An Association Study Between AGTR2 and MAS1 Gene Polymorphisms With Breast Cancer Among Brazilian Women.


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Introduction: Many different types of cancer have already been associated to polymorphisms of the Renin Angiotensin System (RAS) genes. Ang II and Ang-(1-7) exert their effects through the AGTR 1-2 and the MAS1 oncogene receptors respectively. To further test the hypothesis that Ang II and Ang-(1-7) participate in breast carcinogenesis through AGTR2 and MAS1 oncogene receptors respectively. Objectives: To assess genetic polymorphisms in the 5’-region of the AGTR2 gene (T1247G and A5235G) and in the MAS1 oncogene (C647T) in two groups: breast cancer patients and normal women. Results: The genotyping assay was performed through the Custom TaqMan SNP Genotyping assays. Genomic DNA samples were extracted from blood cells of patients with (case) or without breast cancer (control), aged between 26 and 90 years. The following distribution of genotypes (%) were obtained for the three polymorphisms: T1247G – TT, TG, GG = 84, 13, 03 in case and 81, 18, 1 in control (p = 0.0025); A5235G – AA, AG, GG = 21, 44, 35 in case and 20, 27, 35 in control (p = 0,36); C647T – CC, CT, TT = 64.0, 0,4, 35.6 in case and 52.0, 0.6, 47.4 in control (p = 0,039). Conclusions: Therefore, T1247G and C647T polymorphisms are associated with breast cancer. Our results suggest an association between T1247G AGTR2 and C647T MAS1 oncogene polymorphisms with breast cancer in the Brazilian population. Both polymorphisms are found in the promoter region of these genes, making of these sites possible targets to change the binding of transcription factors. Alterations in the transcription of these genes might result in a different cellular behavior when exposed to the same agonist molecule. This being the case, the T1247G and C647T are possible targets for assessing breast cancer risk, while the A5235G is not. Keywords: Angiotensin, MAS oncogene and AGTR1.
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