中文題目: 肺癌的早期偵測
英文題目: Early detection of lung cancer
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Lung cancer is the leading cause of cancer deaths around the world. The high mortality associated with this disease is primarily due to the fact that the majority of lung cancers are not detected until they have progressed to an advanced stage. In order to reduce the mortality associated with lung cancer, new techniques must be developed to diagnose and treat early invasive or pre-invasive disease. Chest radiography and sputum cytology have been the primary tools used for establishing diagnoses of lung cancer. The implementation of screening programmes using these testing modalities failed to show a reduction in lung cancer mortality in large clinical trials. Highly sensitive and specific tests for the early diagnosis of lung cancer and its precursor lesions are needed in order to establish effective lung cancer screening programmes. A number of molecular alterations have recently been identified in pre-malignant bronchial lesions and early lung cancer. Altered expression of oncogenes, tumor suppressor genes and DNA repair genes frequently found in established lung cancer are now being found in varying degrees in dysplastic and minimally invasive lung lesions also. Structural alterations (i.e. deletions, promoter methylation etc.) to these genes are frequently present in these early lesions. Full characterization of these alterations in early lung lesions is beginning to provide promising information regarding both the identification of biomarkers that could be used in lung cancer screening programmes and molecular pathway that could be targeted in therapeutic interventions aimed at preventing the development or progression of lung cancer. Bronchoscopically obtained biopsies have demonstrated a significantly increased sensitivity in detecting pre-malignant and early invasive lung lesions since the introduction of laser-induced fluorescence endoscopes (LIFE). Using this technology experienced bronchoscopists can improve their sensitivity in detecting high-grade dysplasias and CIS by at least 3-fold in comparison to white light bronchoscopy. LIFE bronchoscopy may play an important role in validating proposed molecular screening assays and in verifying the presence of these high-risk lesions in patients identified through such screening procedures. Relative to traditional chest radiography, low dose CT scan based screening markedly enhances the detection of lung cancer at earlier and more curable stages relative to what is known to prevail in the absence of screening. The frequency of stage IA among the cancers detected on annual repeat screening is more than 80%. However, even if a given regimen of CT scan screening for lung cancer serves to raise the overall rate of curability for lung

cancer among the screeners, this does not in and of itself justify the use of that regimen of screening. It needs to be applied on indications such that the prospect of early diagnosis and its associated curability translate to a gain in life expectancy sufficient to justify the cost of the screening. An international Early Lung Cancer Action Program has been developed to provide international collaboration to obtain rapid consensus on this rapidly evolving area of medical technology and its requisite evaluation toward the knowledge based of future practice by pooling of the data.