Clinical Obstacles in Breast and Lung Cancer

Prakash Aditya

Department of Radiation-Oncology, S.N. Medical College, Agra, Uttar Pradesh, India

Corresponding Author*

Prakash Aditya

Department of Radiation-Oncology, S.N. Medical College, Agra, Uttar Pradesh, India

E-mail: aditya.prakash@rediffmail.com

Received 09 October 2021; **Accepted** 23 October 2021; **Published** 30 October 2021

Commentary

Cancer as a broad group of illnesses can be described as the abnormal uncontrolled development of cells with the intrinsic potential to spread to different tissues of the human body, supported primarily by haematic system components. According to American Cancer Society (ACS) predictions, among all malignancies affecting the human system, lung cancer and breast cancer are among the most likely causes of new cases and fatalities in 2020. Triple Negative Breast Cancer (TNBC), a basal subtype of breast cancer, is distinguished by the absence of expression of hormonal receptors (Oestrogen receptor and progesterone receptor) and tyrosine-protein receptor kinase Human Epidermal Growth Factor (HER2).

This aggressive form is frequently associated with a poor prognosis and a lack of effective therapeutic therapies compared to the other subtypes, although accounting for around 15% of newly diagnosed Breast Cancer (BC) patients. TNBC has been associated with low overall survival rates, median progression free survival (PFS: 3-4 months), and increased recurrence during the first three years of diagnosis when compared to other forms of BC. Because of the increased chance of delayed identification, combined with lower survival rates and the potential for metastatic spread via the lymphatic system, lung cancer is responsible for one-quarter of all cancer-related fatalities. Non-Small Cell Lung Cancer (NSCLC) is the most frequent type of lung cancer, consisting of adenocarcinoma, large-cell carcinoma, and squamous-cell carcinoma with etiological involvement in respiratory tract elements and a low median survival time of 8.0 months. Low rates of early stage tumour identification, metastatic potential, and chemo resistance have all been linked to lower rates of cure for these aggressive kinds of cancer. While TNBC has been linked to tumour cross-talk and the formation of secondary NSCLC, NSCLC metastasis has been linked to bone, brain cancer, hepatocellular carcinoma, and adenocarcinoma.

Clinical studies on NSCLC and TNBC show that late diagnosis is frequently associated with dysregulated autophagy, tumour heterogeneity, genetic abnormalities, and changes in planned treatment targets, resulting in a lack of optimal therapeutic outcomes. Importantly, the stage of the neoplasm has been a major driver of the treatment options employed for these two tumours, which include surgery, radiation, and conventional chemotherapy, targeted and immune therapeutics. The current chemotherapeutic treatment options for these disorders entail the use of a cocktail of medications, with different agents working on the tumour via multiple molecular paths. Such tumours require the use of a multi-agent-mechanistic therapeutic approach with free drug cocktail treatment choices. These medications work across many biological pathways, hitting multiple targets at different stages of the cell cycle, resulting in a more efficient reduction in tumour cell survival. While anthracycline and taxane-based neo-adjuvant/adjuvant chemotherapeutic combination regimens have frequently been employed for TNBC treatment, systemic delivery of a lipophilic platin and taxane-based cocktail of medications has been one of the mainstays of NSCLC treatment regimens.

Immune checkpoint inhibitors, as well as medications targeting specific genes and biomarkers of NSCLC, have been utilised in conjunction with traditional chemotherapeutic treatments. Although this traditional method has yielded some therapeutic benefits, it is burdened by the uncoordinated Pharmacodynamic (PD) and Pharmacokinetic (PK) characteristics of the different medications utilised. As a result, existing therapy regimens have demonstrated limited therapeutic efficacy, increasing drug resistance, and a higher toxicity profile, resulting in low overall survival rates and poor quality of life.

Breast cancer is the most frequent malignancy in premenopausal women, with over 25,000 cases identified each year in women under the age of 45 in the United States alone. As societal developments have resulted in an increase in the number of women delaying childbirth, a breast cancer diagnosis is becoming more likely to occur prior to the conclusion of family formation. Recent advances in systemic therapy have significantly improved 5-year relative survival rates, which are now approaching 90%. Because of the improved prognosis, doctors may now focus more on improving patient quality of life, including reproductive function.

Cite this article: Aditya P. Clinical Obstacles in Breast and Lung Cancer. Oncol Cancer Case Rep. 2021, 07(10), 001-001