

Medical Sciences Notes

BIOCHEMISTRY

Long-Acting Antibiotics

A family of new, phosphorus-containing antibiotics appear to be effective for as long as eight weeks—instead of the 48-hour maximum with ordinary antibiotics.

A single dose of a prasinomycin protected mice from bacterial infection for two months, Dr. Frank L. Weisenborn of the Squibb Institute for Medical Research, New Brunswick, N.J., said in an interview.

No clinical tests of prasinomycins on humans have been made as yet, but the long-acting antibiotics offer potential advantages. It is conceivable, for example, that a single dose given to soldiers in Vietnam could protect against infection for several weeks, Dr. Weisenborn said.

The precise way in which prasinomycins work is still unknown, though Dr. Weisenborn hypothesizes an interference with the normal synthesis of a bacterial cell wall, thus preventing growth and multiplication. Tests in humans are at least 18 months off.

ENZYME DEFECT

Cause of Fatal Disease Found

A rare and fatal illness called Lesch-Nyhan disease has been found to result from a deficient enzyme.

The tragic ailment causes children to chew away their lips and fingers and leads to death following the production of an excess of uric acid. The disease is also marked by cerebral palsy and mental retardation.

Overproduction of uric acid by Lesch-Nyhan patients led Dr. J. Edwin Seegmiller and his associates in the National Institute of Arthritis and Metabolic Diseases, Bethesda, Md., to look for a biochemical defect in the body's handling of purines. They found that such patients are deficient in an enzyme of purine metabolism called hypoxanthine-guanine phosphoribosyltransferase. Without this enzyme, which in these children is less than 0.05 percent of normal, the blood cells cannot carry out their processes, they report in the March 31 *SCIENCE*.

ELECTRIC SURGERY

Biactive Electric Scissors

Almost complete absence of hemorrhage is an important feature of surgery with electric scissors developed as coagulating electrodes by Dr. Semyon Shamrayevsky of Ternopol, U.S.S.R.

The Russian professor of physics and his co-workers have removed nearly 2,000 skin tumors, including more than 500 that were cancerous, during the past five years at the Ternopol oncological dispensary. Used at first only for skin operations, the instrument was later applied in abdominal and thyroid operations.

Although the monoactive method of electric surgery has been known for some 10 years, the biactive method originally tried was not successful. Dr. Shamrayevsky perfected a biactive procedure in which both electrodes are identical. They operate simultaneously and are applied to the tissue, not from opposite sides as formerly, but next to each other. This guarantees that there will be no stray currents and no burns, and that wounds will heal quickly.

TRANSPLANTATION

Larynx Transplanted in Animals

Successful transplants of the "voice box" have been reported in 11 laboratory animals, three New York surgeons report. They believe transplantation of the human larynx can be made once the immunological problem of transplant rejection is solved.

So far the surgeons have reimplanted dogs' larynges in an operation that takes about 30 minutes. The key to success is reestablishing the blood supply by building a special vascular tube attaching the larynx directly to the larger blood vessels of the neck. There has been no attempt to reattach severed nerves of the larynx.

The report, by Drs. Carl E. Silver, Peter S. Liebert and Max L. Som of Montefiore Hospital and Medical Center, was published in the March 31 *MEDICAL WORLD NEWS*.

PHARMACOLOGY

Bedsores Cured in Experiments

An unnamed new drug that cures bedsore is reported by Dr. Malcolm C. Spencer, assistant professor of dermatology at Northwestern University's Medical School.

The antibiotic neomycin is one of the principal ingredients, but protein "digesters" such as trypsin and chymotrypsin are the main elements in the preparation. It was used in the form of an ointment and as a lotion on 51 cases of bedsore. Two of every three patients were cured, and there was "significant" improvement in most of the others.

The drug, still unmarketed, is reported in the March issue of the *JOURNAL OF THE AMERICAN GERIATRICS SOCIETY*.

BIOCHEMISTRY

Amino Acids Control Appetite

An imbalance of amino acids—the main components of protein—can increase or decrease appetite. Either a deficiency or excess of an amino acid can be critical to hunger, according to Dr. Alfred E. Harper of the University of Wisconsin, Madison.

Rats fed a diet lacking only one of their 10 essential amino acids eat very little. Appetite is regained when amino acid balance is restored.

Contrary to the belief that animals given a choice of diets will instinctively choose a nutritious one, a poor or even fatal selection is sometimes made, Dr. Harper says. An imbalanced diet results in an imbalance in amino acids absorbed through intestinal tissues into the blood stream. The resulting change of blood content is a critical factor influencing food consumption. "Changes in the blood-amino acid patterns lead to altered food intake and preference," he explains.

In areas of the world where malnutrition is prevalent, protein and amino acid-imbalanced diets of humans may have similar effects on appetite, Dr. Harper believes.