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Lack of Association between Arylsulfatase D Gene and Estrogen, Progesterone and HER2 Receptors Patients with Breast Cancer

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Abstract

Introduction: According to the statistically, one woman is diagnosed with breast cancer every 10-15 women in Iran. Breast cancer is a heterogeneous disease encompassing with a variety of tumor phenotypes. Currently, the prognosis and choice of treatment in breast cancer are based on the determination of the status of hormone receptors such as Estrogen (ER), Progesterone (PR) and HER2 receptors. Arylsulfatase D gene (ARSD) is a member of the sulfatase family. ARSD plays a key role in the metabolism of sphincolipids, also involved in both androgen and estrogen metabolism. Recent studies on the role of sphincolipids in breast cancer have shown that the rate of sphinchenolipids differs in the normal margin and tumor tissues so that some of them increase in cancerous tissues.

Materials and Methods: In this study, for the first time, the expression level of ARSD gene and ER, PR and HER2 receptors status were evaluated in 40 clinical samples of tumor tissues and their normal margins in breast cancer patients. Total cellular RNA was isolated from each sample separately. Then, cDNA synthesized and Real-Time PCR was performed for quantification assessment of ARSD expression relative to internal control gene GAPDH. Expression level of ARSD was analyzed and association with receptors motioned above, in clinical samples of breast tumor tissues compared to margin normal tissues was showed.

Results: ARSD is up-regulated in breast tumor cells and its expression level is not associated with the presence or absence of ER, PR and HER2 receptors.

Conclusion: Since ARSD has an important role in the metabolism of sphingolipids and also their amounts differ between tumor tissues and their margins in breast cancer, up-regulation of ARSD in tumor cells may be related to the metabolism of sphingolipid.