Neurological immune related adverse events after treatment with immune checkpoint inhibitors

Catherine Garcia, MD [1] • *John Villano, MD, PhD* [1]

[1]Neurology, University of Kentucky

Introduction:
Immune checkpoint inhibitors (ICI) have provided landmark breakthrough as a new mechanism to treat cancers achieving success in prolonging survival in lung, bladder, melanoma, renal, and head/neck cancers. As a new class of therapy immune related adverse events have developed as a significant and potentially devastating concern. Reports on immune related neurological adverse events from ICI treatment has been limited to clinical trials and single institution based. No large database analysis has been performed.

Methods:
We analyzed the FDA Adverse Event Reporting System (FAERS) database for pembrolizumab, from September 2012 to August 2017, to include all cases reported with neurological adverse events (NAE).
Results: A total 6,910 cases were reported in the FAERS. Among these, we identified 353 cases of neurological adverse events. The mean age in our study was 63 years, with 53% of male gender. The most common neurological complain was paresthesias (16%), of which over 70% were diagnosed as peripheral neuropathies, followed by headaches, dizziness, myalgias, visual disturbance, and seizures. Over 25% of the neurological adverse events correspond to immune based syndromes, including 12 cases of myasthenia gravis/myasthenia gravis crisis, 6 cases of Guillain-Barre syndrome, 4 cases of aseptic meningitis, and 3 cases of optic neuritis.

Discussion:
Neurological adverse events associated with ICI are relatively uncommon, but can have serious clinical consequences including Guillain-Barre syndrome. Paresthesias are the most common adverse neurological immune related event. Detailing outcomes and relation to dosing are being investigated and we anticipate this to be important to cancer and neurologic based clinicians.