

Medical Sciences Notes

CHEMICAL BIOLOGY

Computer Program Shows Drug Effect

Doctors may be helped in calculating the amount of poison a child has swallowed and the time he swallowed it as a result of a mathematical equation devised by a University of San Francisco group of scientists.

Dr. Arthur Furst, director of the Institute of Chemical Biology at the university, told a meeting at Howard University, Washington, D.C., that he predicts widespread applications in pharmacology of the computerized approach in calculating drug effects.

He and his co-workers, George Ledin Jr. and Walde-mar R. Gustavson, have been working about a year and a half on their model. They applied it, inducing convulsions in mice and rats with hydrazine. The time the animals take to go into convulsions depends upon their weight.

Different animals can be used in setting up computer programs for the response times of various drugs, Dr. Furst believes. He also points out that fewer laboratory animals will be needed in predicting these responses than have formerly been used.

The new method requires fewer than 20 animals to plot the necessary curve, whereas the techniques now in use require some 200.

Dr. Furst spoke at the meeting of the American Society for Pharmacology and Experimental Therapeutics.

INSECTICIDES

Injected Chemicals Harm Birds' Eggs

Insecticides in birds' eggs can kill the young after they are hatched.

University of Utrecht scientists in the Netherlands point out in the Sept. 2 issue of *NATURE* that their experiments, injecting dieldrin into unhatched hens' eggs, resulted in the same kind of convulsions as affected wild terns recently hatched in that country.

They concluded that absorption of the poisoned yolk after hatching may kill young birds.

It is well known, the researchers point out, that in nature recently hatched birds are often deprived of food for long periods, by unfavorable weather conditions for example. The natural adaptation is the ability to live on the yolk for a few more days. The fast absorption of the yolk that follows could be hazardous when the eggs have been exposed to toxic and persistent chemicals in the environment.

CANCER SURGERY

Women Calm Facing Breast Removal

Women are not as upset at the prospect of breast surgery as the medical literature has pictured them, a group of Harvard Medical School surgeons believes.

Concluding a 10-year survey in the Aug. 31 issue of the *NEW ENGLAND JOURNAL OF MEDICINE*, they say the radical operation in which cancerous armpit tissue is removed along with the breast has a "record not improved upon by other methods so far."

Removing the axillary lymph nodes has the unique advantage of providing the pathologist with a large amount of this tissue for examination. The extent of involvement of these nodes, they explain, "is the single

most important factor in prognosis and in the planning of further management."

If the breast cancer recurs or spreads, the surgeons find that removal of the adrenal glands is the most successful treatment. Although removal of the pituitary is equally effective, it is more dangerous.

By contrast, treatment with sex hormones in the late stages of the disease has many unfortunate side effects and gives only transient relief. Estrogens and androgens produce an excess of calcium in the blood with severe complications, so if for any reason a patient should not have the adrenal glands removed, the surgeons advise a substitution of drug therapy with 5-fluorouracil given intravenously. However, local radiation to the areas that show symptoms is consistently effective in giving relief in cancer that has spread.

PERITONEAL DIALYSIS

Kidney Machine Aids Poison Case

A rare recovery from weed killer poisoning is reported in the Sept. 2 issue of the *BRITISH MEDICAL JOURNAL*. Before performing a blood transfusion, doctors used a kidney machine at Guy's Hospital, London, to remove sodium chlorate which the patient had taken in a suicide attempt.

The intensive dialysis was continued 24 hours before a 10-pint exchange transfusion was begun. The woman's mood became normal and she no longer complained of depression.

Another case in which dialysis was performed was that of a 28-year-old Korean physician who took sodium chlorate in mistake for sodium chloride in a laboratory experiment. A third case was that of a 17-year-old boy with kidney failure because of sodium chlorate poisoning. He recovered after dialysis.

Few patients survive chlorate poisoning. More than 150 cases that have been studied ended in death.

RADIATION DAMAGE

Hiroshima Bomb Shrank Brains

Seventeen young Japanese adults have small heads believed caused by radiation damage when they were embryos in 1945 during the atomic bombing of Hiroshima. Their type of microcephaly is different from those unrelated to radiation.

Government-subsidized investigation at the University of Tokyo has not been made public in detail, but it is known that the mothers of all 17 were in the first weeks of pregnancy during the bombing and were within one mile of ground zero, the Sept. 1 issue of *MEDICAL WORLD NEWS* reports.

Dr. Roberts Rugh, associate professor at the radiological research laboratory, Columbia University, has found that the most common effect in progeny of survivors of both the Hiroshima and Nagasaki bombings is an abnormally small brain.

"Developing embryos are especially sensitive to radiation, Dr. Rugh explains, "although the effects may not be evident for generations."

Abnormalities of the central nervous system can be produced by irradiation of sperm cells or of egg cells before or after fertilization, or by irradiation at any stage in the development of the nervous system, the radiologist says.