behavioral sciences notes

BRAIN RESEARCH

Chemical affects brain damage

The response to pain, of a rat impaired by lesions in the brain, was returned to normal after chemical injections during experiments at the University of Chicago.

Dr. John A. Harvey, professor of psychology and pharmacology at the university, made the rats highly sensitive to pain by creating small lesions in their brains. He then injected a chemical which produces natural serotonin—one of several brain chemicals implicated in emotions as well as nerve transmission.

With increased serotonin production, the rats regained their normal level of pain tolerance, despite the lesions.

Upon examining the rat brains, Dr. Harvey discovered that the lesions had reduced serotonin in higher, undamaged brain areas, suggesting that localized damage may have metabolic effects over wider brain areas.

It is not possible to conclude, however, that the chemical therapy actually reversed brain damage. Pain sensation cannot be measured in an animal, and the rat's behavior, although returned to normal with serotonin, may have been due to some other effect of the chemical.

SUICIDES

Listening to heart beats

An Australian doctor has implicated intensive care units in the suicides of some heart patients.

Emotional disturbance is a frequent companion to heart surgery, and it may be aggravated by intensive care units where lights blaze 24 hours a day and electrical units record aloud the patient's heart beat, claims Dr. J. B. Hickie, professor at Sydney University and St. Vincent's Hospital.

"It can be pretty disturbing when you are there for a couple of days and hear the machine occasionally miss a beat," says Dr. Hickie.

Of the 30 percent of male patients who react to heart surgery with psychiatric difficulty, six percent commit suicide, according to Dr. Hickie's information.

St. Vincent's hospital has begun playing soft music in the intensive care units.

PSYCHOLOGY

Death anxiety abnormal

Fear of dying in aged persons facing imminent death may be an abnormal reaction, caused by gross organic or psychological impairment.

New evidence on the death process comes from study of 80 geriatric patients at Cushing Hospital in Framingham, Mass.

Acceptance of death is more often the attitude of reasonably well-adjusted patients, while death anxiety is often associated with some organic and psychiatric deterioration, report the investigators, Dr. Avery D. Weisman, psychiatrist at the Harvard Medical School and Dr. Robert Kastenbaum, director of psychological research at Cushing.

Their evidence suggests that, like infancy and adolescence, the period preceding death may be a developmental phase, "a harmonious transition from a style of living to a style of dying." But this takes place when the individual has a proper environment, which he often does not have in hospitals.

The investigators could not substantiate the common belief that old people progressively lose contact or interest in reality, though they noted a number of substantial changes in emotions and mentality that apparently are preparation for death. Their work appears in a monograph, "The Psychological Autopsy," published by COMMUNITY MENTAL HEALTH JOURNAL.

PSYCHOSIS

Good news on lithium

An English psychiatrist, working with lithium treatment of manic-depressive illness (SN: 6/17/67, p. 575), reports that it very nearly returns patients to their pre-illness personality.

The drug also stabilizes biochemical and weight changes that accompany the illness in some cases.

Dr. R. J. Kerry of the Middlewood Hospital in Sheffield, England has studied selected patients from a group of 100 for several years. Their cyclical swings in mood from depression to mania were accompanied by abnormally large changes in body weight and water. One woman, for instance, showed a cyclical weight change of 5 kg and a water change of 4.1 liters.

When compared to 20 normal people, those with manic-depressive illness had abnormal variability in weight and water over a month's time, although not in any consistent direction. The largest changes in body water were associated with the largest changes in mood.

Dr. Kerry has been maintaining these patients on lithium for various periods of months and years. The weight changes have stopped and emotional mood has been stabilized.

The English work is reported in the June issue of the AMERICAN JOURNAL OF PSYCHIATRY.

NEUROPHYSIOLOGY

Heart regulates attention

A new, important role for the heart in regulating brain reaction has been proposed by Dr. John I. Lacey of the Fels Research Institute in Yellow Springs, Ohio.

Dr. Lacey's theory, based on evidence from animals and humans, contradicts common notions that the cardiovascular system reflects but does not control mental arousal. He says that heart rate and blood pressure level vary with mental activity. Deceleration in the heart and lowered blood pressure are associated with faster brain response. Until now it has been assumed that increased heart activity means greater mental as well as physical arousal.

Dr. Lacey sees the cardio-vascular system acting as a gate for stimulation to the brain. A stimulus comes in, the brain quickly decides whether to pay attention, and signals the heart accordingly. Heart activity then acts on the brain to enhance or inhibit attention. Why the heart should be involved in such an important job is unclear, but it may be necessary to modulate complementary states of mental attention and physical arousal.