

Fulminant Insulin-Dependent Diabetes in Patient with Squamous Cell Carcinoma on Nivolumab Presenting as Severe Diabetic Ketoacidosis

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BACKGROUND

Nivolumab is a monoclonal antibody against programmed cell death-1 receptor used for advanced cancers. Immune-related adverse events are associated with this and other forms of immunotherapy. Rapid autoimmune destruction of beta cells causing fulminant diabetes is a rare but potentially fatal complication. A case of fulminant diabetes caused by Nivolumab in patient with metastatic oropharyngeal SCC is presented here.

CASE

57 year old male with metastatic oropharyngeal SCC being treated with Nivolumab for 4 months, presented to emergency department with feeling unwell, nausea and vomiting. The patient had no personal or family history of prior diabetes. Admission bloods showed profound hyperglycemia with blood glucose of 91.8 mmol/L (normal 3.5 - 6.0 mmol/L), acidosis with Hydrogen ions of 89 and bicarbonate of 6 and ketones of 6.6 mmol/L. He was transferred to high dependency unit and started on treatment for DKA with intravenous fluids, insulin and electrolyte replacement. No other precipitating factors, besides nivolumab, were identified with pre-treatment glucose levels within range. He was subsequently stepped down to ward and discharged on basal bolus insulin. HbA1c came back at 55 mmol/mol with negative Glutamic acid decarboxylase autoantibodies, islet antigen 2 autoantibodies, and islet cell antibodies and undetectable c-peptide when checked later as an outpatient. He was labelled as insulin-dependent autoimmune diabetes mellitus secondary to nivolumab. Patient was not found to have any other endocrine related immune adverse event.

INVESTIGATIONS

TEST	RESULTS
HbA1c	55mmol/mol
C-peptide	<100 pmol/L
Urine Sodium	209 mmol/L
GAD antibody	<5 U/ml
IA2 antibody	<7.5 U/ml

DISCUSSION

Nivolumab-induced autoimmune diabetes can present with a rapid onset and severe DKA on presentation. Given the increasing use of anti PD-1 immunotherapies, clinicians should be aware if the potential for fulminant diabetes in addition to more common endocrine adverse events. Patients should be monitored regularly for hyperglycaemia and educated about potential symptoms of severe hyperglycaemia..

CONTACT INFORMATION

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