Sweet Surrender: A Case of Alpelisib-Induced Diabetic Ketoacidosis (DKA)

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Introduction

Piqray is a recently FDA approved drug that is used for post menopausal women and men with HR+, HER2-, PIK3CA mutated advanced or metastatic breast cancer after progression on or after an endocrine-based regimen

It's a once daily oral tablet that is prescribed with fulvestrant, an injectable hormone therapy

We report a case of DKA in a patient on Piqray to emphasize the importance of glucose monitoring and control in these patients

Case Introduction

An 84-year-old woman presented with 2-weeks of left upper quadrant abdominal pain.

ROS: No fever, dysuria, or respiratory symptoms.
PMHx: Metastatic breast cancer [hormone receptor (HR)+, HER2-, and PIK3CA mutated)] with cervical node, lung, and bony involvement, no history of diabetes

Cancer Treatment Hx:
She failed tamoxifen therapy and started alpelisib 300 mg/day and fulvestrant two months prior to admission. One month after starting alpelisib, she developed polyuria, diarrhea, vomiting, and 10-lb weight loss.

PIQRAY approved doses:

Presentation

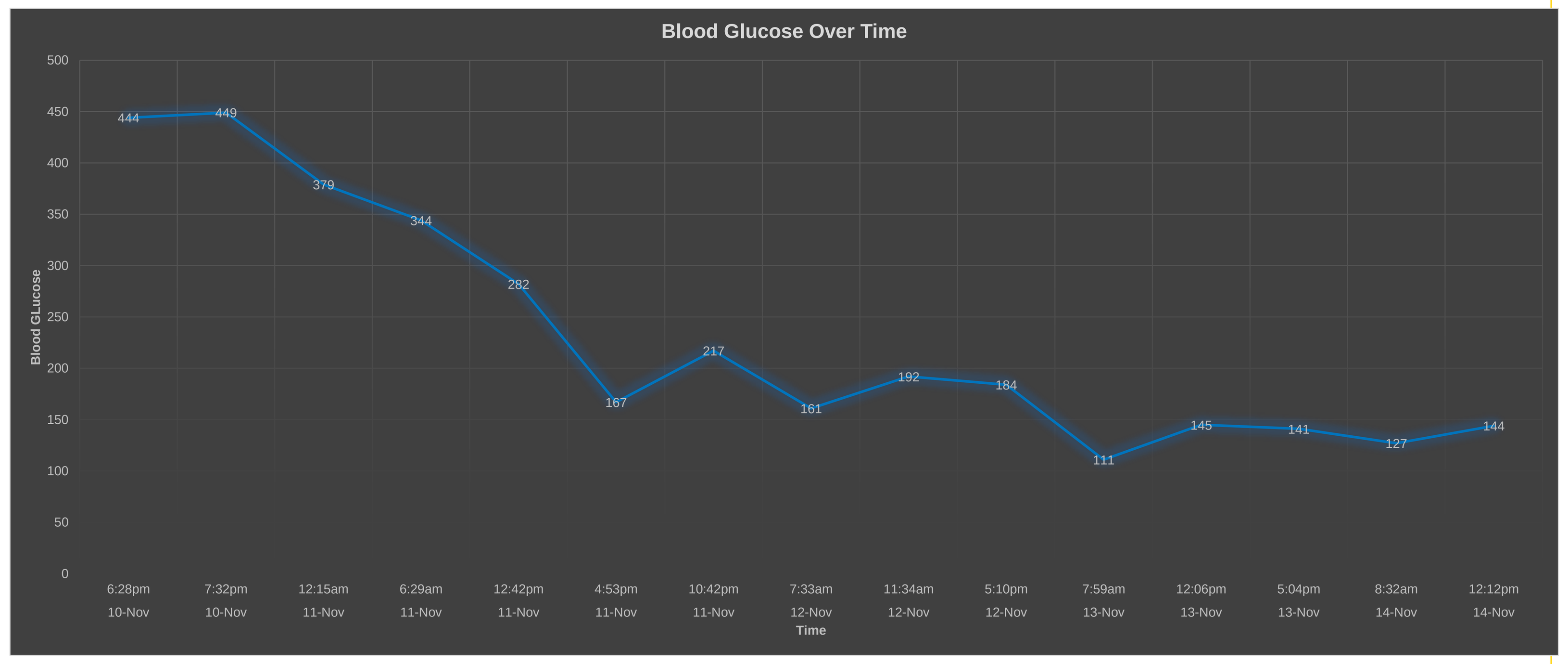
VS: Afebrile but hypertensive at 160/99 mmHg

PE: Ill with dry mucus membranes, decreased breath sounds to left lung fields, and diffuse abdominal tenderness.

Labs: Blood glucose 591 mg/dL, anion gap 20, large ketones in urine, positive acetone in serum, and new acute kidney injury with serum creatinine 1.42 mg/dL (>1.11). The glycosylated hemoglobin (HbA1c) was 11.5% (5.6% 1 year prior).

Imaging: CT abdomen showed splenic infarct and left pleural effusion

Hospital Course: Alpelisib was held, and she was treated with enoxaparin, intravenous insulin, and hydration. She was transitioned to a subcutaneous basal/bolus insulin regimen. Pancreatic islet cell and GAD-65 antibodies were negative. She was discharged on apixaban and insulin glargine. Two weeks after, alpelisib was resumed at 150 mg/day. Metformin and empagliflozin were later added.



Discussion

Alpelisib, in combination with fulvestrant, has shown to decrease the risk of progression or death by 35%[1]

Side effects shown in the SOLAR-1 Trial: hyperglycemia, nausea, diarrhea, and weight loss[1]. Hyperglycemia grade 3 [fasting plasma glucose (FPG) >250-500 mg/dL] and grade 4 [FPG >500 mg/dL] were reported in 33% and 3.9% of cases, with DKA in only 0.7%[3]

MOA: Alpelisib induces hyperglycemia by disrupting insulin signaling, leading to glycogen breakdown and inhibition of glucose uptake[2]

Conclusion:
- The manufacturer recommends checking FPG and HbA1c prior to initiation, while monitoring FPG and HbA1c levels during active therapy[2]
- Given the severity of unexpected hyperglycemia, lower threshold for basic labs such as blood glucose and urine study, is beneficial for patients with persistent symptoms
- Early symptom recognition, glucose monitoring and multidisciplinary care is key to decreasing morbidity.

References

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