RADIATION, BENEFICIAL RAYS OF HEALING

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Imbued in today's pop culture is an image of radiation that hails from 1950s sci-fi flicks that of devastation, mutation and human demise. This impression is further augmented by real-life radiation contamination in areas such as Chernobyl, Hiroshima and Nagasaki.

So, it is often with great surprise to many that radiation, with all its destructive qualities, can also be harnessed into beneficial therapies for cancer patients.

This is achieved through precise delivery of enough radiation to cause damage to the DNA of cancerous cells, resulting in their arrested growth or death.

Radiation therapies take many forms. The most recognized and accepted for their effectiveness are: external beam radiation, 3D conformal, gamma knife, HDR brachytherapy, and prostate seed implantations. They may be used as the sole treatment a cancer patient will receive, or in conjunction with other treatments, such as surgery or chemotherapy.

External beam radiation has been in use since the late 1800's, when it was first administered to breast patients. The application of radiation was rudimentary, and results in these early years were sketchy.

With the advent of computerization, the last twenty-five years have seen vast improvements in the delivery and precise control of radiation doses. This has opened the door to successful treatment.

Unlike chemotherapy, which affects the entire body, radiation therapy is very localized treatment is given to a specific area. The goal is to protect as much healthy tissue as possible.

Radiation may be administered externally or internally. With external beam and 3D conformal therapies, a linear accelerator is used to deliver the radiation.

Radiation treatments are often given five days a week, over the course of five to eight weeks. Weekends provide normal cells the “time off” to recover. The process itself is painless, with minimal side effects, and allows patients to pursue their regular daily activities.

The use of 3D conformal therapy has expanded the precision in which radiation may be administered. By using advanced computer graphics, CT scans and algorithms to precisely generate a visual, three-dimensional image of a tumor, radiation may be delivered within the tumor's confines. This minimizes the damage to surrounding, healthy tissue, maximizes the dosage given, and reduces any side effects.

Internal application of radiation is called brachytherapy. The radiation source may be temporarily placed inside the body through the use of catheters or wires; or permanently placed, such as with prostate seed implants.

Prostate seed implants have given oncologists and urologists an effective means to treat early stage prostate cancer.

Composed of radioactive iodine-125 or palladium-103, titanium “seeds,” the size of rice grains are permanently placed in the prostate. These seeds will slowly administer a specific dose of radiation over a period of months.

The benefits are that it is an outpatient procedure that has few complications, and reduces the incidence of impotence and incontinence. Patients are also able to return to their normal routines more quickly than with surgery or external radiation.

The type of radiation therapy selected is contingent upon the stage and nature of the cancer being treated. Sometimes several options may be available, especially with early-diagnosed cancers. A patient's “team” of medical oncologist, radiation oncologist and other physicians will work together to determine the best course of action.