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MULTILINEAGE ACUTE LEUKEMIA DURING THE TREATMENT OF A PATIENT WITH BREAST CANCER WITH DOCETAXEL AND DOUBLE ANTI-HER2/NEU BLOCKADE: PERSPECTIVES AND POINTS TO CONSIDER

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Introduction: Associated or secondary acute leukemias (ALs) are rare complications after treatment of breast cancer (BC). There is no apparent increased risk of this complication with monoclonal anti-HER2/neu antibodies (AHAB), although most of them also receive topoisomerase inhibitors (TIs). We described the case of a patient who was diagnosed with AL during the combined treatment with two AHAB (trastuzumab [TTZ] and pertuzumab [PTZ]) without any TI. **Case Report:** A 64-year-old lady was diagnosed with stage IV HER2/neu-positive BC in April 2018. She received treatment with docetaxel plus PTZ and TTZ. Docetaxel was suspended after eight cycles with a complete radiological response (CR), and she continued receiving PTZ plus TTZ infusions every 3 weeks. In September 2020, an abnormal blood smear revealed a mixed AL, with features of myeloid, T-lymphoid, and B-lymphoid AL. The next-generation sequencing disclosed mutations in FLT3 and ASXL1. Imaging tests showed maintained CR of BC. She received induction and consolidation chemotherapy with fludarabine, cytarabine, and idarubicin, with confirmed CR by bone marrow examination and cytometry. After considering the high risk of AL relapse and good perspectives of maintaining CR of BC, a multidisciplinary conference agreed to offer allogeneic bone marrow transplantation (BMT) to the patient. She is now in the conditioning phase of the BMT. **Conclusions:** We have not found previous reports of mixed multilineage AL in patients with BC after treatment with AHAB so that no relation between them must be assumed at this time. The improved prognosis of metastatic BC with the addition of PTZ is a factor to take into account for the indication of treatments like BMT in cases of AL complicating this disease. A potential effect of graft versus BC has been described in some cases. The potential tolerance of AHAB after BMT is also another point for debate with limited evidence about it so far.

Keywords: Breast Cancer; Acute Leukemia; Mixed Acute Leukemia; Pertuzumab, Trastuzumab; Docetaxel.