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MGH News

Hip Fractures Increase Among the Nation's Elderly

New Tactics Bring Gains in the Fight Against Leukemia

A new strategy for overcoming one of the most lethal forms of cancer is producing impressive results.

Researchers are making new inroads against a cancer of blood-forming tissues—acute myelogenous leukemia (AML)—which principally affects adults and is the most common form of adult leukemia. Left untreated, AML is fatal within a few weeks of diagnosis.

In the last half dozen years, approximately 70 percent of adult patients with AML achieved a complete remission with initial drug treatment. With follow-up maintenance therapy, 5 to 20 percent of those in remission achieved cures (no relapses for over five years).

Despite all of their efforts, researchers have not been able to improve on the 70 percent remission rate. They have, however, been able to improve on ways to prevent remission relapses.

The investigators devised an intensive consolidation therapy to replace the maintenance care that customarily followed initial treatments. Since inception of the new strategy, some centers have even reported curing as many as half the adult patients they treated.

"Studies show that maintenance programs of up to a year help such patients compared to no treatment after achieving complete remission," said Dr. Philip C. Amrein, an MGH cancer specialist. "However, beyond that length of time maintenance therapy, given on an outpatient basis, probably has little value."

At first, in an effort to avert a possible

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A frequent consequence of growing old—a loss of skeletal bone—is posing a mounting health threat to Americans.

In 1970, some 200,000 hip fractures were recorded in the United States, the largest percentage affecting the elderly, particularly women. By 1980, the yearly incidence had risen to 270,000. Researchers predict the number will surpass 500,000 annually by the year 2000.

Hip fracture patients already account for more than half of all days spent in hospitals for broken bones.

Conditions such as osteoporosis that are characterized by bone thinning make older people more susceptible to fracture from accidents. "The incidence of hip fractures doubles every five years after the age of 50," said Alan M. Jette, Ph.D., Director of the Graduate Program in Physical Therapy at the MGH Institute of Health Professions. He added, "Of every 20 women who reach age 65, one will

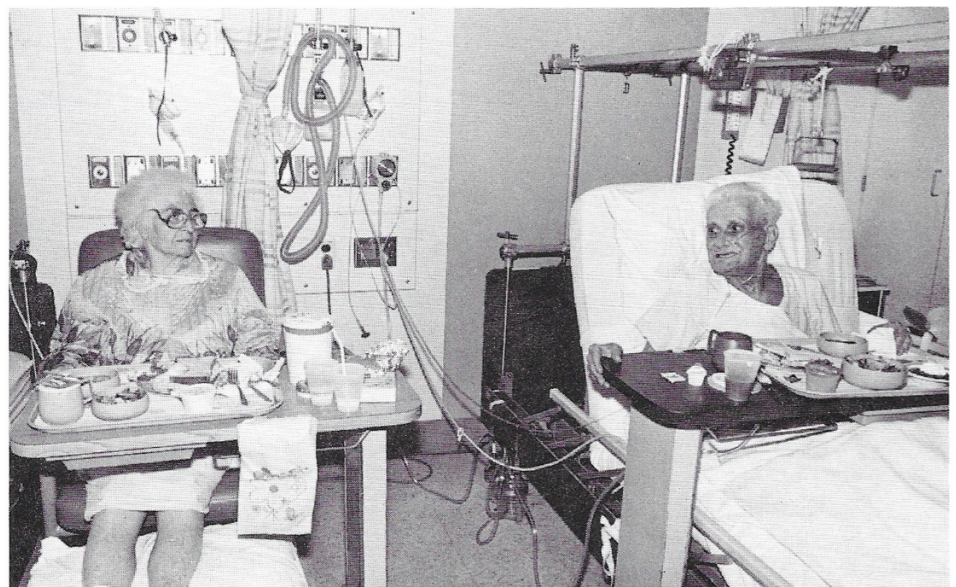
later suffer at least one hip fracture."

Few studies have been conducted in the United States on the disability impact of a broken hip on an older person. With this in mind, Dr. Jette set out in 1983 to follow the status of 75 patients admitted to the MGH with hip fractures. He sought to learn how they fared during the 12 months following their accident.

Speaking at a day-long seminar on geriatric medicine sponsored by the Spaulding Rehabilitation Hospital, a major affiliate of the MGH, Dr. Jette reported some of the results of the study he conducted with Dr. Edward W. Champion, Chief of the MGH Geriatrics Unit; Dr. Paul D. Cleary of the Division of Aging, Harvard Medical School, and Bette Ann Harris of the MGH Institute of Health Professions.

The average age of the patients was just under 80 years, and 67 percent were

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Mr. and Mrs. Carl Cirignano, both 87, were hospitalized with hip fractures after simultaneous falls in their home in Boston's North End.

Remembering the Early Days of Nuclear Medicine

Long before the United States unleashed the awesome power of the atomic bomb to end World War II, scientists at the MGH and MIT pooled their talents and harnessed nuclear energy for another purpose—to battle disease.

This month marks the 50th anniversary of work that led to the first successful treatment of humans with an artificially radioactive material; specifically, radioactive iodine to treat an overactive thyroid gland (hyperthyroidism).

The collaboration between the MGH Thyroid Unit and the Radioactivity Center at the Massachusetts Institute of Technology helped to usher in the era of nuclear medicine.

Radioactive iodine and the technique by which it was first administered to MGH patients still hold an important place in the treatment of thyroid illnesses.

Knowledge of the relationship between iodine and the thyroid gland which regulates chemical changes in the body (metabolism) can be traced to ancient days. Enlarged thyroid glands (goiters) were treated then with seaweed and burnt sponge, both of which contain iodine.

Scientific studies during the 1800s and early 1900s established that iodine is an essential ingredient of thyroid hormone and that in order to obtain iodine to produce the hormone the thyroid gland has developed a special avidity for the element.

It came as no surprise, therefore, in

episodes of bleeding, the physician can usually control the condition with blood-clotting platelets and with plasma. And a great variety of antibiotics is at the doctor's disposal to fight infections. "Excellent supportive care is the key to getting patients through the dangerous periods when the normal white cells and platelets are very low," the MGH specialist said.

A number of centers are investigating bone marrow transplantation as a way to beat leukemia. The centers tend not to do such transplants, however, until the patient's leukemia has been in remission for several months. And a patient over 40 is usually not accepted for the procedure. Hence, less than 25 percent of adults with AML are ever even considered for bone marrow transplantation.

Dr. Amrein, who is also Assistant Professor of Medicine at Harvard Medical School, said that 30 percent of patients given someone else's bone marrow subsequently die from graft-versus-host disease. Another 10 to 20 percent die from

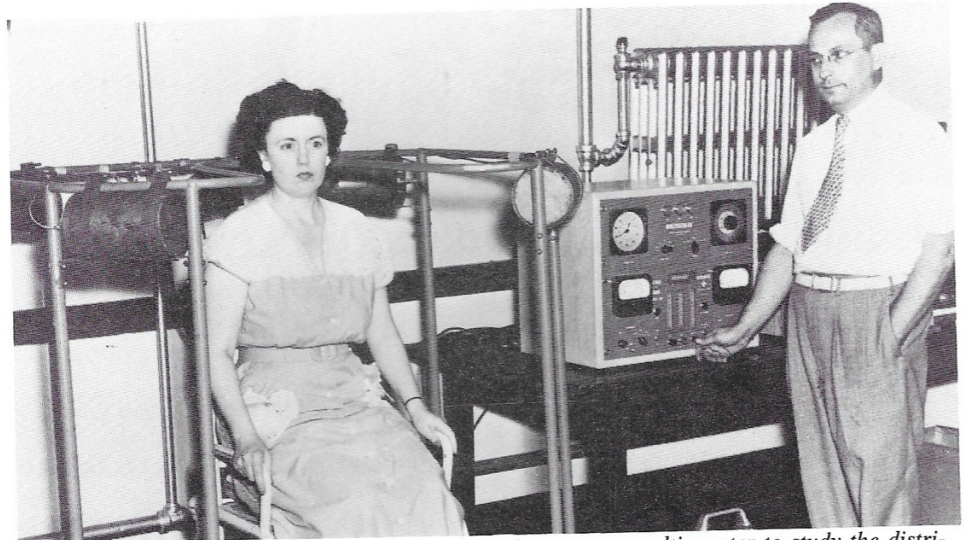
November of 1936 that Dr. Saul Hertz, Chief of the MGH Thyroid Unit, posed a question to MIT President Karl T. Compton at Harvard Medical School when Dr. Compton delivered a talk on "What Physics Can Do for Biology and Medicine." Dr. Hertz asked whether it was possible to produce a radioactive iodine.

Dr. Compton did not know the answer immediately but promised to look into it. The following month he wrote Dr. Hertz to say that indeed iodine can be made artificially radioactive. This set in motion joint studies to learn if such iodine could serve as a tool in the study of thyroid

physiology and possibly as an agent in the diagnosis and treatment of thyroid disease.

Prof. Robley D. Evans of MIT assumed charge of the physics phase of the program and retained the services of a young physicist, Arthur Roberts, Ph.D., for the project. Working under the general direction of Dr. James Howard Means, MGH Chief of Medical Services, Dr. Hertz collaborated with Dr. Roberts on the medical aspects. Dr. Means described the arrangement as a sound partnership of physicists and physicians.

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In this photo taken in the early 1940s, Dr. Saul Hertz uses a multicounter to study the distribution of radioactive iodine in a patient.

infectious complications.

"Since the cure rate is rising so much in the consolidation therapy programs," he said, "many physicians are recommending these treatments during the first remission and that a bone marrow transplant be held off until a second remission."

Once a patient relapses, the chances of a second remission depend upon several factors. A person in remission for a year or longer has a better outlook after a relapse than someone whose relapse follows a remission of only a few months. Also, age is important; the older the patient, the less able he is to survive the treatment.

In childhood leukemia, Dr. John T. Truman, MGH Chief of Pediatric Hematology-Oncology, said that it is far better for a patient to be a 5-year-old instead of a 15-year-old.

Among teenage leukemia patients with high white cell counts, Dr. Truman estimates the recovery rate at about 50 per-

cent. At the other extreme, in children between 2 and 6 years of age who do not have a high white cell count, recovery from leukemia is about 80 percent.

"We're using the same drugs that we did six or seven years ago but more of them," he said.

The American Cancer Society estimates that 24,600 adults and 2,000 children will be diagnosed during 1987 as having leukemia. In the same year, the society expects to learn of 17,800 deaths from all forms of the disease.

In a sense, specialists who treat adults for this devastating blood disorder are taking a lesson from their pediatric colleagues. The route to successful treatments in children involved aggressive medical action, with accompanying risks. Applied subsequently to adult patients, the same course of care initially failed, but when the therapy was further intensified, and the risk-taking increased, the strategy began to work. ■