THE BEAT GOES ON: PACEMAKER RESCUE IN IMMUNOTHERAPY CARDIOTOXICITY

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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.
- 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.
- 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.
- 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.
- Close observation and timely treatment modifications are paramount for improving outcomes and preventing fatal consequences in advanced lung cancer patients undergoing immunotherapy.

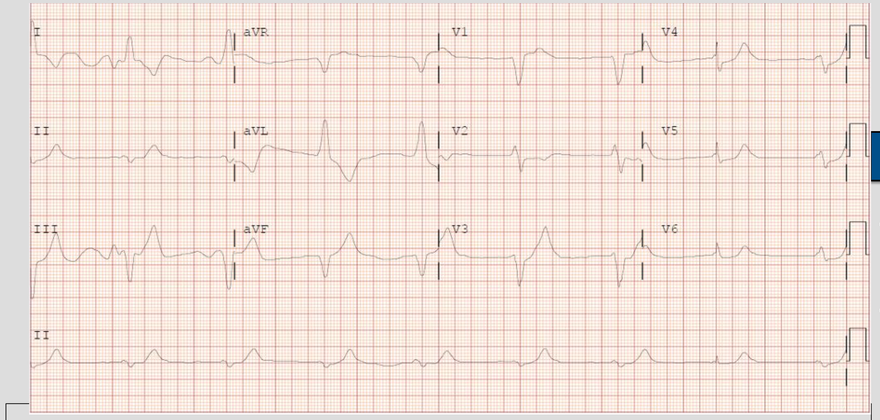

Figure 1: EKG showing complete heart block, left bundle branch block, notched R wave in V6

Conclusion:-

- 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.

References:-

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