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Diabetic Ketoacidosis as First Presentation of a Growth Hormone and Prolactin Co-Secreting Pituitary Macroadenoma

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INTRODUCTION

Diabetic ketoacidosis (DKA) is an uncommon initial presentation in acromegaly. Acromegaly is a state of elevated levels of both growth hormone (GH) and insulin-like growth factor-1 (IGF-1), known to cause insulin resistance subsequently leading to hyperglycaemia. The association between hyperprolactinemia and insulin resistance has also been described widely in literature. This is the first case ever reported as growth hormone and prolactin co-secreting pituitary macroadenoma initially presenting as DKA.

CASE

We report the case of a 46-year-old Malay gentleman with obesity and smoking history who presented with fever, vomiting, lethargy and altered behaviour for 3 consecutive days. Biochemically fulfilled criteria of severe DKA was resolved with vigorous intravenous fluid administration and high dose intravenous insulin infusion. He was subsequently shifted to high dose subcutaneous insulin to achieve optimum glucose control.

Further exploration revealed that he had experienced mild increased size of hands and feet. Physical examination showed mildly coarsened, enlarged facial features. Initial computed tomography of the brain showed widened sella turcica. Magnetic resonance imaging of the brain confirmed the presence of a pituitary macroadenoma with local mass effect. Blood screening revealed an elevated IGF-1 (681 ng/mL) and an extremely high level of prolactin (>10,000 mIU/L). Growth hormone suppression test taken in an outpatient setting when the patient was euglycemic revealed unsuppressed GH. Ophthalmological examination revealed bilateral visual field defect. She was started on cabergoline treatment and was later referred to the neurosurgical team for further surgical management.

CONCLUSION

This case highlights the importance of considering acromegaly as an alternative cause of DKA at initial presentation, other than the more common causes of type 1 or 2 diabetes. Early identification of the primary cause for DKA will ensure appropriate further investigation and management, whether medical or surgical, which will positively affect the patient's prognosis and outcome.

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Granulocyte-Colony Stimulating Factor in the Treatment of Carbimazole-Induced Agranulocytosis

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INTRODUCTION

Agranulocytosis is a rare complication of anti-thyroid treatment and may have life-threatening consequences. Current management involves timely identification of the condition and cessation of the causative drug. Supportive management and broad-spectrum antibiotics remain the mainstay of treatment. Granulocyte-colony stimulating factor (G-CSF) may also be considered. This is usually followed by definitive treatment of hyperthyroidism once the patient has recovered.

CASE

A 51-year-old gentleman with a history of thyrotoxicosis started on carbimazole 6 months ago presented with fever and odynophagia.

A full blood count showed agranulocytosis with a neutrophil count of 0.03 10^3/μL. He was admitted to the hospital and given filgrastim and broad-spectrum antibiotics. His counts showed improvement after 10 days and radioactive iodine treatment was subsequently planned. This gentleman showed poor response to initial filgrastim treatment and only appeared to respond subsequently after a higher filgrastim dose (600 μg).

CONCLUSION

Studies have shown mixed results in terms of reduction in haematologic recovery time after G-CSF administration. Possible explanations include the differences in doses of G-CSF used in various studies and differences in bone marrow characteristics of the treated patients. The cost-effectiveness and usefulness of routine total white count monitoring in asymptomatic patients is debatable. This case illustrates the possible role of G-CSF in the management of anti-thyroid medication induced agranulocytosis although more research is required in this area. Patient education and awareness remains a major area of concern. Early education by their treating physician is essential.