

MEDICINE

Cancer, Thyroid Link

Many cancer patients have a history of thyroid disease and animals tested with iodine deficient diets showed a significant incidence of thyroid cancer—By Faye Marley

► HISTORIES of thyroid diseases are present in more breast cancer patients than researchers expected.

Dr. Robert T. Schaller Jr. of the University of Washington School of Medicine, Seattle, reported to the 50th annual meeting of the American College of Surgeons in Chicago that this observation sparked a thyroid investigation with mice that showed surprising results.

It is well known that iodine is required in the diet to prevent goiter, so the researchers fed mice a diet deficient in iodine. Only 10 of 73 mice survived this diet, and autopsy showed a significant incidence of thyroid cancer with direct invasion of nearby blood vessels and muscle.

Other reports on breast cancer indicated that radical mastectomy, which includes removal of lymph nodes and muscles extending into the arm, is most successful and that more patients are alive after five years than when the breast alone is removed.

Dr. Joseph H. Farrow of New York Memorial Hospital said that at his hospital 61% of the patients undergoing radical mastectomy were alive after five years.

Another study of breast tumor in the rat reported by Dr. William S. Fletcher of the University of Oregon Medical School, showed that breast tumors got smaller and did not grow again if treated with a preparation containing female sex hormones that have been labeled with radioactive phosphorus. In control groups, rats were treated with radioactive phosphorus alone and the tumors continued to grow without noticeable effect.

Dr. Fletcher's team said the way the hormone preparation, called stilbestrol, acts is to suppress the animal's own hormone secretion rather than through direct effect on the tumors.

Increasing use of the intense light beam of lasers after tissue has been stained with copper sulfate solution could mean additional cancer destruction, Dr. William Z. Yahr of Montefiore Hospital, New York, pointed out.

Dr. Yahr's team was successful in using the laser to join blood vessels to improve blood flow to the vital organs. Formerly used methods have blocked blood flow. Microsurgery, for example, requires a steady dry field and a long period of blocking blood flow to accomplish the union of blood vessels. Mechanical staplers and internal dissolving rods have reduced, but not eliminated, the time that blood flow is blocked.

The laser technique was not successful until copper sulfate was used to stain the tissue, although carbon, pigment and graphite were previously tried in an attempt to improve tissue absorption.

Use of the laser is expected for joining other blood vessels to help blood flow to the brain and the heart, Dr. Yahr said. His method is to lap over the blood vessels, thus creating a common wall. Then the proposed site of union is stained to obtain maximum absorption of the intense light beam after the tissues are stained with copper sulfate. The copper sulfate more than doubles the absorption capability of the tissues.

When the beam was focused on the ordinary artery wall, only superficial coagulation was seen, but when it was turned onto the segment stained with copper sulfate, complete penetration occurred, welding the parts together.

• Science News Letter, 86:243 October 17, 1964

Cholesterol Lowered

► LOWERING CHOLESTEROL levels by surgery has been successful with eight patients, some of whom had had several heart attacks or other illnesses believed related to high cholesterol, Dr. Henry Buchwald of the University of Minnesota department of surgery reported.

A ninth patient died following another heart attack.

The surgery shuts off only the lower third of the small intestine, thus bypassing the ileum, which had been shown in animal experiments to be the most important site of cholesterol absorption.

The only trouble found following surgery has been the inability to absorb vitamin B-12, but two or three injections of this vitamin have been given each month to the patients to prevent any possible deficiency.

Two of Dr. Buchwald's patients were young women in their 20s who had lumps on hands or ankles because of high cholesterol levels. They were sisters whose family had a history of heart attacks and cholesterol levels up to 600 instead of the U.S. normal level of 180 to 250.

"The Chinese cholesterol level is 80 to 150," Dr. Buchwald told the American College of Surgeons meeting in Chicago. The less-rich diet of the Chinese is responsible for the lower cholesterol, and probably would be a better level for Americans, he said.

Patients he operated on had not responded to dietary treatment but their cholesterol levels fell almost at once after surgery.

Although no one has proved that high cholesterol causes hardening of the arteries and consequent strokes or heart attacks, Dr. Buchwald said results of his operations appeared to be of value as a treatment. Even where the patient is the only one in his family known to have high cholesterol, the surgeon said he advises the comparatively simple operation.

• Science News Letter, 86:243 October 17, 1964

Oil Stops Static Sparks

► DANGER OF SPARKS from static in the hair of dogs and possibly humans being treated in hyperbaric, or high-pressure, oxygen chambers is being eliminated by surgeons by treating the hair with mineral oil, it was reported at the American College of Surgeons meeting, Chicago.

Dr. Joseph Roshe of the Maumee Valley Hospital, Toledo, Ohio, looks forward to treatment soon of patients with coronary artery disease in hyperbaric chambers in many hospitals. The danger of fire is lessened also by putting siliconized cotton clothing and rubber caps on patients.

English clinics have begun high-pressure oxygen treatment in their ambulances when heart patients are transported to hyperbaric chambers. Portable compression chambers are used in the ambulances.

Dr. Roshe reported work on dogs in which the coronary artery had been artificially occluded to simulate a heart attack in humans. Pressurization in the hyperbaric chamber was begun with 100% oxygen immediately after the occlusion, and 14 dogs survived.

With humans 100% oxygen cannot be used, but in the high-pressure chamber the oxygen is 18 to 20 times that which a heart patient receives in an oxygen tent.

Hyperbaric oxygenation is used to treat carbon monoxide poisoning, the bends and tetanus, and to revive infants who have difficulty in breathing. An exhibit at the College of Surgeons meeting showed artificial organs preserved by freezing and hyperbaric oxygenation in combination. The organs can be kept ready for transplant about 24 hours.

• Science News Letter, 86:243 October 17, 1964



Northwestern University

ENZYME MODEL—Dr. Myron Bender, professor of chemistry, Northwestern University, points out in his detailed model of the enzyme chymotrypsin, the loop of amino acid molecules in which a protein molecule must be inserted before it can be digested.