MEDICINE

Possible MS 'Vaccine'

The discovery of a protein substance that stops brain inflammation when injected into animals may be the first step toward a vaccine against multiple sclerosis—By Faye Marley

➤ A POSSIBLE VACCINE against multiple sclerosis (MS) in humans is seen in reports that a protein substance injected into experimental animals has stopped brain inflammation.

The brain inflammation is experimentally induced, and called experimental allergic encephalomyelitis (EAE). Researchers, not able to produce multiple sclerosis in animals, have found EAE the closest related disease on which to pursue investigations.

Dr. Marian Kies, chemist in the laboratory of clinical science, National Institute of Mental Health, Bethesda, Md., told SCIENCE SERVICE that her work with Dr. Ellsworth C. Alvord Jr., now at the University of Washington, Seattle, still is far from perfecting a vaccine for humans.

"The main trouble is that we cannot explain how the vaccine-like substance acts. We call it an encephalitogen because it causes as well as suppresses EAE. We would not dare to inject a patient yet because a flare-up or 'exacerbation' could occur," she said.

In multiple sclerosis patients, the fatty sheath surrounding the nerve cells is sloughed off, or "demyelinated," gradually, thus causing the staggering gait and other symptoms that affect some 250,000 young men and women under 40 in this country.

Dr. Kies was one of the principal speakers at the meeting in New York, sponsored jointly by the National Multiple Sclerosis Society and the New York Academy of Sciences.

International speakers joined in the three-day symposium on demyelinating diseases.

One of the most hopeful findings yet reported by MS researchers has been that in experimental animals, at least, myelin can "regenerate" or be produced again once it has been destroyed. This work has been done in test tubes, but Dr. Murray Bornstein of Mount Sinai Hospital, New York, has extended his work to human tissue.

Dr. Leonard T. Kurland of the National Institute of Neurological Diseases and Blindness, Bethesda, Md., told the symposium that the pattern of geographic distribution of MS remains unexplained, but it is believed important to continue research to find out why inhabitants of South Africa, for example, have less MS than in England.

The most serious obstacle, Dr. Kurland said, is the "lack of a satisfactory diagnostic test" that could assure uniformity in the case.

Other reports included those on drug evaluation (one injected drug is ACTH), on relation of MS to a virus or other infectious cause, on spinal fluid tests and on the relation of the "glial," or nerve, cells to the central nervous system's myelin sheath.

SCIENCE SERVICE previously reported findings of Dr. Sarah A. Luse of Washington University, St. Louis, Mo., at a myelin conference in St. Louis, that she had discovered the exact place in the human nervous system that is hit by multiple sclerosis. (See SNL, 70:262, Oct. 27, 1956.)

Her theory was that it is the glial cell, which also is around nerve fibers, that produces the protective myelin sheath and that it is the glial cell and not the myelin that degenerates in multiple sclerosis.

Drs. R. P. Bunge and P. Glass of the College of Physicians and Surgeons, Columbia University, reported on light and electron microscopic preparations that allow the researcher to get direct sight of the connections between glial cells and myelin sheath.

Dr. William T. Norton of Albert Einstein College of Medicine, New York, said that his work, so far unpublished, with Dr. Lucila A. Autilio at the same institution, had shown myelin to be composed of 77% lipids, or fats, the chief of which is cholesterol. The remaining 23% is protein.

"Before we can find out how myelin is broken down," Dr. Norton said, "we must find out what it is. This is the value of basic research, which has no immediate application to treatment of human patients."

One hopeful note was sounded by Dr. Helmut Bauer of the University of Gottingen in Germany.

"In a study of approximately 1,200 multiple sclerosis patients," the professor reported, "over 30% were still doing remunerative work after 20 years or more." The majority of the patients studied had their first flare-up in a "stress situation" during the last war. He advised early hospitalization or sanitarium observation during the early stages of MS.

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BIOCHEMISTRY

What Triggers Birth Onset Research Aim

➤ THE MYSTERY of what triggers the onset of labor pains and the process of birth itself is being explored by Dr. Mary E. Carsten at the University of California at Los Angeles.

Specifically, Dr. Carsten will be studying protein molecules responsible for the contraction of uterine muscle, which starts the baby on his outward journey. She will also be concerned with hormones that are involved in the onset of labor.

Actually very little is known, Dr. Carsten pointed out, about the factors which precipitate labor. Protein molecules that do the actual work of uterine muscle contraction appear to be the same as those in heart and skeletal muscle. But complex chemistry, perhaps involving interacting hormones, may make them perform in a different way in different organs of the body.

The hope is that a better understanding of the chemistry of birth may help solve such problems as difficult deliveries and premature babies.

The National Institutes of Health has given an award providing support over a five-year period to permit full-time concentration on the research. The research will be carried out in a newly established laboratory in UCLA's departments of obstetrics and gynecology and physiology.

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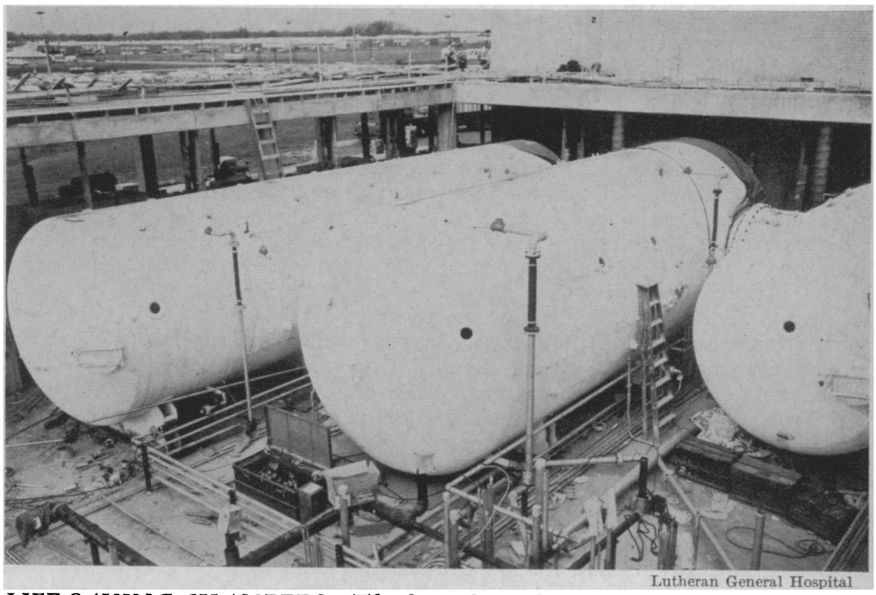

Lutheran General Hospital

LIFE-SAVING CHAMBERS—The huge hyperbaric, or high pressure oxygen system for treatment of patients suffering from gas gangrene, carbon monoxide poisoning, heart disease, shock and other ailments is almost ready for operation at Lutheran General Hospital, Park Ridge, Ill. Hyperbaric treatment was used in a futile attempt to save the life of the late President Kennedy's infant son last year.