Between the ‘Lines

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Are Advanced Radiation Therapy Technologies Required for Treating Patients With Hodgkin Lymphoma?

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In the past 2 decades, remarkable advances have occurred in radiation therapy technology, including development of inverse treatment planning, improved patient immobilization techniques and organ motion adaptations, precision treatment delivery systems, and treatment verification. These advances have been facilitated by improvements in diagnostic imaging, including MRI and PET/CT. At first, these innovations were used for the treatment of solid tumors, wherein it became possible to further escalate tumor dose in an effort to improve local control, or to lower doses to organs at risk (OARs), decreasing the likelihood of acute or subacute effects.

But are these advances helpful in the management of patients with lymphoma? For Hodgkin lymphoma, doses in combined modality therapy programs may be as low as 20 Gy, and doses higher than 36 Gy are rarely required. Local control is not an issue, even with these low doses, and acute or subacute problems due to irradiation of OARs are either minimal or transient. However, survivors of Hodgkin lymphoma treatment have differences compared with patients with solid tumors: they are often younger, they are cured at high rates, and we expect them to be in good health when we see them in our follow-up clinics 20 or more years after therapy.

During those years posttreatment, patients are at risk for significant late complications of treatment, despite the low doses that they received. These risks include cardiac and pulmonary disease and secondary cancers. Adoption of advanced radiation therapy technologies has the ability to significantly reduce these risks, which is why these techniques are endorsed in the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) for Hodgkin Lymphoma.

Consider, for example, cardiac disease, which is the second leading cause of death for patients who have been treated for Hodgkin lymphoma. The risk for cardiovascular disease is clearly related to radiation dose. It has been clearly shown that the dose to the heart and cardiac subunits can be reduced using intensity-modulated radiotherapy (IMRT) or proton therapy.

The risk for cardiac disease is directly related to dose, and the dose that the heart is exposed to can be reduced with IMRT or proton therapy; so are patients with Hodgkin lymphoma being treated with these technologies when appropriate? The answer is no. But it is not necessarily the fault of the treating physicians. Insurance companies, insurance intermediaries, and utilization review managers consider the use of IMRT or proton therapy to be investigational in Hodgkin lymphoma, even with strong circumstantial evidence that the risk of late cardiac disease and death can be reduced by incorporating these technologies into practice.

For example, I recently consulted on a middle-age woman who required consolidative radiation therapy to her mediastinum after chemotherapy. She had presented with a large mediastinal mass that extended into her pericardium. I defined the treatment volumes according to the involved site radiation therapy guidelines published by the International Lymphoma Radiation Oncology Group, which called for a radiation dose of 36 Gy. With a conventional 3-dimensional plan (AP/PA fields), her mean heart dose was greater than 30 Gy, which would result in a high risk for pericardial, valvular, and coronary artery diseases, most of which would not become
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apparent for more than a decade. An IMRT plan achieved a mean heart dose that was 30% less, with an associated decrease in the risk for cardiac disease of approximately 65%. Approval for the IMRT approach would seem to be a “no brainer,” but it was denied by Anthem utilization management services, which was provided all of the treatment detail and late-effect risk data. This decision was appealed, and the treatment was denied a second time. These denials were even endorsed by an outside radiation oncologist who was retained by the utilization management service. Not wishing to be denied appropriate therapy, the patient retained an attorney, who wrote a 10-page dossier to support IMRT. Finally, the patient and attorney succeeded in overturning the denial after CalPERS (California Public Employees’ Retirement System) review.

Anthem had written that they would approve IMRT for “prostate, head and neck, thyroid, central nervous system, and pediatric tumors; anal, rectal, and bladder cancers; gynecologic tumors; pelvic sarcomas; certain left breast and lung cancers.” But for mediastinal lymphoma, IMRT was considered investigational! Further, what evidence is required to accept IMRT in this setting is unclear, as is what evidence supported its use for myriad solid tumors. Whatever evidence the company wants, we should not treat patients with substandard therapy while waiting for a theoretical clinical trial to show reduction in late effects using advanced technology, especially because this trial would require 20 years to mature!

One might speculate that the insurance provider simply isn’t concerned about late effects, since it is unlikely to be responsible for underwriting that patient’s medical care so far in the future. Or perhaps the problem is education; perhaps utilization review managers simply don’t understand the potential consequences of radiation treatment and how we can safely avoid those risks. In this case, we tried to educate the general practice reviewer and even the radiation oncologist consultant—to no avail.

Fortunately for this patient, she had the patience and wherewithal to work through the process to a satisfactory conclusion. But this progress was not without significant anxiety. Our goal should be to educate physicians involved in utilization management reviews, especially radiation oncologists, so they will better understand the late effects of therapy and how they can be reduced with advanced radiation therapy technologies, even for patients with lymphoma!

References