NCDM-25-S0009

# Immunotherapy in lung cancer: Who benefits, who doesn't, and why?

**Liam Chong-Kin**

Faculty of Medicine, Department of Medicine, Universiti Malaya, 50603, Kuala Lumpur, Malaysia

**Track: Respiratory**
**Theme: Treatment and Management of NCDs**

**ABSTRACT**

The immune system plays an important role in surveillance and eradication of cancer cells. The adoption of immunotherapy has transformed the treatment landscape of lung cancer. Patients with advanced non-small cell lung cancer (NSCLC) treated with immunotherapy may benefit from durable tumour response and long-term survival. The approved immunotherapy in lung cancer includes immune checkpoint inhibitors (ICIs) targeting programmed-death (ligand) protein (PD-(L)1) and cytotoxic T-lymphocyte-associated protein 4 (CTLA-4), which are now an integral part NSCLC treatment irrespective of histological cell types and across all tumour stages. However, the majority of patients with advanced NSCLC are resistant to immunotherapy with ICIs or develop therapeutic resistance while on treatment. Resistance mechanisms to immune checkpoint blockade are often complex and include a combination of defects within the cancer-immunity cycle such as failure in antigen presentation and T-cell priming, presence of co-inhibitory immune checkpoints, inability of immune cells to infiltrate the tumour, and presence of an immunosuppressive tumour microenvironment. PD-L1, although not perfect, is a predictive biomarker for first-line immune checkpoint inhibitor therapy in metastatic NSCLC without actionable driver alterations. In patients with tumour expressing high levels of PD-L1 of >50%, guidelines recommend ICI monotherapy as a treatment option. However, ICI monotherapy is less efficacious in patients with tumours expressing lower levels of PD-L1. In these patients, it is recommended that treatment should use a combination of ICI with chemotherapy with/without an antiangiogenic agent or with another ICI.

Keywords: Immune Checkpoint Inhibitor, Immunotherapy, Lung Cancer, PD-L1, Survival