Repeating radiation therapy — safely

"Many people mistakenly believe that if a patient has already had radiation therapy to treat cancer, that patient is not a good candidate for additional radiation therapy if the cancer recurs or if another cancer develops in the future," notes board-certified radiation oncologist Lawrence D. Hochman, DO, of Florida Cancer Institute.

"That was conventional wisdom in the past, because healthy tissue can tolerate only so much cumulative radiation in a lifetime."

Dr. Hochman explains that when radiation is used as the primary treatment modality against cancer, the goal in treatment planning is always to deliver the most effective dose directly to the tumor while limiting the radiation exposure of noncancerous tissue.

"Older methods of delivery necessarily resulted in higher doses of radiation being delivered to healthy tissue, thus limiting our options for future irradiation near sensitive areas like the spinal cord, brain, and eyes," he points out.

Now, he notes, sophisticated imaging tools like positron emission tomography (PET) and computed tomography (CT) are used to accurately map a tumor's location and size, and delivery methods like 3D conformal therapy and intensity modulated radiation therapy (IMRT) make it possible to sculpt the treatment area to more closely target the tumor, thus sparing nearby healthy organs and tissue as much as possible.

"This has had a marked impact on survival rates for patients with recurrent head and neck cancers that were previously irradiated," reports Dr. Hochman.

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"If the risks of surgery are too great for the recurrent cancers, these patients have traditionally been treated with chemotherapy alone, resulting in a two-year survival rate of just 10 percent.

"Now, IMRT allows us to more precisely target the radiation dose. When we use both chemotherapy and radiation therapy to treat these recurrent tumors, the survival rate climbs to 25 percent."

Re-irradiation can also be used in palliative care to help relieve symptoms in cases of recurrent bone or brain cancer.

"We cannot use the full dose of radiation that was used in the initial treatment," says Dr. Hochman, "but by carefully tailoring a reduced radiation dose we have been able to help patients achieve improved survival times and increased quality of life."

Dr. Hochman adds that re-irradiation is also helpful for patients who originally presented with primary cancers of the lung or prostate and then developed bone cancers that were treated with radiation.

"If the cancer is evident in several areas, it is more difficult to design a treatment plan to address the bone metastasis," says Dr. Hochman. "Instead, we can treat the patient with a radioactive liquid called quadramet that is administered much the way the tracer is when we perform bone scans. This liquid makes its way to all those areas of bone involvement, even those that have previously been irradiated, and brings the benefits of radiation therapy to previously treated areas without increasing the cumulative dose to noninvolved tissue."

The key to successful re-irradiation in all instances, reminds Dr. Hochman, is careful evaluation of each patient's specific situation.

"Once we have precisely located the recurrent tumor and designed a treatment plan that will both effectively treat the tumor and spare normal tissue," he assures, "we can continue to offer patients the benefits of radiation therapy with reduced risk of side effects from cumulative dosing." **FHCN**–*Billie S. Noakes*