibodies were large proteins that are normally too big to cross a barrier of tiny blood vessels and membranes that keep such things from reaching the brain. Injury to the head, or seizures from another cause, could disrupt this barrier enough for antibodies to reach brain cells in increasing numbers to cause Rasmussen's encephalitis, he theorized.

Dr. Ilo Leppik, research director for the University of Minnesota's Mincep Comprehensive Epilepsy Program, called the new Rasmussen's findings "exciting stuff" and said it could change the traditional view of the disease.

"The autoimmune disease angle is very interesting," Dr. Leppik said, "and I think should cause a number of centers to explore different autoimmune therapies for Rasmussen's."

comment by Mark Anderson

What is interesting about this article in the New York Times (12/4/94) is that the researchers at Duke Medical School are independently confirming the findings of Dr. Royal Lee (which he wrote about over 50 years ago). Lee based the Protomorphogen Theory on the basis of Natural Tissue Antibodies (NTA) which are created and designated by the immune system to attack DNA specific tissue in the hosts own body. In this case, medical researchers have discovered that in certain forms of childhood epilepsy, NTAs are programmed to attack the hosts own brain tissue, referred to as "autoimmune disease." This probably results from a determination by the immune system that the target organ contains tissue that is "unfit" or diseased and should be eliminated. That same determination may be based upon the debilitating effects of starvation, in this case, of the brain. Folic Acid, Vitamin B12, Phosphorus, Inositol, Vitamin B6, Niacinamide (B3), RNA, heat labile amino acids, are all nutrients known to be necessary for a healthy brain and nervous system development and maintenance. The Protomorphogen acts as the antigen decoy of the NTAs (reducing them to histamines eliminated by the liver),

giving the physician time to nourish and regenerate the target organ (in this instance, the brain).

These principles have been well expressed in Lee's writings since the 1940s through the 1960s and only now are researchers confirming the biochemical errors in autoimmune dysfunctions. Sadly, they have no insight into Protomorphology and will seek to create drugs to block NTAs rather than correct the reason they are being generated in the first place. Removing parts of the brain through surgery is the current "treatment" used.