## Preface on "pulmonary nodules special issue for lung cancer"

The incidence of small pulmonary nodules (SPNs) is increasing as a result of the widespread use of multislice spiral computed tomography (CT) and the low-dose helical CT screening for lung cancer (1). A pulmonary nodule is definite as a well or poorly-circumscribed, approximately spherical, radiographic opacity less than or equal to 30mm in diameter that is completely surrounded by aerated lung and is not associated with atelectasis, hilar enlargement, or pleural effusion, which can be divided into solid and sub-solid nodules, with the latter group further subdivided between pure ground-glass opacity (GGO) and part-solid nodules (2).

In this special issue of *Translational Lung Cancer Research (TLCR)*, we touch on summary of new advances in screening, diagnosis and therapy of pulmonary nodules and retrospective analysis of the real world data. Manuscripts cover the following areas are included:

As for early detection with lung cancer screening management strategies, one review summarizes current low-dose CT lung cancer screening trails, such as NLST (3), pointing out the different lung cancer probability between baseline and new incident nodules. Another article based on these screening trails data provides risk assessment in the detection of SPN. The accuracy and reproducibility comparison of semi-automated volume and diameter measurements in CT lung screening are also discussed. Several imaging examination methods, including CT, PET/CT, EBUS, are introduced in another review. Radiomics and machine learning are new developing imaging technologies aimed at deriving automated quantitative imaging features from medical images that can predict nodule and tumor behavior non-invasively, of which application in pulmonary nodules was described in a mini-review specifically. GGO, as a separate category of SPN, can be of significance since it is demonstrated that GGO has a more possibility of histology of adenocarcinoma, although the majority of GGO's in western populations will not progress to clinical significance. One review focusses on the pathologic characteristics of GGO detected at CT, involving histopathology and molecular pathology. There are several main ways to obtain a specimen for pathology diagnosis include exfoliative cell examination of sputum, bronchoscopy, radial probe endobronchial ultrasound (r-EBUS)guided transbronchial lung biopsy (TBLB), transthoracic needle aspiration (TTNA), video-assisted thoracic surgery (VATS) and open-lung biopsy. One paper summarizes the relevant notes and strategies about TTNA in SPN diagnosis. A metaanalysis is also performed to determine point sensitivity and specificity of r-EBUS-TBLB and CT-guided TTNA for the diagnosis of peripheral lung cancer. Two retrospective articles are included, one focused on clinical outcomes of Cyberknife stereotactic radiosurgery for 25 elderly patients with presumed primary stage I lung cancer, another involved correlation of histological subtypes with HRCT signatures in 190 early stage lung adenocarcinoma patients. Finally, we present a 58-year-old man with a lung nodule in the right upper lobe, which was occasionally found during a period of pneumonia.

We really thank the authors for their vital contributions to this special issue, and hope that all readers involved in the diagnosis and treatment of SPNs will find this issue of valuable interest and keep it as valid reference for their work.

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