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Risk of Non-infectious Uveitis or Myasthenia Gravis in Patients on Checkpoint Inhibitors in a Large Healthcare Claims Database

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Purpose:

To determine if checkpoint inhibitors (CPI) confer an increased risk of non-infectious uveitis or myasthenia gravis compared to patients on non-checkpoint inhibitor (N-CPI) chemotherapy.

Methods:

A retrospective cohort study was performed comparing patients enrolled in a large national US insurance plan exposed to checkpoint inhibitors compared to N-CPI chemotherapy. All patients who initiated a checkpoint inhibitor including ipilimumab, pembrolizumab, nivolumab, atezolizumab, avelumab, and durvalumab were eligible. Date of earliest CPI in the exposure group and N-CPI chemotherapy in the comparator group were considered the index date. Exclusion occurred in both cohorts for any history of uveitis or myasthenia gravis diagnosis and having <1 years of time in plan prior to the index date. Patients were also required to stay in the plan for at least 6 months following the index date. Every eligible exposed was matched up to 1:10 based on age, gender, race, and index year to N-CPI chemotherapy users. Cox proportional hazards regression modeling was used. The two analyses' primary outcomes were incidence of non-infectious uveitis and incidence of myasthenia gravis.

Results:

For evaluation of incidence of non-infectious uveitis, 7,784 CPI-exposed patients were matched to 56,661 N-CPI chemotherapy exposed-controls. 26 (0.3%) of 7,784 CPI patients and 13 (0.2%) of 56,661 N-CPI comparators were found to have non-infectious uveitis. After multivariate analysis, CPIs showed an increased hazard for uveitis compared to chemotherapy comparator group [HR=1.83;95% Confidence Interval (CI):1.19-2.82, P=0.006]. For the myasthenia gravis analysis, 8,316 CPI-exposed patients were matched to 60,464 N-CPI chemotherapy exposed-controls. 11 (0.1%) of 8,316 patients developed myasthenia gravis in the CPI group and 33 (0.1%) of 60464 comparators. The CPI cohort had a higher hazard of developing myasthenia gravis [HR=2.37;95%CI:1.21-4.65, P=0.012] compared to controls in multivariate analysis.

Conclusions:

Exposure to CPI confers a higher risk for non-infectious uveitis and myasthenia gravis compared to standard N-CPI chemotherapy. The incidence of non-infectious uveitis or myasthenia gravis after exposure to CPIs are very low. However, these small increased risks with CPI should be considered when managing patients on CPI.