Capecitabine, Tucatinib, and Trastuzumab Chemotherapy-associated Diabetic Ketoacidosis: A Case Report

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Introduction: Capecitabine is an antineoplastic drug which acts by inhibiting DNA synthesis. Tucatinib is a tyrosine kinase inhibitor that is selective for HER2 which inhibits cell proliferation. Trastuzumab is an anti-HER2 receptor monoclonal antibody. The combination of these three medications is used as chemotherapy for HER2-positive metastatic breast cancer due to increased antitumor activity. There are some reports of chemotherapy medications leading to type 1 diabetes; however, there is scarce literature documenting chemotherapy-induced diabetic ketoacidosis (DKA), and no literature that demonstrates development of DKA in association with these three medications.

Case Presentation: We present a case of a 54-year-old man with no prior history of diabetes mellitus who was admitted for DKA following chemotherapy with capecitabine, tucatinib, and trastuzumab to treat metastatic triple-positive breast cancer. The patient was also treated with radiosurgery and took dexamethasone for one month before the DKA episode. In the present visit, he was found to have new-onset diabetes with a1c of 12.2%; however, the panel of antibodies for type 1 diabetes screening, including GADA, IAA, IA2, and ZnT8, was negative. The patient subsequently recovered and was discharged on insulin therapy. Chemotherapy-associated DKA is a critical condition that needs appropriate assessment.

Conclusion: We seek to highlight the importance of monitoring patients who begin chemotherapy with these agents to safeguard against this potentially life-threatening complication in the future.

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