



The Development of Hypophysitis in a Patient Treated with Pembrolizumab

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CASE PRESENTATION

We report a case of a middle-aged male with merkel cell carcinoma receiving pembrolizumab, a PD-1 inhibitor, who presented to the emergency department with two weeks of fatigue, weight loss, and nausea with vomiting. Prior to admission he completed 7 cycles of pembrolizumab.

Laboratory evaluation revealed an undetectable cortisol level and low ACTH 5.7 pg/mL (7.2 – 63.3 pg/mL) consistent with secondary adrenal insufficiency. Further evaluation of the HPA axis including prolactin, LH, testosterone, and IGF-1 were all within normal limits. TSH of 3.24 uIU/mL (0.35 – 4.94 uIU/mL) and FT4 of 0.56 ng/dL (0.70 – 1.80 ng/dL) noted consistent with mild hypothyroidism. Brain MRI showed no lesions in the hypothalamic-pituitary regions or stalk thickening. Both secondary adrenal insufficiency and hypothyroidism were felt to be related to hypophysitis from the PD-1 inhibitor. The patient's pembrolizumab was discontinued and he was started on prednisone replacement therapy for treatment of hypophysitis. At three month follow-up the patient's symptoms had completely resolved and he remained on low dose prednisone with plans to continue long term.

DISCUSSION

- Checkpoint inhibitors (CPIs) are a new category of antineoplastic therapeutic antibodies that target and block checkpoint proteins from binding with partner proteins, allowing for T-cell activation and destruction of cancer cells (1).
- While CPIs often produce beneficial anti-tumor immune responses in patients, they can lead to improper immune activation and subsequent unwanted side effects (2).
- These are known as immune-related adverse events (irAEs) (3).
- The endocrine organs are the most common affected and may result in life-altering conditions, such as thyroiditis, type 1 diabetes mellitus, adrenal insufficiency, and hypophysitis.

TAKE HOME POINTS

- Immunotherapy has changed the field of oncology by altering the way the immune system responds to malignant cells allowing for treatment of previously untreatable cancers.
- A potential consequence of checkpoint inhibitor therapy (CPI) is incidence of immune-related adverse events (irAEs).
- Given the growing number of patients being treated with immune checkpoint inhibitors, there will continue to be more patients that
- Being aware of the varying clinical presentations and screening for irAEs will be important.

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