What’s New in Staging of Lung Cancer?

It has been a little over 10 years since the last revision of the staging system for lung cancer by the American Joint Committee on Cancer (AJCC). The previous staging system was adopted by both the AJCC and the International Union Against Cancer (UICC) and has served as basis for staging of lung cancer since 1986. The last statement by the American Thoracic Society on clinical staging of lung cancer was published in 1983. These statements on staging have been utilized primarily for the staging of non-small cell lung cancer (NSCLC) but could be applied to small cell lung cancer, although the staging system has not been validated for this cell type. Most oncologists prefer to use the old Veterans Administration staging categories of “limited” or “extensive” stage disease for staging small cell carcinoma. Over the last 10 years there have been a number of articles casting aspersions on the merits of some aspect of the staging system, but it has been adopted almost universally and serves as the basis for comparison of therapeutic interventions worldwide for patients of similar stage.

Some of the variation in survival between different institutions is undoubtedly related to the extent of the pretreatment evaluation, the accuracy of staging as reflected by the extent of mediastinal lymph node sampling, and the accuracy of the pathology reporting. The more extensively a patient is tested, the more likely there will be a stage migration with more patients being categorized as having an advanced stage and fewer individuals being classified as having earlier disease. This has been termed the “Will Rogers Phenomenon” and results in better survival for each stage. Will Rogers is reported to have said, “When the Okies left Oklahoma and moved to California, they raised the average intelligence level in both states.”

Another staging problem is the lack of adequate mediastinal lymph node sampling. If patients with T1 or T2 lesions undergo lobectomy but have no mediastinal lymph nodes sampled, will their survival be the same as patients with T1-2 N0 tumors who have had four to six different mediastinal node stations sampled and are found to be negative? Probably not! However, both groups would be classified as T1-2 N0, stage IA or IB. The accompanying articles in this issue of CHEST by Mountain (see page 1710) and Mountain and Dresler (see page 1718) clarify the current lymph node staging system used by both AJCC and UICC and unifies the two different systems that have been in use over the last decade. While they do not delineate the number of lymph node stations that should be sampled for adequate staging, the recently completed Eastern Cooperative Oncology Group surgical adjuvant study required three to four different lymph node stations to be sampled before patients could be enrolled in the trial. We would not tolerate breast cancer surgery without adequate lymph node sampling and we should no longer tolerate it with lung cancer surgery. Inadequate mediastinal lymph nodes sampling with lung cancer surgery is second-rate surgery!

It is important to remember that a physician is only as good as his/her pathologist. If the “umbre” has it wrong, it can potentially influence the outcome of the game. The College of American Pathologists performed a quality control study to assess the completeness of surgical pathology records for resected lung cancer in 8,300 cases from 464 institutions. In only 21% of cases was a standard report form or check list used. The type of procedure, lobectomy or pneumonectomy, was recorded in 90% of cases. The status of lymph nodes was stated in 96%. The presence or absence of venous or lymphatic vessel invasion was noted in 23% and 24%, respectively. Other additional deficiencies were observed. Recently, a practice protocol for examination of specimens from patients with lung cancer was published by the cancer committee of the College of American Pathologists and the Association of Directors of Anatomic and Surgical Pathology. We should strongly urge our pathology colleagues to adopt one of these checklists for uniform reporting of lung carcinoma. The additional data that will be generated with a uniform system could be very important when it comes time to revise this new staging system. For the next staging revision we may want to know if venous, lymphatic, or perineural invasion has any prognostic significance, as some have already suggested. The new staging system reported by Mountain and Dresler does not take these factors into consideration. Thus, the stage is set for a sequel on staging of lung cancer; however, before we consider refining the staging system we must collect good data in a prospective fashion. It is imperative that some institution(s) or organization(s), such as the International Association for the Study of Lung
Cancer, develop a system to prospectively gather data on carefully staged patients with detailed pathologic review as has been recommended by the pathology community.

What's new about the new staging system? First, stage I has been split into stage IA and IB. Is this important? It appears to be because of the difference in the 5-year survival. The Cancer and Leukemia Group B (CALGB) has undertaken a study of non-small cell lung cancer patients with T2N0M0 resected disease and randomized them to observation or adjuvant chemotherapy. The National Cancer Institute of Canada also offers patients with stage IB disease enrollment into a clinical trial of chemotherapy vs observation. So obviously, the medical oncology community believes stage IA is different from IB and they are attempting to improve survival of the latter group. Secondly, stage II has been divided in II A and IIB and the group of patients with T3N0M0 disease has been moved into the IIB stage because of better survival as compared with other groups in the stage III category. Additionally, the new staging system clarifies the status of satellite tumor node(s) in the same lobe (now designated T4) or the ipsilateral lung but not the same lobe (now designated M1). An obvious problem is that it is still impossible to separate an isolate satellite or metastatic node in the non-tumor-bearing lobe from a synchronous primary lung cancer unless they are of different histologic types. Perhaps, in the future, we will have molecular markers that allow this distinction, but for now we have to use our best clinical judgment.

The authors of these two articles on the new staging system are to be congratulated on their contribution to clarifying and refining the system. The rest of us are challenged to incorporate this new system into our everyday practice. Good staging is essential to help determine optimal treatment and facilitates communication of therapeutic results to colleagues around the world.

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