

Systemic Radiation

Therapy Using radioactive isotopes to treat certain cancers is called systemic radiation therapy. The radioactive isotopes may be swallowed, given intravenously or injected into the body. For example, radioactive iodine (I-131) capsules are given to patients to treat some types of thyroid cancer. Another example is the use of intravenous radioactive strontium to treat pain due to cancer that has spread to the bone.

Radioimmunotherapy

Recent research has focused on the use of radioactive monoclonal antibodies, also called radiolabeled antibodies, to deliver doses of radiation directly to a tumor. This process is known as radioimmunotherapy. Antibodies are made by the body in response to the presence of antigens (substances recognized as foreign by the immune system). Large quantities of particular types of antibodies, called monoclonal antibodies, can be made in the laboratory. These monoclonal antibodies can be attached to radioactive isotopes in a process called radiolabeling. When injected into the body, the radiolabeled antibodies circulate in the bloodstream until they locate and bind to the surface of cancer cells. The cancer cells are then destroyed by the radiation carried in the antibody.

Intraoperative Radiation Therapy

Radiation therapy given during surgery is called intraoperative radiation therapy. Intraoperative radiation therapy is helpful when vital normal organs are dangerously close to the tumor. During an operation, a surgeon temporarily moves the normal organs out of the way so radiation can be applied directly to the tumor. This allows your radiation oncologist to avoid exposing those organs to radiation. Intraoperative radiation can be given as external beam therapy or as brachytherapy.

Investigational Radiation Therapies Several specialized types of radiation therapy are available in a limited number of facilities in the United States. These treatments are currently being studied to determine their best use. You can discuss with your radiation oncologist whether these therapies may benefit you.