

One phase of cancer research involves isolating chemical substances in individual cell to study process by which cell uses them to build itself up.



## How Soon a Cancer Cure? (Continued)

cure transplanted cancer in animals, others partially destroy cancer in humans, ease pain, and prolong life.

A three-man team of scientists at Tufts University has been treating a type of leukemia with a drug called busulfan. They report they have held the disease under control for two years, and believe this indicates it could be controlled for double or triple that time before a relapse might occur.

Scientists at Rutgers University have developed a one-two punch against cancer that first stops its growth and then increases the body's own powers to reduce it. The procedure is to administer chemicals which deliver a paralyzing blow to the disease, then the patient's normal recuperative powers do the rest.

As the second part of the one-two punch, the Rutgers researchers are testing special diets. They believe that amino acids, hormones, and other types of nutritional therapy will increase the amount of tumor regression caused by the drugs.

At the University of Illinois College of Medicine, scientists headed by Dr. Warren H. Cole combine surgical techniques with chemicals to protect cancer patients from spillage of deadly cancer cells during an operation.

All blood vessels serving the operative areas are tied off early during the operation to prevent cancer cells from moving elsewhere through the body. Immediately after the operation, nitrogen mustard and Thio-TEPA—cancer-killing chemicals—are injected into the surgical cavity and veins. The areas are bathed with drugs capable of tracing and killing any cancer cells which might have spilled over. Finally, on each of three days following surgery, more drugs are injected into the veins to destroy cancer which might have escaped.

At Columbia University's College of Physicians and Surgeons, Dr. Daniel M. Shapiro and Dr. Morton M. Klingerman have destroyed malignancies in mice with x-rays and chemicals. The Sloan-Kettering Institute for Cancer Research reports success

with antibiotics. One of them, called DON, has prolonged the lives of mice suffering leukemia from 50 to 120 percent longer than any other such drug.

Another exciting and promising cancer weapon is viruses. "The time has come when research should assume that viruses are responsible for most, if not all, kinds of cancer," says Dr. Wendell M. Stanley of the University of California.

"Polio viruses are capable of destroying cancer cells in test tubes," according to Dr. George Gye of Johns Hopkins University. And at a recent meeting in Houston, polio viruses were discussed as a cancer preventive.

The first successful vaccination against cancer has been reported by Dr. B. R. Burmester of the U. S. Agriculture Department. The vaccine was used against forms of leukemia in chickens, and was prepared in the same manner as the Salk polio vaccine and other "killed-virus" vaccines.

Mother hens were given an injection to raise their level of cancer-

fighting antibodies. The hens, in turn, passed on these antibodies through their eggs to their unborn chicks. The protected chicks were 5,000 times more resistant to leukemia virus than were unprotected ones.

At the Ohio Penitentiary in Columbus, human cancer cells were transplanted to 14 cancer-free convict volunteers. Similar transplants had previously grown well in patients already suffering from cancer. But in the healthy convicts, the cancer cells evoked vigorous, inflammatory reactions and were promptly rejected.

"This confirms the long-suspected existence of a cancer-immune mechanism in normal human cells," explained Dr. Cornelius P. Rhoads, director of Sloan-Kettering Institute. "When the mechanism that rejects the cancerous cells is finally identified, it could lead to a chemical cure."

Reports from the Mayo Clinic in Rochester, Minn., tell of the partial destruction of bone cancer in animals by ultrasonic energy. This force consists of sound waves too high in frequency to be heard by the human ear.

Fissionable cobalt also is being used as a source of high-voltage radiation in the treatment of cancer. It's claimed that cancers deep within the body can now receive adequate radiation without damage to surrounding normal tissue.

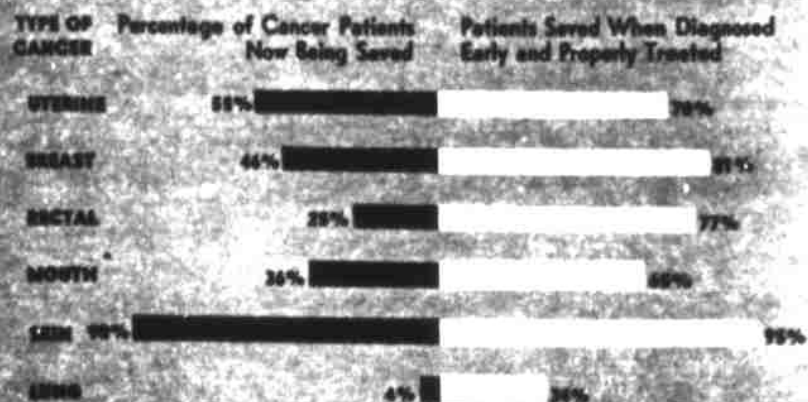
Still another front is hormone therapy. Some types of cancer need hormones for growth. They can be temporarily restrained by cutting off their hormone supply or blocking them with counter-hormones.

Despite all the recent advances in the battle against cancer, many questions remain unanswered. But researchers are constantly opening new avenues, and someday one will lead mankind to a substantial victory over this insatiable destroyer of human life.

More is known about the cancer cell today than was known about bacteria 20 years ago, when scientists stood on the threshold of the great antibiotic discoveries. The conquest of cancer may be just over the horizon!



Radioactive isotopes, used in treatment or location of cancer, are prepared (left), then stored in shielded vaults (right) until needed.



Source: American Cancer Society.