Lung societies unveil new international classification of lung adenocarcinoma

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Three of the world's top lung associations have published a new international multidisciplinary classification of lung adenocarcinoma, the first revision to the classification in six years.

The new classification is published in the February edition of the Journal of Thoracic Oncology, the official publication of the International Association for the Study of Lung Cancer (IASLC).

"With the many rapid advances in lung adenocarcinoma affecting clinical, radiologic, pathologic, molecular and surgical aspects of this cancer, it was necessary to develop a new classification using an international multidisciplinary consensus committee," said Dr. William Travis, attending thoracic pathologist at Memorial Sloan Kettering Cancer Center in New York City. "Since lung cancer is the most common cause of cancer mortality worldwide and adenocarcinoma is the most common histologic subtype in most countries, this classification addresses a major public health problem."

The IASLC was the primary sponsor of the project, which was performed with support and scientific oversight from the American Thoracic Society and the European Respiratory Society. An international core panel of experts representing the three organizations was formed to conduct the review; it included oncologists/pulmonologists, pathologists, radiologists, molecular biologists and thoracic surgeons.

Unlike previous classifications published by the World Health

Organization (WHO) in 1967, 1981 and 1999, which were written primarily by pathologists for pathologists, the new classification takes into account advances across diverse specialties in the understanding of lung adenocarcinoma. Although the 2004 revision introduced relevant genetics and clinical information, the new classification is the first to be based on an integrated multidisciplinary platform.

"All previous WHO classifications have been developed by pathologists with little input from other specialties," Travis said.

One of the key new recommendations is that epidermal growth factor receptor (EGFR) mutation testing be performed for patients with advanced lung adenocarcinoma, due to the predictive benefit for response rate and progression-free survival for mutation-positive patients who are treated with tyrosine kinase inhibitors.

A completely new aspect of this classification, which was not addressed in previous WHO classifications, is a section that addresses diagnosis and classification of non-small cell carcinoma in small biopsies and cytology, Travis said.
"This is important because 70% of lung cancers present in advanced stages," Travis said. "This section not only provides new criteria for diagnosis of adenocarcinoma versus squamous cell carcinoma that includes use of special stains in difficult cases, but it also stresses the importance of preserving tissue for molecular studies."

There are three major clinical reasons why it is important for pathologists to distinguish adenocarcinoma from squamous cell carcinoma, particularly in advanced lung cancer:

- adenocarcinoma or unspecified NSCLC should be tested for EGFR mutations, which would indicate responsiveness to EGFR

tyrosine kinase inhibitors;

- patients with adenocarcinoma or unspecified NSCLC respond better to pemetrexed therapy than those with squamous cell carcinoma;

- potential life-threatening hemorrhage may occur in patients with squamous cell carcinoma who receive bevacizumab.

The new classification recommends discontinuing use of the term bronchioloalveolar carcinoma (BAC) as tumors previously classified under this term fall into five different places in the new classification.

New concepts of "adenocarcinoma in situ" and "minimally invasive adenocarcinoma" were introduced to define patients who should have 100% or near 100% disease-free survival, respectively.

Provided by International Association for the Study of Lung Cancer