

ADVANCES IN TREATMENT OF INOPERABLE LUNG CANCER

Two large groups of lung cancer types include those which are called oat or small cell (the minority) and the non-oat, or non-small cell (the majority). Non-oat cell or oat cell refers to the pathologic appearance under the microscope. Oat cell carcinomas are best treated using a chemotherapy-based approach sometimes with radiation, depending on the stage or extent of the disease.

On the other hand, non-oat cell carcinomas which comprise the bulk of lung cancers, are treated with a variety of approaches including chemotherapy, surgery and radiation. A recent article by Sibley et al for Stage I early-stage inoperable non-oat cell carcinoma points to windows of opportunity that may well improve outcome for future patients.

Stage I non-small cell patients were evaluated at a major university hospital. Since surgery has been the treatment of choice with the majority of patients alive five years later, there are left behind patients who cannot go through surgery. This is usually because of medical illness or advanced age and the thoracic surgeon believes that surgery would not be appropriate. These patients mostly have been treated with radiation therapy.

Recently evaluated were patients undergoing radiation alone for Stage I carcinomas in a large series including 156 patients with medically inoperable non-small cell carcinoma. Fifteen patients were excluded because they were not treated with cure in mind or lost to follow-up after treatment. Thus, 141 patients were evaluable.

All patients were felt to have node-negative lung cancer. Three patients had bilateral lung cancer and were included in the evaluation. Work-up included, in general, CT scans of the chest, bronchoscopy, bone scan and in selected circumstances, head CT scans or MRIs. One patient had mediastinoscopy alone. This is selective intervention to evaluate lymph node state. The age range of patients was 46 to 95 years with a median of 70. The median tumor size was 3 centimeters (cms). The most common pathologic subtype was squamous cell. The vast majority of patients could not be operated on because of chronic obstructive pulmonary disease which was seen in 69%. Two patients refused surgery. Ninety-five percent of patients were smokers while 38% had quit smoking more than one year prior to diagnosis and 20% had quit more than ten years prior to diagnosis.

Fifty-seven percent of the patients were found to have lung cancer as an incidental finding (part of a routine screening process) and had no symptoms. Other patients had symptoms which included cough, shortness of breath, weight loss, pain, blood loss lasting one to twelve months with an average of three months. Patients were treated with radiation therapy alone on modern linear accelerators. No patient had surgery or chemotherapy initially. The usual dose was 6400 rad with a range of 5000 to 8000.

Of 141 patients, 108 died at the time of analysis with 33% dying of intercurrent or other causes of death - 35% of lung cancer and 7% (11 patients) of unknown cause. Thirty-three patients were alive at last follow-up with a range of 7 to 132 months. Survival at two years was 39%. The cause-specific survival (means alive without lung cancer) at two years was 60% and at five years 32%. Progression-free survival was 48% at two years. Those with improved survival included squamous cell cancer, incidental finding of the cancer, younger age and less years of smoking.

The authors noted that the size of the cancer was not a factor on survival. There was a trend towards better survival by higher radiation dose but the highest radiation-dosed patients are not out long enough to fully evaluate.

What is of great interest, however, is that patients with an improved five year cause-specific survival were those in whom the primary cancer was controlled. Nearly four times as many patients were alive when the primary was controlled as compared to when the primary was not controlled by radiation. This points out the need for superior radiation techniques and I believe the appropriateness of body radiosurgery.

Body radiosurgery allows a much higher dose to be delivered to the cancer while protecting the healthy normal tissue. Data from several centers, including Sweden and the expert physicians at Radiosurgery New York, have a local control rate well over 90%.

Using more sophisticated techniques of radiation, it would be anticipated that superior results would be seen. This is especially true when other authors have already alluded to the fact that local control is important for survival.

Those authors concluded that "Radiotherapy is an effective treatment for medically inoperable lung cancer.' Furthermore, they noted that it may be possible to increase survival further through improved local control because 42% of failures in this study were in local sites only. Given the low rate of toxicity and the trend toward improved local control with increasing dose, studies of dose escalation are warranted."

Certainly using body radiosurgery, sophisticated precise delivery of radiation should result in improved outcome for those with inoperable lung cancer.

Since obviously surgery cannot be used for inoperable lung cancers, radiation plays an important role. More precise delivery of radiation allows dose escalation and dose escalation allows higher control rates. Local control rates using stereotactic body radiosurgery in our hands is about 90%. Control rate is defined as cessation of growth, shrinkage or disappearance of the tumor in the treated field.

We have seminars open to the public to explain stereotactic body radiosurgery in more detail. We also have a hot line at 212-CHOICES or send e-mail questions to gil.lederman@rsny.org.