

Background

Breast cancer is a complex and heterogeneous disease that has several subgroups with different clinical outcomes. Determining the susceptibility of the patient to the disease and consequently using appropriate methods for early detection of the disease plays a significant role in prognosis and survival rate of the patient. Therefore, studies which identify markers of susceptibility to the disease and consequently the use of early detection strategies are considered as one of the attractive areas of research in the field of cancer genetics.

In this study the relationship of polymorphisms rs11614913, rs3746444 and rs2910164 with breast cancer were examined.

Material and Methods

In this case-control study, 100 patients with breast cancer and 150 healthy controls were selected. Genotypic distribution of rs11614913, rs3746444 and rs2910164 were examined in hsa-mir-196a2, hsa-mir-499 and hsa-mir146a genes for both groups. Frequency of various alleles of these polymorphisms in two groups was compared via Pearson chi-square test. The *P-value* less than 0.05 were considered as significant differences between the two groups. Finally, the Odds ratio of each allele and genotype were studied.

Results

Significant association was found between the occurrence of breast cancer and rs3746444 ($P < 0.05$). Other polymorphisms were not significantly associated with the incidence of breast cancer ($P > 0.05$).

Conclusion

The results indicated an increase in the risk of breast cancer in patients with the C allele compared to patients without this allele in rs3746444 polymorphism.

Keywords: polymorphism, miRNA, breast cancer