Pembrolizumab treatment of metastatic urothelial cancer without exacerbating myasthenia gravis

Akiko Ishiia,⁎, Minato Yokoyamab, Hiroshi Tsujia, Yasuhisa Fujiib, Akira Tamaokaa

1. Case report

The patient was a 70-year-old man. At 58 years of age, he noticed right-eye ptosis and visited our Neurology department. The ptosis was characterized by diurnal variation, and he could not finish a nine-hole course of golf due to fatigue. Positive results on the Tensilon test, attenuations in the repetitive nerve stimulation test and an elevated concentration of anti-acetylcholine receptor antibody (anti-ACh-R Ab; 2.2 nmol/l; reference range, < 0.2 nmol/l) informed a diagnosis of generalized MG. The patient was prescribed oral prednisolone and his symptoms subsequently improved and were well-controlled with the administration of steroid. When treatment was performed in highly experienced centers.

2. Discussion

Overexpression of programmed cell death protein (PD)-1 is associated with favorable outcomes in cases of autoimmune diseases.
Hence, it is feasible that PD-1 inhibition could result in the exacerbation of symptoms in patients with pre-existing MG [1–5].

Four previous reports have reported the use of pembrolizumab for treating patients with previously diagnosed MG [2–5]. As each of the four patients had malignant melanoma [2–5], this report is the first to document the administration of pembrolizumab to a patient with urothelial cancer and MG. Similar to our case, MG was in remission in all four cases [2–5]. Pembrolizumab treatment was started between 4 and 29 years after the onset of MG [2–5]. In three cases, immunosuppressants were reduced before pembrolizumab treatment commenced [2–4]. Two out of the four patients died [2,3]; both patients had dysphagia at the onset of MG [2,3].

No prior case reports resemble the present case; despite an elevated concentration of anti-ACh-R Ab, the patient presented no symptoms and required no immunotherapy. However, a similar response to nivolumab treatment has previously been reported; elevation of anti-ACh-R Ab concentrations was observed in an anti-ACh-R Ab-positive patient with cancer and an MG patient with post-operated thymic hyperplasia, but there were no symptoms [6,7].

It is impossible to identify patients whose MG does not deteriorate after treatment with an ICI. However, our case highlights the fact that the treatment may be feasible in some MG patients, and should be considered in highly experienced centers. No bulbar symptoms at the onset of MG may indicate that ICI can be safely administered. The effects of thymectomy need to be examined by a review of multiple cases. Undoubtedly, even with good control of MG, careful observation by a neurologist remains necessary when prescribing pembrolizumab to patients with MG. Thus, even if patients have a history of MG, the opportunity of using pembrolizumab to treat cancer should not be rejected.
Informed consent

We obtained written informed consent from the patient to use his information, including case details, in this article.

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