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IRON OVERLOAD IN A BREAST CANCER PATIENT WITH A HOMOZYGOUS MUTATION IN THE HFE HEMOSTATIC IRON REGULATOR GENE: CONSIDERATIONS REGARDING THE USE OF ADJUVANT HORMONE THERAPY

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Introduction: Homozygous mutations in the HFE gene are among the causes of iron overload worldwide. Several reports suggest an increased risk of breast cancer (BC) in these patients, although there are controversial evidences on this subject. There is some discussion on the tolerance to some BC adjuvant therapies in these patients regarding aspects like the potential cardiotoxicities. Information on adjuvant hormone therapy in this setting is very limited. **Case report:** A 65-year-old woman was treated with segmental resection in the left breast and selective biopsy of the sentinel node in April 2019. Pathology showed an infiltrating ductal carcinoma of 1.2 cm, grade 1, with two negative sentinel nodes. Estrogen receptor was 100%, progesterone receptor was 20%, Her2/neu was 1+, and Ki-67 was 15%. A previous diagnosis of hemochromatosis was done in October 2018 with a high transferrin saturation and a genetic analysis disclosing a homozygous C282Y mutation in the HFE gene. Regular phlebotomies every 3 months were scheduled for the treatment of the iron overload. Several points were considered for the selection of the adjuvant hormone therapy. Articular damage is a common complication of hemochromatosis. In fact, a hip prosthesis was implanted in 2018 for our patient with severe coxarthrosis. There was some risk of further articular impairment with aromatase inhibitors (AI). Furthermore, AI may have an androgenic effect, with some effect on the red cell mass. On the contrary, tamoxifen may increase the risk of porphyria crises in patients with hemochromatosis. We selected letrozole as adjuvant therapy, with good articular tolerance and fair hematological control after nearly 3 years of follow-up. **Conclusion:** Although homozygous HFE mutations may increase the risk of some adverse events related to BC adjuvant hormone therapy, the tolerance to letrozole in our patients has been very good, without raising further concerns.

Keywords: Breast cancer. Iron overload. Hormone therapy. HFE.