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EVIDENCE-BASED PRACTICE FOR THE SUB-CLASSIFICATION OF NON-SMALL CELL LUNG CARCINOMA (NSCLC) USING CURRENT WHO CRITERIA: MOVING FROM TARGETED THERAPY TO IMMUNOTHERAPY

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The new edition of WHO classification of lung cancers published recently has numerous important changes from the 2004 version, such as: introduction of new classification of lung adenocarcinoma, classification of squamous cell carcinoma into several subtypes, emphases on molecular study, utility of IHC markers for the classification, recommendation of new terminology for cytological and small biopsy specimens, and many other changes. These new updates/guidelines have significant impact on daily oncological practice and patient care. Recently, immunotherapy is increasingly used in cancer patients. By blocking PD-L1/PD-1 and CTLA-4/B7.1/2 interactions, checkpoint inhibitors enable the immune system to attack PD-L1 and CTLA-4 expressing tumor. Currently, there are several FDA-approved checkpoint inhibitors and clinical trials, requiring specific IHC testing based on cancer classification and subtypes. The knowledge of current guidelines/recommendations is critical for selection of tumor tissue for an appropriate IHC testing and immunotherapy. Based on the recommendation of the American Thoracic Oncology and IASLC (International Association for Study of Lung Cancer), which emphasizes accurate morphological diagnosis and performance of appropriate IHC tests for the immunotherapy, it is necessary to update our knowledge and practice. This presentation will discuss current concept of morphological heterogeneity and molecular alterations of lung cancers for targeted therapy; provide details of how to perform a comprehensive histologic assessment based on current WHO and IASLC classification of lung cancers; discuss the practical approach of how to use IHC markers for classification and immunotherapy, based on our own experience and to discuss limitations of current PD-L1 testing based on our data, including the heterogeneous expression of PD-L1 in tumor tissue.

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