Prof. Malcolm M. DeCamp: declining use of surgical therapy for early stage non-small cell lung cancer in the United States

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Expert introduction

Malcolm M. DeCamp, MD is the Fowler-McCormick Professor of Surgery in the Feinberg School of Medicine at Northwestern University and Chief of the Division of Thoracic Surgery at Northwestern Memorial Hospital. Board-certified in thoracic surgery, Dr. DeCamp specializes in surgery for benign and malignant lung, tracheo-bronchial, esophageal, mediastinal and chest wall disorders. In addition to thoracic oncology, he maintains an interest in advanced lung diseases, lung transplantation, lung volume reduction surgery and minimally-invasive surgery for a variety of chest diseases.

Dr. DeCamp received his medical degree summa cum laude from the University of Louisville School of Medicine in Louisville, Kentucky. His general, cardiovascular and thoracic surgical training were all completed at Brigham and Women's Hospital in Boston. Following his training, Dr. DeCamp was appointed Assistant Professor of Surgery at Harvard Medical School and joined the staff of Brigham and Women's Hospital and the Dana Farber Cancer Institute. In 1998 he moved to the Cleveland Clinic where he led their lung transplant program to rank consistently among the top five programs nationally by 2003. Returning to Boston in 2004, Dr. DeCamp was appointed Chief of the Division of Cardiothoracic Surgery and Director of both the Chest Disease Center and the Thoracic Oncology Program at Beth Israel Deaconess Medical Center (BIDMC). He has lectured on four continents, authored more than 180 articles in numerous professional publications and contributed 60 chapters to a variety of medical, surgical and oncologic texts.

Figure 1 Malcolm M. DeCamp Jr, MD.

Editor's note

Dr. Malcolm M. DeCamp, MD is the Fowler-McCormick Professor of Surgery in the Feinberg School of Medicine at Northwestern University and Chief of the Division of Thoracic Surgery at Northwestern Memorial Hospital (*Figure 1*).

Dr. DeCamp's paper entitled "*Declining Use of Surgical Therapy for Early Stage Non-small Cell Lung Cancer in the United States*" has been accepted for presentation at the 97th Annual Meeting of American Association for Thoracic Surgery (AATS) held from April 29–May 3 in Boston, USA. The paper is going to be presented as a part of the General Thoracic Deep Dive Session: *Impact of Quality on the Future of Surgery for Early Stage Lung Cancer* taking place Tuesday, May 1st from 3:25 PM–3:50 PM in AATS Mini Theater.

Before the opening of AATS annual meeting, the academic journalist Dr. Jianfei Shen has raised 5 questions related to the presented paper and conducted an interview with Dr. DeCamp through email, discussing some notable topics on the use of surgical therapy for early stage non-small cell lung cancer when compared to the application of some other therapies like SBRT, radiotherapy and chemotherapy.

Interview topics

Q1. In addition to the contraindications and the refusals from patients or their family, were there any other reasons for the fact that a large number of patients received no surgery for early stage NSCLC?

Overall the use of surgery for early stage NSCLC fell

from 77% to 71% during the 10 years of the study. In most cases, the reason for not receiving surgery when it was recommended by a patient's physician was recorded in the medical chart. The most common reason recorded for not undergoing surgery was that an alternate treatment was recommended as first line therapy (N=35,838; 70.4% of patients in the non-surgical cohort). Approximately 19.8% (N=10,085) of patients were noted to not be surgical candidates due to patient risk factors (e.g., medical comorbidities or advanced age). We found 5.1% (N=2,616) of patients did not receive recommended surgery because either the patient or patient's family refused. In 1.9% of patients (N=960), surgery was recommended but not performed for unknown reasons and in 2.7% of patients (N=1,373), it was unknown if surgery was ever recommended.

Q2. Did the application of radiotherapy, especially SBRT increase in the treatment of patients with early stage NSCLC from 2004 to 2013?

Comparing the first two years (2004-05) and last two years (2013-14) of the study time period, the proportion of patients receiving radiation therapy increased by 7.4% (95% CI: 6.9–7.9). Comparing these two groups again, SABR increased from 0.6% in 2004-05 to 9.72% in 2013-14 and conventional radiation decreased slightly from 12.6% in 2004-05 to 10.9% in 2013-14.

Q3. Has the SBRT been affecting the treatment of early stage NSCLC in USA?

We found a 7.4% absolute (56.0% relative) increase in the proportion of patients treated with any form of radiation. While this increase was associated with a 3.3% absolute (39.8% relative) decrease in the proportion of patients receiving no curative treatment, it was also associated with a 6.1% absolute (7.9% relative) decrease in the proportion of patients receiving surgery. These findings potentially indicate that SABR was used not only for medically inoperable patients, but also for patients who may have been considered surgical candidates in previous years.

Q4. What's the prognosis result of chemotherapy and/or radiotherapy vs. surgery in stage IIA NSCLC?

Our data is limited significantly by selection bias in this group of patients. The National Cancer Database lacks important, patient-level, clinical information needed to properly match patient who were treated with drastically different therapy (such as medical versus surgical management). For example, we do not have pulmonary function tests, smoking status, or granular comorbidity data. The only available variable is a summation comorbidity score (Charlson-Deyo score). Nevertheless, in these patients, the 5-year survival for all patients with stage IIA NSCLC who underwent surgery was 30.9% (95% CI: 30.0% to 31.9%). For patients who received any other form of treatment (excluding untreated patients), 5-year survival was 26.9% (95% CI: 24.1% to 29.8%). For SABR, the 3- and 5-year survival rates were 46.1% (37.0% to 54.7%) and 10.2% (4.0% to 19.7%), respectively. These rates for SABR in IIA patients are based on only 350 patients and thus must be interpreted with extreme caution.

Q5. What do you think of the declining use of surgical therapy for early stage NSCLC?

At present, the standard of care for early stage NSCLC remains surgical resection. In Europe, the introduction of SABR resulted in a decrease in the number of patient with NSCLC going untreated. However, in our analysis of patients in the United States, we found not only a decrease in the number of untreated patients but also a decrease in the number of patients receiving surgery. This could be due to multiple factors. The key stake-holders in the decision to operate include the patient, the surgeon, the referring physician, and the radiation oncologist. Patients themselves may be choosing a less invasive treatment. If this is a patient-centered decision, then I think that's reasonable assuming they receive a balanced discussion of treatment options. However, I worry that patients are deemed inoperable before ever visiting with a surgeon, are referred to a radiation oncologist and never meet a surgeon or worse yet believe that lung cancer is incurable regardless of stage and therefore think that surgery is futile. It is the duty of the medical field to inform the public and correct this implicit nihilistic bias. It is also conceivable that surgeons are choosing to operate less on 'borderline' patients who may not tolerate surgery. These surgeons may see SABR as a viable alternative to surgery for patients for whom the decision to operate is not clear cut. Multidisciplinary tumor boards are the most appropriate venue for objective discussions regarding operability and optimal therapy for borderline patients with early-stage disease. However, the fact remains that no randomized trial directly comparing SABR to surgery has completed accrual, and therefore the

standard of care remains surgery for operable early stage NSCLC.

Acknowledgements

None.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

Author's introduction: Jianfei Shen, MD. Taizhou Hospital of Zhejiang Province, Wenzhou Medical University, China. Dr. Jianfei Shen graduated from Guangzhou Medical University with a master degree on general thoracic surgery. Since 2013, he has studied for his doctoral degree in Guangzhou Medical University. His expertise is in curing thoracic diseases by surgical approach, especially for lung cancer. He has also been involved in translational research of lung cancer. In recent years, he has published several articles on journals related to his research interests.

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