Novel immune checkpoint inhibitors (ICPi) have revolutionized the field of immuno-oncology. Pembrolizumab targets the programmed death (PD) pathway by binding to cancer cells that overexpress PD-1 ligands. The immunotherapy blocks the PD-1/PD-L1 pathway that certain tumors utilize to inhibit the host immune system; however, this effect can also lead to severe or fatal immune-mediated adverse reactions. Multiple reports in the literature have described isolated incidents of pembrolizumab-induced myocarditis or thyroiditis. We present the first documented case of concurrent myocarditis and thyroiditis after pembrolizumab therapy.

A 69-year-old female with past medical history of hypertension, hyperlipidemia, anemia, diabetes mellitus, recently diagnosed triple-negative breast cancer status post lumpectomy, neoadjuvant chemotherapy and immunotherapy, presented to the emergency department (ED) with a two-week history of generalized weakness and ascites. Symptoms of weakness, swelling, and fatigue started after chemotherapy was initiated. The patient was receiving carboplatin/paclitaxel and cyclophosphamide/doxorubicin for chemotherapy and pembrolizumab for immunotherapy. The patient last received chemotherapy four months and immunotherapy two months prior to presentation.

There was an elevated high sensitivity troponin I of 83 ng/L (ref range: <34 ng/L) and thyroid stimulating hormone was elevated at 87.08 ulU/mL and free T4 was decreased at 0.14 ng/dL, with previous values being 1.365 ulU/mL and 1.37 ng/dL respectively. Hypothyroidism was suspected to be secondary to pembrolizumab and thyroid peroxidase antibodies were found to be elevated. The patient was started on five days of prednisone 80 mg daily for myocarditis and levothyroxine 125 mcg daily for thyroid hormone replacement.

• Mortality of 25-50% is associated with ICPi myocarditis and sequelae, including arrythmias and cardiomyopathy, making this an important adverse effect to recognize.

• Recognizing these potentially fatal side effects of ICPis may increase patient safety, and also have additional clinical importance as the rate of response to immunotherapy was found to be higher in patients with reported immune-mediated adverse reactions. While immune checkpoint inhibitors have served as a major breakthrough in managing a multitude of cancers, it is important to be aware of the increasing incidence of immune-related adverse events.

The authors have no conflict of interest regarding this presentation to disclose.