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Correlation of polymorphism C3435T of the *MDR-1* gene and the response of primary chemotherapy in women with locally advanced breast cancer

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ABSTRACT. Primary chemotherapy is a useful strategy for the treatment of locally advanced breast cancer and therefore allows *in vivo* evaluation of the action of cytotoxic drugs and the possibility of accomplishing conservative breast surgeries, as well as the early treatment of metastasis. Mechanisms of resistance to the drugs include the action of protein associated with the efflux of drugs from the intracellular environment hindering their activity; one of the most studied proteins is P-glycoprotein codified by the *MDR-1* gene. The presence of polymorphisms can determine different physiological actions of these proteins, intervening with the

response of the drug's action. We evaluated the presence of single nucleotide polymorphism (SNP) C3435T of the *MDR-1* gene and its correlation with the response to primary chemotherapy using the RECIST criteria. Forty-one Brazilian women with stages II and III breast cancer using the PCR-RFLP analysis were evaluated. Thirty-three patients with the SNP genotype (TT and CT) and eight patients with the wild genotype (CC) were found; there was no statistically significant correlation between the diverse genotypes and the clinical and pathological responses according to the Cramer correlation coefficient (V = 0.14). The parameters: nuclear and histological degree, and estrogens, progesterone and c-erb B2 receptors did not demonstrate a statistical correlation with the SNP C3435T. Patients with complete pathological response (12.5%) showed only the polymorphic genotype and not the wild genotype. The characteristics of miscegenation in our population could explain the absence of the characterization of a sub-group of individuals where the presence of the polymorphic genotype influenced the response to the primary chemotherapy.

Key words: Polymorphism; P-glycoprotein; Chemotherapy; Breast cancer

