MEDICINE

Brain-Heart Attack Link

➤ RADIO-CONTROLLED experimental heart "attacks" are being used to explore the role played by the brain in heart irregularities.

Through a tiny, radio-controlled device attached to the head of experimental animals electric currents may be sent into brain centers thought to be associated with heart action.

The brain-heart relationships can then be studied while the animal is awake and comfortably going through his daily routine.

Dr. S. J. Weinberg of the University of California, Los Angeles, Medical School described the experiments before the Fourth World Congress of Cardiology in Mexico City.

Electrocardiograms of the animals are recorded following electrical and drug stimulation of the brain center. The patterns of these tracings of heart electrical activity have the same characteristics as those in humans with such conditions as "racing heart," heart block and other irregular heart rhythms which are sometimes referred to under the vague general classification of "heart attack."

These are all the result of irregularities in the heart's electrical system, as distinguished from heart attacks caused by interruption of blood supply to heart muscle (myocardial infarction).

It has been known that brain tumors and certain types of brain damage are sometimes reflected in heart irregularities. The UCLA study has indicated that more types of heart irregularities may be associated with events in the brain than has been suspected.

The investigation has also suggested that certain brain centers, notably in the hypothalamus, play an important role in the localization of the heart's pacemaker. Maintenance of normal heart rhythms by the pacemaker may be dependent upon an integrated action with these brain centers.

Abnormal heart rhythms may be the result of disturbed integration of the system which leads to a shift in the pacemaker's location, disrupting heart conductivity. Such concepts may explain puzzling electrocardiogram changes seen in some patients with irregular heart rhythms.

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MEDICINE

Correct Abnormal Hearts

➤ HOW HEART abnormalities were corrected in nearly 300 babies at the Texas Children's Hospital, Houston, was reported at the American College of Surgeons meeting at Atlantic City.

Dr. Denton A. Cooley of Baylor University College of Medicine said this era of heart surgery should be able to do more than it is doing to reduce the figure of 7,000 babies who die each year because of these abnormalities. Eighty-eight per cent die in their first six months of life. Many pediatricians and family doctors are of the opinion that a baby with congenital heart disease is doomed to die, Dr. Cooley said.

"Granted that some conditions are incompatible with life, we have proved that if trained surgeons have a chance to operate, a large number of these anomalies can be corrected."

Dr. Cooley operated on 67 babies for transposition of blood vessels.

In normal circulation blood goes into the heart and out to the lungs, back to the heart and then through the rest of the body. Some infants are born with complete transposition of this procedure and many cannot live at all. Others are able to survive for a few months with some kind of communication between their blood vessels.

An operation that eases the condition can be performed on tiny infants. When they are four or five years old, a more radical operation using the heart-lung machine is done that will reverse the main channel of their circulation.

"We use a banding procedure, placing a constricting band of Dacron on the pulmonary artery of the young infant at first," Dr. Cooley said. "Then at the second operation several years later we transpose the vessels channeling the inflow to the heart."

In correcting a heart defect (ventricular septal), Dr. Cooley said care must be taken to select patients that have a chance of life. Of 400 babies undergoing surgery for heart abnormalities, at the Texas hospital, 292 survived, the largest number of any similar group under one year of age in the world.

At a scientific session, Dr. George MacDonald of Tufts University, Boston, described his technique for reimplantation of a dog limb with a mechanical stapling device, which is an improvement on one shown in this country last year by Russian scientists. He also used a quickly drying adhesive.

Dr. MacDonald said that 18 dogs had lived for a year and a half and that such operations held out hope for future success with humans.

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Geriatric Obstetrics

➤ ORAL CONTRACEPTIVES may prolong the years of childbirth and result in a new medical specialty called geriatric obstetrics, Dr. C. A. Douglas Ringrose of the Royal Alexandria Hospital, Edmonton, Alberta, said at the 48th annual Clinical Congress of the American College of Surgeons in Atlantic City.

He said there is a possibility of ovulation occurring in the late 50's and early 60's. Dr. Ringrose said that each human ovary, in addition to producing hormones, discharges about 200 eggs in its natural career. Each ovulatory episode results in the accumulation of a bit of fibrous tissue (*corpus albicans*). After 200 ovulations a considerable amount of this reparative scar tissue is present and has replaced the egg and hormone-producing cells. At a certain point, he believes, menopause then ensues.

To document this process, Dr. Ringrose obtained 75 ovarian specimens from surgical and autopsy and surgical material. All ages of women from the newborn to the postmenopausal were represented in the series. It was seen here there was a relentless accumulation of fibrous tissue as a woman proceeds toward the menopause.

In view of the natural way in which the menopause occurs, Dr. Ringrose said it is "interesting to speculate on the impact of oral contraceptives on this aging process." Since the contraceptives block ovulation, a new specialty, geriatric obstetrics, may be created, he said. Because of their efficiency and acceptance, oral contraceptives are likely to stay, but possibly they will have to be combined with some other method at the time of usual menopause.

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MEDICINE

Economical Contraceptive Claimed by Scientists

➤ A NEW CONTRACEPTIVE drug has been developed which is safer and more economical than previous ones.

It is most effective when taken orally and is highly active in the prevention of ovulation. The drug can be administered in dosages of one milligram a day for a 20-day period each month.

The new drug was tested on about 50 volunteers in San Juan, Puerto Rico. Most reactions were reported during the first medication cycle. After four to six months of use, 45 women reported no limiting side effects with the drug. Forty per cent reported no change in weight, 37 per cent reported a decrease in weight. Seventy-six per cent reported no change in the amount of menstrual pain, while 14 per cent had a lessening of pain.

Menstrual flow decreased in 32 per cent of the women. This is comparable to that caused by previous contraceptive drugs.

Approximately 70 more volunteers were then added to the study. When the women stopped using the drug, menstruation did not occur in about one per cent of 662 cycles. Similar results were previously obtained with the contraceptive Enovid.

The new compound, a combination of ethynodiol diacetate (17-alpha-ethinyl-4-estrene-3, 17-diol diacetate) and an estrogen, the 3-methyl ether of 17-alpha-ethinylestradiol was reported in Science 138:439, 1962.

The drug was developed by Drs. Gregory Pincus, Celso R. Garcia, Manuel Paniagua, and John Shepard of the Worcester Foundation for Experimental Biology, Shrewsbury, Mass., and the Family Planning Association of Puerto Rico, Rio Piedras.

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