Cancer Treatment - Taking Pride in the Advances in Radiation Therapy

It looks like the book all undertaking nuclear radiation therapy should read.

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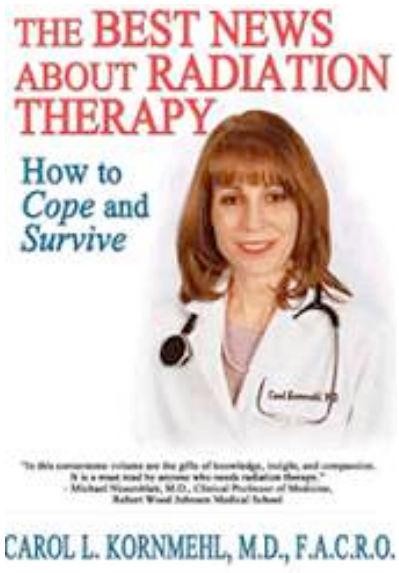
"The Best News About Radiation Therapy" Book



Why is radiation therapy so stigmatized? After all, it is a very useful treatment and its benefits far outweigh its risks. How can a modality that cures cancer and spares people from mutilating cancer surgery, such as the removal of the voice box, a mastectomy, and the amputation of limbs, be so fearsome?

Unfortunately, people are misinformed. Also, most people's perceptions of radiation therapy are colored by unfortunate anecdotes, which people have not put into their proper perspective. After all, one hears about bad outcomes when people travel in motor vehicles. Yet, people do not fear the potential dangers of driving or being a passenger they way dread the thought of radiation therapy. Furthermore, society does not make the distinction between cleanly prescribed medical radiation and nuclear accidents like Chernobyl.

In addition, most people are unaware of advances that revolutionized radiation therapy in the new millennium. After all, radiation therapy in 2005 is a world apart from what it was more than 100 years ago, when Madame Curie discovered that x-rays shrank tumors.

Originally, radiation treatments were delivered with radioactive materials, called isotopes, such as radium, which were placed on, in, or along side of tumors. People subsequently sustained burns and other devastating complications.

Moreover, the earliest radiotherapy machines did not have energy high enough to penetrate to the area of interest, also known as the target, such as the prostate gland. Instead, the radiation unintentionally deposited a substantial dose on the skin, resulting in burns. Also, these machines were stationary, and could not rotate around the area that needed to be treated.

Today, such equipment has been supplanted by sophisticated, computer driven, high energy linear accelerators, which can treat a target from multiple angles, thus spreading out the radiation dose instead of concentrating it on only one area. This is one measure that protects normal tissue.

In the early days, there were no treatment planning computers to perform dosimetry, the precise measurement of the radiation dose in the target and the normal tissues through which the radiation beam passed.

Also, there were no data to show that by prescribing radiation therapy in a protracted manner over several weeks, the normal tissues recovered from the insult of radiation, while tumor cells died and were naturally eliminated by the body.

Today, radiation oncologists know how much radiation therapy each organ can tolerate before it incurs injury. Hence, radiation therapy can be safely prescribed to treat the target properly, yet spare the healthy, surrounding organs.

When the radiation oncologist cannot avoid treating the skin, such as when the chest wall is irradiated after a mastectomy to prevent a recurrence on the chest wall, a prophylactic treatment break is given to prevent or reduce the severity of a burn. Also, such a problem is temporary, and with proper care, patients get through it.

Through the evolution of radiation therapy, radiation oncologists have learned that shaping the treatment field to conform to the shape of the target limits the amount of normal tissue exposed to radiation. This means that the treatment field, which is normally a square or a rectangle, can be shaped with lead blocking devices to match the shape of or target. Modern techniques use CAT scans and 3-D treatment planning computers for this purpose.

More sophisticated imaging tools, such as high resolution CAT scans, MRI scans, and PET scans, further enable radiation oncologists to confine radiation therapy to the target. For example, CAT scan and conformal blocking techniques for breast cancer allows the treatment team to spare virtually all the heart when the left breast or chest wall is treated.

Taking these tools to the next level, targeted radiation therapy techniques have evolved. These ensure the radiation hits the target precisely, which is especially important for organs that shift, such as a lung tumor with respiration and the prostate with bladder and rectal emptying and re-filling. Such innovative technology eliminates any uncertainties in defining and treating the target, thus enabling the use of much smaller treatment fields and higher doses, which potentially translates into more cures.

Fortunately, contemporary radiation therapy is generally a kind and gentle treatment that is highly effective at controlling the symptoms of cancer and at curing the disease, with few or no side effects.

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