

MEDICINE

Cancer and the Emotions

Do stress and tension have an effect on the rate of growth of cancer? Tests of the emotional make-up of cancer patients show a difference between them and people without the dread disease.

By WADSWORTH LIKELY

► WHEN YOU are sad, the tears come to your eyes. When you are angry or frightened, your heart pounds. When you are embarrassed, you blush.

These are three obvious examples of how our emotions act and interact with physical, chemical and biological changes in our bodies.

Cancer is a biochemical change in the body. Something happens so that normal cells go wild. They begin to multiply much too fast. They suck the materials on which the body lives from the still normal cells. They multiply and grow until they overwhelm vital organs.

Some people cry more easily than others. Some people are more easily angered or frightened than others. Some people are always blushing. People with different kinds of emotional make-up have this difference reflected in their bodily processes.

In some people, cancer grows much faster than in other people. Is there some connection, some relationship between cancer and the emotions?

There is no answer to that question yet. But the question is being taken seriously enough to be investigated by competent psychologists, psychiatrists on the one side and competent biochemists and physicians on the other. No one says that a particular emotional make-up can cause cancer.

For cancer of the breast, sex hormones are sometimes administered. Right now figures show that about 30% of the women so treated get well. On the other hand, 40% get worse and in 30% there is no change in the cancer. You cannot predict, by looking at the breast cancer, which woman will get well and which woman will get worse.

Test Emotional Make-Ups

But biochemists and psychologists at the M. D. Anderson Cancer Hospital of the University of Texas, Houston, are banding together to find out whether or not there is a significant difference in the emotional make-up of women who respond well and women who respond poorly to treatment with sex hormones. They know that sex hormones have some effect on how people feel about sex. Therefore the chemical may interact differently with chemicals in the body as the emotional make-up differs.

If they can find out what kinds of emotional make-up will respond well to hormonal treatment, they can use psychological tests, including the Rorschach ink blot tests, to predict success of that kind of treatment.

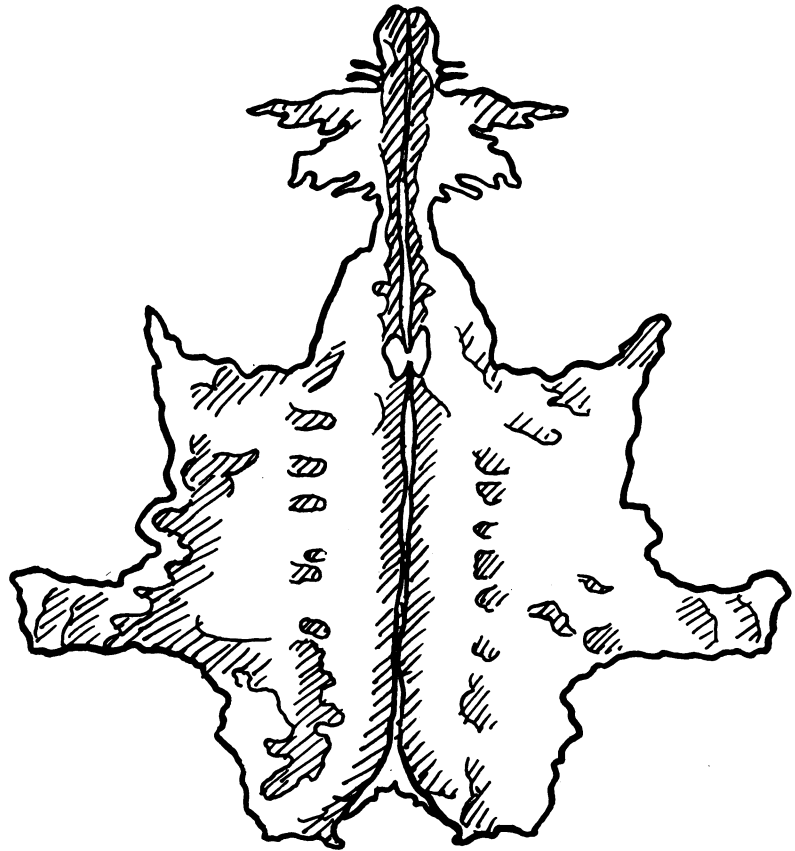
This is only one phase of an investigation of the relationships between cancer and the emotions. It is too early, yet, for any findings. However, it is significant that biochemists—people who usually work with the complexity of chemical compounds and their effects on organs of the body—now want to know how the emotions fit into the picture.

Ulcers, the disease of civilization, are com-

monly thought of as a result of the tension and high pressure resulting from the competition of the American market place. Where people rush around, where the papers are stacked high on the desk, where decisions affecting millions of dollars are constantly made under pressure—there the incidence of ulcers is high.

A team of medical men and psychologists at the Long Beach, Calif., Veterans Administration Hospital has asked the question: If such things as ulcers are so intimately tied up with the emotions, with tension and stress, why not cancer?

As a matter of fact, one leading cancer surgeon, Dr. Alton Oschner, Henderson Professor of Surgery at Tulane in New Orleans, will take out most of the stomach of a patient whenever there are signs of ulcers in the stomach. Many physicians do not believe that ulcers can develop into cancer. Dr. Oschner believes that they do



SIMULATED RORSCHACH BLOT—What does this remind you of? This is similar to a Rorschach ink blot—actual blots are not released for fear of spoiling the test—used to measure people's emotional make-up. People are asked to tell what the blots remind them of. This and other tests are being used to measure the difference in emotional make-up between cancer patients and other people.

develop into cancer often enough to warrant taking out all but a small portion of the stomach as a preventive measure.

Whether or not ulcers, commonly accepted as a result of tensions and stress, can develop into cancer, it is generally believed that emotions can markedly influence the body defenses against disease. The course of an illness, even an infection such as tuberculosis, can be remarkably influenced by emotional stresses.

Dr. Philip M. West of the Medical School at the University of California at Los Angeles heads a team of psychologists and medical men trying to find out the relationship between the rates of growth of various cancers and the emotional make-up of cancer patients at the Long Beach Veterans Hospital.

Growth Rates Vary

He has pointed out that there are tremendous differences in the growth rates of the same kinds of cancers in different patients. Physicians have been at a loss to explain this. For instance, Hodgkin's disease, one type of cancer, kills some victims in a few weeks—others live for as long as 20 years. Or a patient with stomach cancer may live only a short time, despite the best early diagnosis and treatment. Another with the same kind of cancer may survive for many years, even when the original cancer cannot be totally removed.

What makes the difference?

Dr. West and his collaborators, Dr. Eugene M. Blumberg, clinical psychologist, University of Southern California, and Dr. Frank W. Ellis, in charge of the tumor clinic at the veterans hospital, asked themselves that question.

They decided to find out whether there were any personality differences between the patients with fast-growing cancer tumors and those with slow-growing tumors. They gave many psychological tests.

Find Personality Pattern

When the tests were scored, they suggested that people with rapidly growing cancers have a strong tendency to conceal their inner feelings, and are less able to reduce tensions by doing something about them and getting them off their chests than are the patients with slowly-growing tumors.

The results indicate that there are very definite personality patterns in cancer patients which can be correlated, with an accuracy of 88%, with the relative rapidity or slowness of cancer progression in the individual patient.

As a result of these experiments physicians may be able to take a patient with newly discovered cancer and predict with a reasonable degree of accuracy just how fast his disease will progress. This will have an important bearing on the method of treatment, and how the patient will respond to any kind of treatment.

But a still larger question remains unanswered. Do the emotions act on the body substances which produce this fast rate of growth, or is there something else which is the cause of both the tensions and the fast-growing tumors?

Leukemia is called cancer of the blood. It is the over-production of blood cells similar to the white blood cells used by the body to fight infections. These abnormal

white blood cells multiply so fast that they overwhelm and replace the body's normal blood supply. Leukemia, today, is always fatal, although certain chemicals and certain hormones can retard the swift pace of the disease.

When you are subject to physical or mental stresses, such as cold, hunger, fright, anger or fatigue, the production of hormones by the adrenal cortex goes up. This

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is to give you that added push necessary to meet the crisis brought about by the stress.

However, these hormones attack and kill the white blood cells or lymphocytes. Yet Drs. Thomas F. Dougherty and Jules A. Frank of the University of Utah discovered that this destruction of normal white blood cells is not always apparent. They seem to be replaced, sometimes almost as fast as, and sometimes faster than, the hormones kill the cells.

"Stress Cells" Found

Looking further into the matter, they found that the replacement cells were not exactly like the normal cells. They appeared to be somewhat similar to the leukemia cells although they were not deadly. Dr. Dougherty named them "stress cells."

What caused the production of these stress cells? The two scientists have now identified a mysterious substance "X" which seems to be produced when mental or physical stress takes hold of an animal or a human. This substance "X", which they have not as yet identified completely but which they have seen, causes the lymphatic tissues to produce these "blood brothers" to the white blood cells, the stress cells.

This has an influence on the course of a great many diseases, such as arthritis and tuberculosis. It has a bearing on the disease of leukemia. Is there something similar to substance "X" which is responsible for the production of leukemic cells? Is a leukemic cell an abnormal stress cell?

Tiny electric currents course through the brain and change magnitude as we think or dream or experience emotions. These can be measured, and are measured by

neurologists to find out something about the activity of various parts of the brain. Only recently some scientists have been sending small electric currents into the brain to find out whether they can affect the brain activity and many of the body functions which depend on the brain.

At Tulane in New Orleans, Dr. Robert G. Heath, a psychoanalyst, implanted electrodes three inches into the skull of a woman with incurable cancer of the cervix. She was in constant pain. Two hours before Dr. Heath gave her the first small jolt of electricity, she had been given a large amount of morphine which had little effect on her horrible pain. Her face was drawn with suffering. She was down to 75 pounds in weight.

Two milliamperes of electricity—instantly, she lost her pain. What is more, the effect lasted for about a week and could be repeated. Two months after the first jolt,

she was up and walking around the hospital, and she had made plans to go out to a movie.

Accompanying the loss of the pain there was a rise in the production of certain hormones called 17-keto-steroids. Dr. Heath saw both a psychological and a chemical change.

This patient's cancer was widespread. It had invaded many adjacent parts of the body. When Dr. Heath was asked whether his treatment for pain had had any effect on the cancer, he answered: "Who knows?"

That, in two words, is the answer to any question today about the interrelationships between cancer and the emotions. But five years ago, the answer would have been a decided "No." Now the scientists have learned enough and guessed enough so that this question has become an important part of the general picture of cancer research.

Science News Letter, June 13, 1953

• Books of the Week •

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

ADVANCED STYLE IN LETTERING—Jean Loisy, Ed.—*Sterling*, 110 p., illus., \$5.00. Contains new letter designs which have been created and evolved in Europe, and describes ways in which they have been utilized.

THE ART AND SCIENCE OF STAGE MANAGEMENT—Peter Goffin—*Philosophical Library*, 120 p., \$3.75. A critical study of the aesthetic and technical aspects.

ATOMS, MEN AND GOD—Paul E. Sabine—*Philosophical Library*, 226 p., \$3.75. Attempts a synthesis of the fundamental concepts of modern science and psychology with the intellectual content of Protestant religious faith.

THE CAPTIVE MIND—Czeslaw Milosz, translated by Jane Zielonko—*Knopf*, 251 p., \$3.50. By the Polish poet who broke with the communist government in Poland, with tells of the moral and psychological effects of the official philosophy of dialectical materialism on the people behind the Iron Curtain.

CHICHICASTENANGO: A Guatemalan Village—Ruth Bunzel—*Augustin*, American Ethnological Society Pub. XXII, 438 p., \$7.00. A study of the life and culture of a town in the Guatemalan Highlands.

COLOMBIA: A General Survey—W. O. Galbraith—*Royal Inst. of Int. Affairs*, 140 p., illus., \$2.50. An introduction to the country's history and geography, its present and potential economic development, its health problems, etc.

FRUIT OF AN IMPULSE: Forty-five Years of the Carnegie Foundation, 1905-1950—Howard J. Savage—*Harcourt, Brace*, 407 p., \$6.00. A history of this noted philanthropy, its operations, the development of its policies and their effects upon American education.

HAPPY JOURNEY: Preparing Your Child For School—Beatrice M. Gudridge—*National Education Association*, 32 p., illus., paper, 40 cents. Ways in which parents can aid future first graders and about-to-be kindergartners to adjust happily and easily to school living.

A HERD OF MULE DEER: A Record of Observations Made on the Hastings Natural History Reservation—Jean M. Linsdale and P. Quentin Tomich—*Univ. of California Press*, 567 p., illus., \$8.50. Demonstrates the deers' many responses to a wide range of environmental situations in one locality.

AN INTRODUCTION TO ANTHROPOLOGY—Ralph L. Beals and Harry Hoijer—*Macmillan*, 658 p., illus., \$6.00. An elementary college text, this has interesting sections on racial types, race problems and on the new applied anthropology. Includes a discussion of the problem of removing the native people from the atomic proving ground at Bikini.

IONIC PROCESSES IN SOLUTION—Ronald W. Gurney—*McGraw-Hill*, 275 p., illus., \$6.50. For graduate students and research workers in the field of electrochemistry, this deals with the chemistry of ions in solution.

A LABORATORY MANUAL OF COMPARATIVE EMBRYOLOGY—Alfred F. Huettner—*Macmillan*, 116 p., paper, \$1.75. Aids in facilitating the laboratory work of a course in embryology.

LET'S WORK TOGETHER IN COMMUNITY SERVICE—Eloise Walton—*Public Affairs Committee*, 28 p., illus., paper, 25 cents. Points out the need for welfare agencies to co-ordinate their efforts in aiding "problem" families.

LOGIC AND LANGUAGE: Second Series—A. G. N. Flew—*Philosophical Library*, 242 p., \$4.75. An

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