

MEDICINE

Infant Jaundice Traced

A hormone-like substance recently discovered in human milk may be the cause of prolonged jaundice in some infants who are nursed by their mothers.

► ALL MOTHERS should not nurse their babies.

Six cases of prolonged severe infant jaundice have been traced to mothers' milk, the American Society for Clinical Investigation meeting was told at Atlantic City.

For the first time a hormone-like substance not normally found in human milk has been detected in some mothers' milk. The steroid is a type related to progesterone, the hormone that helps to keep a pregnancy normal until the baby is born.

Most babies are born with a simple jaundice that clears up quickly without any treatment, but when the yellowish color lasts for weeks, doctors know something is wrong.

What is wrong is that the bilirubin, an orange pigment that is a major ingredient of bile, accumulates in the blood and tissues. This could lead to a complication known as kernicterus, a condition in which the bile pigment actually invades the central nervous system. If the brain is invaded, there is grave risk of mental retardation and serious interference with nerve function.

Although the jaundice cleared up in the

six babies studied, the doctors said it was too soon to know whether or not some subtle damage might have resulted. During breast feedings the serum bilirubin levels in these infants went as high as 24 milligrams percent, compared with normal levels of less than one milligram percent for healthy infants of the same age.

In test-tube studies of the mothers' milk, the steroid acted as a "competitive inhibitor" of an enzyme named glucuronyl transferase, which aids in the excretion of bilirubin. The researchers believe the same thing happens between mother and baby—the steroid hormone from the milk probably interferes with the enzyme carrying out its function properly.

Drs. Irwin M. Arias and Lawrence M. Gartner of the Albert Einstein College of Medicine, Yeshiva University, with the collaboration of Mrs. W. Furman, research associate, did the study, which was supported by a grant from the National Institutes of Health of the U.S. Public Health Service.

• Science News Letter, 83:306 May 18, 1963

MEDICINE

Anti-Cancer Drug Used

► THE ANTI-CANCER DRUG, methotrexate, has chalked up another success in treating a deadly skin growth that often develops into leukemia-like cancers of lymphatic tissue.

The drug was successful in nine of 16 cases of mycosis fungoides, an uncommon but most uncomfortable disease in which the skin becomes red and leathery, giving the patient the look of a broiled lobster.

When the skin sheds, the patient is subject to infections and a maddening itch. Mushroom-like growths may cover large areas of the body, and in many cases the condition develops into lymphatic cancers.

Up to now the only treatments for mycosis fungoides have been X-rays, hormones and nitrogen mustard, but they have given only short relief. With large doses of methotrexate, however, remissions have ranged up to 23 months so far.

Methotrexate pills are taken daily for a few months, and gradually the open sores start to heal, lumps shrink, the itch subsides and other symptoms disappear.

But fairly large doses must be given. Three of the first four patients Dr. Jane C. Wright of New York and her collaborators treated with small doses of the anti-cancer drug died within one to 13 months.

Methotrexate is a counterfeit of folic acid,

blocking use of that vitamin in cell chemistry. It has been used for more than ten years against some forms of leukemia and other cancers.

When the drug became toxic in the treatment of mycosis fungoides, it was withdrawn until the patient recovered and then was resumed in somewhat smaller doses.

In several cases, when the arrested disease started to flare up again, new remissions were obtained by putting the patient back on the pills.

Working with Dr. Wright were Drs. Stephen L. Gumport and Frederick M. Golomb of New York University Medical Center, Bellevue Hospital and University Hospital.

• Science News Letter, 83:306 May 18, 1963

TECHNOLOGY

Scientist Seeks Cause Of Own Brain Injuries

► EMIK A. AVAKIAN, Iranian-born scientist who came to this country with his parents at the age of 11 in a futile attempt to cure his handicap of cerebral palsy, is now developing a device that may help others with this disability.

Despite his wheel-chair existence, Mr.

Avakian, now 38, with an M.A. degree from Columbia University in physics and mathematics, is an electronics expert and systems engineer at Teleregister Corporation, Stamford, Conn.

The Iranian Embassy at Washington, D. C., awarded Mr. Avakian Iran's Order of the Crown for his contribution to humanity and education. Also, a luncheon was given by Sen. Abraham A. Ribicoff (D-Conn.) in his honor.

To help see inside his own brain and understand what had caused his disability, Mr. Avakian developed a data processing system for display and modification of interior tissues.

Dr. William J. Fry, head of the biophysical laboratory at the University of Illinois, Urbana, who helped Mr. Avakian with his patent application, said the device, which uses ultrasound, had been tried on animals and humans.

The latest computer technology is used to control a surgeon's tool and to display areas of the brain. A color-TV device maps one plane of the brain with one color. The energy for destroying defective tissue can be registered by a second color, and the command of the surgeon for directing this energy can be shown in a third color.

By tying the instrument and the display to a computer, the commands of the surgeon can be made safe. The computer can be programmed by the surgeon before the operation, so that a command would not be carried out that would have undesired effects.

Mr. Avakian has had a major part in a number of recent inventions and modern developments, working nights at his home in Crestwood, N. Y.

• Science News Letter, 83:306 May 18, 1963



Reni Photos

ULTRASOUND DEVICE—Emik A. Avakian (center) is shown with the device he invented to aid cerebral palsy victims. With him are John Parker (left), chairman of the board, Teleregister Corporation, and His Excellency, Houssein Ghods-Nakhai, Ambassador of Iran.