In 1992, two meta-analyses of clinical trials established that for patients with limited-stage small cell lung cancer (LS-SCLC), the best treatment for cure and survival was chemotherapy combined with radiotherapy. This has remained the standard treatment for 25 years. But several of the analyzed trials in the meta-analyses excluded patients over 70 years of age, and in the subset of patients over 70 there was actually a survival detriment with the use of combined therapies. The analyses concluded that these older patients should be given chemotherapy only, and for the last 25 years that has remained the consensus recommendation for the group.

Roy Decker, MD, PhD, Associate Professor of Therapeutic Radiology and Disease Aligned Research Team Leader in Therapeutic Radiology, wanted to test the aging assumption behind the guideline. He reasoned that radiation technology and techniques have vastly improved, as have the supportive care options that limit toxicities.

“Our hypothesis was that in the modern era, we might find that patients over 70 are able to tolerate the treatments well and benefit from them,” says Dr. Decker. He knew that some physicians were already prescribing chemoradiotherapy to this group despite the guideline, and he wondered if these patients had better survival rates.

These questions were important because older people make up a substantial portion of patients with this aggressive form of cancer. Each year, among all the new diagnoses of the disease, 45 percent are patients over 70.

To test his hypothesis Dr. Decker turned to the National Cancer Database, which includes about 70 percent of all the newly diagnosed cases of cancer in the United States. “It’s very representative of how cancer is treated and what the outcomes are nationwide,” he says, “not only in academic settings but also in smaller community settings. So, it’s ideal for looking at how things actually occur rather than how they might occur in a very controlled clinical trial setting.”

Dr. Decker mined the database between 2003 and 2011 for patients over 70 with LS-SCLC. He identified 8,637 cases, by far the largest survey of this group ever undertaken. Among these patients, 44 percent had received chemotherapy alone and 56 percent had received chemoradiotherapy. The study’s findings were conclusive.

“We found that survival was significantly improved when these elderly patients were given the combined aggressive therapy,” explains Dr. Decker. “That was true in every subset of patients, including patients over 80 and those with significant medical comorbidities.”

The median survival rate for patients who received chemoradiotherapy was 15.6 months, compared to 9.3 months for those who got chemotherapy only. “For the average patient,” says Dr. Decker, “receiving radiation adds six months of survival, a very significant difference. It seems that treating these patients with aggressive concurrent chemoradiation is a reasonable thing to do.”

I think our paper also highlights that physicians are already doing a good job of selecting patients for this therapy, and I hope the study reinforces that. I also hope it makes physicians who aren’t using this aggressive therapy consider it for elderly patients.”

Dr. Decker sees other lessons in the study as well. When he trained, for instance, he was taught not to treat patients over 70, based on earlier clinical trials that actually excluded them. Now there’s recognition that elderly patients should be included in trials as the results represent the whole population.

Another lesson is that the growing number of patient databases are rich resources that can answer broad questions economically unfeasible to study in a clinical trial. “The current is the data is retrospective and subject to selection bias,” says Dr. Decker, “but it’s comprehensive database.”

The improved survival rates found by Dr. Decker reflect major advances in radiation technology and techniques. When the original studies were published, he notes, thoracic radiation exposed large areas of the heart to high doses of radiation, worsening side effects for patients.

“Today we’re imaging patients better with PET scans and CT scans,” he says, “so we’re treated in smaller, because we’re more confident that we’re targeting all of the sites of known disease. And the techniques for doing that are better and better, with 3D conformal radiation and intensity-modulated radiation therapy. Now we can spare surrounding normal tissue while we target tumors.”

Roy Decker, MD, PhD

Expanding the Treatment Options for Elderly Patients

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