AN EXTREME PHENOTYPIC EXPRESSION OF A RARE BRCA1 MUTATION IN A FEMALE DIAGNOSED WITH EARLY ONSET TRIPLE NEGATIVE BREAST CANCER

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Purpose: To report an extreme phenotypic expression of rare BRCA1 mutation identified in a young female diagnosed with early onset breast cancer, in the absence of family history.

Methods: A 34 year-old female with a locally advanced tumour presented as a dirty ulcer, perforating the skin, in her right breast is described. Biopsies of the damaged tissue showed invasive ductal carcinoma, grade III, with areas of papillary shaping, areas of necrosis and invasion of the skin. Immunohistochemical examination of the hormone receptors ER and PR revealed no expression, while there was no overexpression of the Her2. Staging exams at that time revealed multiple lung metastases. Due to the tumour immunophenotype and the early onset of disease, although there was no extensive family history the patient was referred for BRCA1 genetic testing. The patient was started on chemotherapy and even though she had a partial response to chemotherapy with the regimen cisplatin weekly paclitaxel and bevacuzumab her disease finally relapsed and she died with systemic disease progression.

Results: The patient was found to carry the -novel to the Greek population- BRCA1 p.E1060X mutation, which is located on exon 11 of the gene. The high penetrance of BRCA1 gene is not represented in the patient’s family, since the mutation is paternally inherited. The proband’s sister did not carry the mutation, while the only other affected family member is the maternal grandmother diagnosed with breast cancer. Father was diagnosed with prostate cancer at the age of 72.

Conclusion: This report highlights the necessity of genetic testing, at least for BRCA1 mutations, of young females diagnosed with triple negative breast cancer, even in the absence or limited family history. Individuals belonging in small families in combination with paternal inheritance of pathogenic mutations can remain undiagnosed. Furthermore, the extreme phenotypic expression of this mutation is to be addressed. Moreover, the availability of specific therapies to BRCA1 carriers, such as PARP inhibitors, is an important aspect of knowing the genetic basis of cancer.

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