

Survival after Lung Cancer Surgery Similar in Comparison of Segmentectomy with Lobectomy

Traditionally, many surgeons performing a segmentectomy to remove a limited portion of the lung affected by cancer will switch to a lobectomy – removal of an entire lobe of the lung – during surgery if nearby lymph nodes also test positive for cancer.

“However, there is no clear evidence in the literature that supports this practice,” said Nestor Villamizar, M.D., a member of Sylvester Comprehensive Cancer Center and assistant professor of clinical surgery at the University of Miami Miller School of Medicine.



Dr. Nestor Villamizar (left) and Dr. Dao Nguyen.

Lymph node involvement changes the stage of non-small cell lung cancer. Most prior work in this area focused on people with N0 disease – meaning nearby lymph nodes showed no evidence of cancer.

However, Dr. Villamizar and colleagues decided to compare outcomes between patients with more distant lymph node involvement – classified as N1 or N2 – to determine if segmentectomy or lobectomy is associated with better survival outcomes.

The research was published as an [article in press](#) in *The Journal of Thoracic and Cardiovascular Surgery*.

“Our study is the first one in the literature to compare segmentectomy versus lobectomy in unsuspected pathological N1/N2,” said Dr. Villamizar, who is also affiliated with the Section of Thoracic Surgery in the DeWitt Daughtry Family Department of Surgery at the Miller School. “The findings are somewhat unexpected. Lobectomy has been the gold standard operation for lung cancer because it provides wider margins and a better lymph node dissection.”

Using the National Cancer Database, principal investigator Dr. Villamizar, thoracic surgery fellow Syed S. Razi, M.D., and their colleague Dao Nguyen, M.D., identified patients with T1N0 non-small cell lung cancer found to have N1/N2 disease in actuality confirmed by pathology. T1 refers to a tumor 30 mm or smaller in size.

Among patients with N1 disease, median survival did not differ significantly between those who underwent segmentectomy, 51 months, compared with 54 months in the lobectomy group. The

five-year overall survival rate did not differ significantly either, with a 42% rate in the segmentectomy group versus 46% in the lobectomy patients.

In the N2 group of patients, median survival also was similar – 37 months after segmentectomy versus 44 months after lobectomy. The five-year survival rates were 42% versus 39%, respectively.

“We are demonstrating that segmentectomy may be equivalent to lobectomy in regards to overall survival,” Dr. Villamizar said. “I am passionate about minimally invasive surgery; the idea of removing less lung parenchyma with equivalent oncologic results is fascinating.”

Despite the similar survival rates, one intervention that did make a significant and positive difference was use of adjuvant chemotherapy.

Administration of chemotherapy was associated with 39% better survival in the N1 patients and 32% better survival among patients with N2 disease.

“Adjuvant chemotherapy appears to have a greater effect in overall survival than the type of anatomic resection,” Dr. Villamizar said.

Going forward, Dr. Villamizar and colleagues plan to develop a clinical algorithm to help surgeons like themselves determine which patients are most likely candidates for segmentectomy versus lobectomy. The guidance will incorporate preoperative and intraoperative factors. The ultimate aim is to “hopefully obtain equivalent oncologic outcomes with appropriate patient

selection.”