MEDICINE

Schizophrenia Clue Found

➤ THE BLOOD of some schizophrenics contains an excessive amount of a substance that acts on a particular chemical found in the brain.

Reported by the National Academy of Sciences, the blood study represents an important step toward understanding the biological basis of schizophrenia, and eventually finding a chemical cure for this common mental disease.

Called a synergist, a substance which enhances the activity of another chemical, it acts on a substance called serotonin. Serotonin is one of the chemicals that aids in the transmission of messages from one nerve cell to another; it has also been implicated in emotions.

Drs. D. W. Woolley and B. W. Gommi of Rockefeller University, New York, who reported the work to the Academy, said the blood serum of several schizophrenic patients was at least five times more potent in enhancing the work of serotonin than was the serum of normal people. The two doctors were successful in extracting and purifying the guilty synergist from their blood samples.

Though this substance is present in all people, it existed in excessive amounts in 10 of 28 schizophrenics, reported the scientists.

The case is stronger than the low figures indicate because all the patients with an elevation showed the same type of symptoms. They had a recent history of agitation and assault. This fits well, reported the doctors in the Academy Proceedings, with what has been found to be a sign of excess serotonin in the brain.

A few of the "normal" people used as controls also showed an excess of the synergist, but the scientists discovered by chance that most of these had been diagnosed as chronic alcoholics.

The study raised the further interesting possibility that premenstrual women may also have a slight elevation of this synergist. This was only an indication, however, as the doctors have not followed up with a controlled study.

NEUROSURGERY

Microscope Reduces Risks in Neurosurgery

➤ CERTAIN kinds of risks in neurosurgery have been substantially reduced by employing new operative procedures with a surgical microscope.

Operating under the microscope, neurosurgeons now are able to spare tiny blood vessels serving the brain and to preserve various nerves in the operative site, said Drs. Robert W. Rand of the University of California, Los Angeles, Medical School and Theodore Kurze of the University of Southern California School of Medicine.

Formerly, in the removal of tumors of the hearing nerve, the chances of damaging the facial nerve and causing facial palsy was about 90%. With the use of microsurgical procedures this risk has been reduced to about 10% with small tumors.

During the past three years, Drs. Rand and Kurze have also reported use of the techniques in more than 40 cases involving pituitary tumors, brain aneurysms, spinal cord tumors and repair of peripheral nerves.

Surgeons have used microscope techniques in delicate eye and ear operations for a number of years, Dr. Rand pointed out. But only recently have microsurgical procedures been applied to neurosurgery as introduced by Dr. Kurze.

Use of the microscope in neurosurgery has also led to development of new precision instruments. One is a device which simultaneously slices off bits of tumor while sucking away the excised tissue.

Not only is the use of the microscope making neurosurgery safer, it is providing more flexibility in the approach to difficult problems in this field, Dr. Rand said.

NEUROLOGY

New Instrument Aids Spotting Brain Tumor

➤ AN IMPROVED way of scanning the brain for tumors has been reported by two California scientists.

Their technique is claimed to give a clearer image of tumors deep within the brain than has heretofore been possible and also allows multiple scans in place of one or two.

Thus, said Drs. P. H. Crandall and B. Cassen of the University of California at Los Angeles, when the neurosurgeon drills a tiny hole through a patient's skull for a biopsy, he has a better idea of where and how big the tumor is.

Basically, the new scanning instrument consists of a wide-angle spherical collimator backed up by 65 pounds of broken sodium iodide crystals. The collimator projects a gamma-ray image of the brain onto the crystals, which then emit light pulses according to the distribution of radioactivity in normal and damaged brain tissue.

Normal brain tissue rejects most tracer or radioisotropic compounds, while tumors and other lesions accept them.

Although radioisotopic scanners have been used for 10 years, they have proved less than satisfactory. Not only does the radioactive tracer compound concentrate in tumors, but also in muscle, bone, scalp and vascular spaces. Blood in the brain also acts as a source of radioactive interference.

As a result, the scanner comes up with a confused and over-lapping image.

A second major problem has been slowness. Some 40 to 60 minutes are required for a single view, the scientists said. Meanwhile the radioactivity decays and the surgeon is left with only a gross picture of the tumor's location.

Drs. Crandall and Cassen expect their new, fast, wide-angle scanner to alleviate these problems at least in part. They report in the Archives of Neurology, 15:163, 1966, that it was successful in locating tumors in a clinical test of 50 patients.