

U-M Neurologist Hopes To Unlock Multiple Sclerosis Secret

ANN ARBOR -- A unique manufacturing process is taking place in the brains of persons afflicted with crippling multiple sclerosis.

Armed with the largest single grant ever given by the National Multiple Sclerosis Society to an individual researcher, a University of Michigan neurologist intends to unlock the secret of this "unseen production."

Dr. Wallace W. Tourtellotte, professor of neurology in the U-M Medical School, hopes to find evidence in his laboratory

that the manufacture of gamma globulin is linked to the cause of MS.

In previous research, he has detected excess amounts of the blood plasma fraction in the brains of MS victims.

ACCORDING to the Michigan chapter office of the National Multiple Sclerosis Society, Detroit, Dr. Tourtellotte's three-year grant totaling \$97,591 is the largest award given to a single scientist by the society. The first year's support of

\$37,155 will enable him to continue his research during 1968.

A request from the estate of a Detroit attorney, the late Albert H. Lindley, will provide a major portion of the grant. Lindley, once president of the Michigan chapter, was involved in its operations for many years.

Although multiple sclerosis strikes about 500,000 Americans between the ages of 20 and 40 every year, its exact cause has eluded scientists. The disease is marked by

the growth of scars, or plaques, which destroy the brain's myelin, a fatlike substance. Its victims suffer paralysis or loss of sensation and coordination, and may lose the functions of movement, sight, and speech. MS leads to death over a long period of time.

The U-M doctor previously discovered that MS victims had increased concentrations of gamma globulin in their brains.

With research associate Julius A. Parker, Dr. Tourtellotte tapped cerebrospinal fluid,

which surrounds the brain and spinal cord, from patients who had died from MS and from control persons.

THE INVESTIGATORS compared the brain and spinal cord of the MS victims with those of the control group. They learned that nearly three times as much gamma globulin was present in the plaque and in the white matter of the brains of MS patients as in the controls.

Through further studies, the

researchers ruled out the possibility that the blood supply could be the source of the increased brain gamma globulin. The level of albumin (a protein molecule found in the blood) was determined to be the same in both the plaque and the blood.

The other explanation for the high level of gamma globulin in the diseased brain is that synthesis takes place in the brain tissues. The task now is to determine just where and how.

"We believe a positive correlation exists between the brain gamma globulin concentration and the cerebrospinal fluid," says Dr. Tourtellotte.

"If the globulin is elevated in the cerebrospinal fluid, it is also elevated in the brain, since the increased globulin in the brain diffuses into the cerebrospinal fluid."

"Therefore, by attacking the synthetic sites of the gamma globulin in the brain, we should succeed in lowering the concentrations in the patient's

cerebrospinal fluid."

THE NEUROLOGIST plans to test his hypothesis that gamma globulin is produced at the periphery of the plaque by attempting to inactivate the cells through radiation.

"We should be able to counteract the production of the substance by X-irradiation of the brain,"

Dr. Tourtellotte says he also may design studies to determine the effects of X-irradiation on other parts of the nervous system.

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