Poster presentation

Abstract:-

Lung cancer remains one of the most prevalent and lethal cancers worldwide, often diagnosed at advanced stages with limited therapeutic success. Conventional chemotherapies, though widely used, lack selectivity and are associated with systemic toxicity and multidrug resistance. In recent years, antibody-mediated targeted drug delivery systems have emerged as promising strategies to enhance treatment specificity and efficacy in lung cancer.

Monoclonal antibodies (mAbs) serve as precision tools for identifying and binding to specific antigens expressed on the surface of cancer cells, allowing for selective delivery of therapeutic agents while sparing healthy tissues. Antibodies directed against targets such as epidermal growth factor receptor (EGFR), anaplastic lymphoma kinase (ALK), and PD-L1 are being extensively studied and applied in non-small cell lung cancer (NSCLC), the most common subtype of lung cancer.

Antibody-drug conjugates (ADCs) represent a breakthrough in targeted drug delivery by coupling potent cytotoxic drugs to tumor-specific antibodies. These conjugates ensure that the drug is internalized by cancer cells after antigen binding, releasing the payload intracellularly to induce apoptosis. Notable examples include trastuzumab deruxtecan and patritumab deruxtecan, which are under investigation for HER2-positive lung cancer.

In addition to ADCs, antibodies are also used to deliver nanoparticles, liposomes, or gene therapy vectors directly to tumor sites, enhancing the bioavailability and retention of drugs in the tumor microenvironment. These innovations not only increase therapeutic efficiency but also reduce off-target effects.

Furthermore, the integration of immune checkpoint inhibitors such as nivolumab and atezolizumab, which block PD-1/PD-L1 signaling, has transformed immunotherapy in lung cancer, restoring anti-tumor immune responses and improving overall survival in selected patients.

Keywords

Lung cancer; Targeted therapy; Monoclonal antibodies; Antibody-drug conjugates; EG