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SFRP1 promoter hypermethylation in peripheral lymphocytes may be a potential epimarker in patients with breast cancer

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Background: Breast cancer is leading cause of cancer death in women worldwide but early detection is correlated free survival. Epigenetics particularly DNA methylation has recently been shown to be important in breast cancer initiation. We examined the association between promoter hypermethylation level of SFRP1 and CDH1 genes which are antagonist in WNT signaling and cell-cell adhesion respectively in peripheral blood leukocyte DNA and breast cancer among Iranian women.

Methods: We conducted a hospital-based case-control study of 30 patients aged less than 40 years with newly diagnosed sporadic breast cancer, no history of any therapy and 30 matched controls from medical checkup examinees in Imam Khomayni Hospital. Promoter methylation levels in leukocyte DNA were measured by MeDIP-Realtime Assay.

Results: Out of 30 breast cancer patients, 16 (53.3%) manifested various levels of SFRP1 and 1 (3.3%) of CDH1 methylation. However, no methylation was found in 30 controls.

Interpretation: These findings suggest that the SFRP1 promoter methylation level of peripheral blood leukocyte DNA is low in patients with breast cancer and may be a potential biomarker for breast cancer risk but highly methylated CDH1 promoter may be related to metastatic tumors.

Biography

Yeganeh Kiumarsi is studying master of genetics in Islamic Azad University. She is currently employed by Sarem hospital in Tehran and work in genetics lab in PGD (preimplantation genetic diagnosis) section and also interested in biomarker blood cell research.

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