Immune checkpoint inhibitors (ICIs) have become an important therapeutic option for numerous advanced stage cancers. Cardiovascular toxicity, including arrhythmias, acute coronary syndrome (ACS), and myocarditis have been reported with increased frequency (1, 2). Herein, we describe a challenging case of a patient presenting with chest pain after initiation of an ICI who developed concurrent rapid atrial fibrillation, ACS, and myocarditis.

CASE DESCRIPTION

76 yo male with history of remote ACS and left upper-lobe non-small cell lung cancer (NSCLC: T2aN0M0), who was started on Pembrolizumab 3 weeks prior due to marked progression of disease, presented to the hospital with a week of chest tightness occurring at night, worse with lying down, lasting 20-30 minutes and associated with significant fatigue.

Labs, ECG, and ECHO results are presented in Table I.

Patient developed rapid atrial fibrillation treated with a diltiazem drip. Given concern for myocarditis, cardiac MRI was obtained (Figure 1A-1C) revealing old inferior infarct, acute anteroseptal infarct, and diffuse myocarditis.

Given stage IV lung cancer with rapid progression, ACS was managed conservatively. The patient was started on prednisone 1mg/kg daily to treat the myocarditis and methimazole for autoimmune thyroiditis thought due to ICI.

Patient had rapid progression of lung cancer over next several weeks, and given limited treatment options, he was started back on pembrolizumab/pemetrexed. Shortly thereafter, he developed compression fractures of his lumbar spine and suffered a cardiac arrest in the hospital.

DISCUSSION

To our knowledge, this is the first case of a patient presenting with three concurrent cardiovascular toxicities attributed to initiation of an ICI. The rapid atrial fibrillation was likely due to a combination of autoimmune thyroiditis, myocarditis, and severe mitral regurgitation resulting from ICI initiation. Several challenging clinical decisions in this case included utilization of high-dose steroids to treat ICI myocarditis in the setting of ACS, and whether or not to re-challenge the patient with ICI once myocarditis had been diagnosed.

REFERENCES

1. Mahmood et al JACC 2018, Apr 24(16): 1755-1764

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