

PSYCHIATRY-PSYCHOLOGY

Hope For Epilepsy Conquest Found Through Brain Waves

Pattern of Electric Impulses, Now Used for Diagnosis, May Eventually Lead to Discovery of Drug for Cure

TWENTIETH century methods of attack which seem to promise the eventual conquest of epilepsy, the "divine malady" of the ancients which afflicts half a million Americans today, were outlined at a special session of the American Psychiatric Association.

Brain wave records, gift to medicine of modern physics, have shown that during epileptic seizures, or fits, the normal rhythm of the brain's electrical activity is disturbed, Drs. F. A. Gibbs, E. L. Gibbs and W. G. Lennox of Boston reported.

The condition may be compared to certain heart disorders in which the rhythm of the heart's beat is disturbed. Brain cells, like the heart, are always active and they beat out characteristic rhythms which may be traced on paper by leading off, amplifying and recording the tiny electric currents that accompany the activity of each brain cell.

In grand mal epilepsy the electrical activity of the brain may become too fast. In another type of epilepsy it may be too slow. In petit mal epilepsy, it may oscillate between fast and slow.

What is needed to prevent the seizures or fits of epilepsy, the Boston investigators pointed out, is something to stabilize the rate of the brain's activity. This could be done, Dr. Lennox said, by making certain changes in body chemistry, for example by increasing the amount of carbon dioxide in the air that the patient exhales. To accomplish this, he said, the process which causes irritability must be known.

Chemistry of Genes

While brain wave records may show the way to keep the epileptic patient free of attacks, the conquest of epilepsy may result if scientists can find a way to change the chemistry of the genes, Dr. Lennox suggested. The tendency or predisposition to have convulsions or fits, which occur in epilepsy and in other disorders, is, Dr. Lennox said, inherent and fundamental. With a certain stimulus, or even without stimulus, a person

who has this predisposition will have a convulsion or fit, and the person without the inherent tendency will not.

The genes, which carry inheritance for epilepsy and other qualities, are now believed to be chemical substances. This gives Dr. Lennox the hope that chemists some day will be able to find a way to change the chemical structure of the gene so as to eliminate the tendency to epilepsy and other convulsions.

The knowledge necessary to achieve this end can only be gained through extensive research. Pointing out that the total amount of money especially designated for epilepsy research amounts to only \$12,000 to \$15,000 annually, Dr. Lennox urged a fund-raising campaign. As many persons suffer from epilepsy in America, today, he said, as are afflicted with diabetes or active tuberculosis.

Epilepsy Diagnosed

Diagnosis by brain wave records of more than 400 cases of epilepsy was reported by Drs. Herbert H. Jasper, William A. Hawke and Ira C. Nichols of Providence, R. I. Epilepsy was also detected by means of brain wave records in persons not suspected of having the disease.

Study of brain waves, the Providence investigators reported, shows that confusion in mental processes, irritability, impulsiveness and stubbornness are associated with a kind of brain activity found in borderline convulsive states.

New Conception

Brain wave records have led scientists to revise their conceptions of the brain and its activity. The brain, Dr. Jasper, said, can no longer be thought of as an "intricate network of pathways and switches" by which an impulse starting at the sense organ is finally conducted to its destination. The brain is now thought of as being in "continuous, spontaneous activity" and impulses arriving there from the sense nerves are "thrown into a pool of dynamic excitatory processes that form the basis for the electri-

cal brain waves which can be recorded."

The brain is viewed by Dr. Hallowell Davis of Boston as an organization among myriads of individual elements. This newly-discovered physiological organization of the activity of the brain cells is shown by their electrical activity.

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MEDICINE

Heart's Work Increased By Injecting Fluid Into Veins

INJECTING large quantities of fluid into the veins of patients, a common procedure after surgical operations, gives the heart 50 per cent. more work to do, Dr. Mark D. Altschule and Dorothy R. Gilligan, of Beth Israel Hospital, Boston, told the American Society for Clinical Investigation meeting in Atlantic City.

They studied patients without heart or blood vessel disease. Although there was no evidence that this added strain is not well tolerated by patients with normal hearts, the Boston investigators inferred that the increase in work might be excessive for patients with heart disease.

A large group of patients with no evidence of heart disease were given intravenous injections of salt or sugar solutions, such as are routinely used, in amounts from 1 to 3 pints. The rates of injection varied. Immediately after the injection, the minute volume output of the heart and the blood volume were increased and the velocity of the blood flow was accelerated. With the more rapid rates of injection or the larger volumes of fluid, significant and even more marked increases in the blood pressure in the veins was observed. In patients who had no signs of heart disease the blood pressure in the veins returned to the control level within about 20 minutes.

Slight increases in pulse rate, blood pressure in the arteries and pulse pressure were observed in about two-fifths of the patients, and changes in heart action in some cases were also seen in electrocardiograms.

Faulty Diet a Danger

The combination of a faulty diet and indiscriminate use of bicarbonate of soda during child-bearing may bring on the dangerous condition of toxemia in prospective mothers, Dr. Maurice B. Strauss of Boston reported.

The specific diet fault is the eating of too little meat and other protein foods