CHICAGO
CHEST 2025
October 19 - 22

Lung Cancer

SESSION TITLE: Cancer Therapy Side Effects

SESSION TYPE: Rapid Fire Case Reports

PRESENTED ON: 10/21/2025 12:30 pm - 01:15 pm

THE BEAT GOES ON: PACEMAKER RESCUE IN IMMUNOTHERAPY CARDIOTOXICITY

DEEPIKA DAVALATH NIKITA CHINTAM UGONNA ONONUJU AND VAISHNAVI PARCHURI

INTRODUCTION: Pembrolizumab, a checkpoint inhibitor targeting the programmed cell death receptor, has been linked to better response rates and extended progression-free intervals compared to chemotherapy alone. In this case, a 77-year-old man with a history of atrial fibrillation on apixaban, stage III chronic kidney disease, benign prostatic hyperplasia, hyperlipidemia, and essential hypertension presented with metastatic adenocarcinoma of lung.

CASE PRESENTATION: Following his initial diagnosis, liquid and tissue biopsies were carried out for genomic analysis, revealing no actionable mutation and inadequate tissue for PD-L1 assessment. After his first cycle of therapy, the patient's liver enzymes were mildly elevated, along with elevated CPK 6000, prompting a pause in immunotherapy. When further tests showed worsening liver function tests, he was placed on corticosteroids. Although the LFTs improved under steroids, the patient experienced pronounced body aches, general malaise, and exertional dyspnea. Over the course of 2 years, his condition deteriorated, characterized by persistent transaminitis and myositis, indicating severe immune-mediated adverse events. Despite hospitalization for progressive weakness, relentless fatigue, and worsening back pain, high-dose glucocorticoids and intravenous fluids offered limited relief. Subsequent discoveries of bradycardia and a right bundle branch block suggested pembrolizumab-related cardiotoxicity. Concerned about immune-mediated cardiotoxicity, the care team transferred him to the intensive care unit for specialized monitoring by electrophysiology experts, who evaluated the possibility of implanting a permanent pacemaker. This experience illustrates the potential severity of immunotherapy-induced toxicities, even when used in conjunction with chemotherapy.

DISCUSSION: Although pembrolizumab is known to improve overall survival in metastatic non-small cell lung cancer, this report highlights the reality of treatment-induced complications. The patient developed grade 4 toxicities, including hepatic inflammation, severe muscle involvement, and cardiac dysfunction. Despite literature showing fewer serious adverse events with immunotherapy, life-threatening reactions still occur. Of particular note, systemic corticosteroids were initiated at the earliest sign of toxicity, and immunotherapy was halted, yet the patient's health continued to decline. He ultimately died from a cardiac arrhythmia while in a rehabilitation facility after a protracted hospital stay. This outcome emphasizes the necessity of comprehensive pre-treatment evaluations and awareness of potential toxicities. Even without a known autoimmune diagnosis, this patient displayed multiple immune-mediated complications. Multidisciplinary collaboration involving oncologists, cardiologists, nephrologists, and other specialists is pivotal to managing emergent toxicities, optimizing therapeutic outcomes, and protecting patients' well-being. Close observation and timely treatment modifications are paramount for improving outcomes and preventing fatal consequences in advanced lung cancer patients undergoing immunotherapy.

CONCLUSIONS: Given the complexity of immune-related adverse effects, careful patient selection, rigorous baseline assessment of organ function, and scrutiny for underlying autoimmune or cardiovascular risk factors are paramount. Regular follow-up with laboratory checks, imaging as indicated, and a low threshold for consulting subspecialists can facilitate earlier detection of complications. A delicate balance must be maintained between therapeutic efficacy and patient safety.

REFERENCE #1: https://www.nejm.org/doi/full/10.1056/NEJMra1703481

REFERENCE #2: https://pubmed.ncbi.nlm.nih.gov/31645893/

REFERENCE #3: https://www.nejm.org/doi/full/10.1056/NEJMoa1501824

DISCLOSURES:

No relevant relationships by Nikita Chintam

No relevant relationships by Deepika Davalath

No relevant relationships by Ugonna Ononuju

No relevant relationships by vaishnavi parchuri

DOI: https://doi.org/10.1016/j.chest.2025.07.2777

Copyright © 2025 American College of Chest Physicians. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.