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Correlation between the protein expression and polymorphism of leptin receptor genes and the occurrence and development of breast cancer

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Objective: To explore the correlation between the protein expression and polymorphism of leptin receptor (LEPR) gene and the occurrence, development and pathologic characteristics of breast cancer

Methods: The protein expression of LEPR and its Gln223Arg polymorphism in pre-surgery breast tumor tissues of 132 patients, in benign tumor tissues of 66 patients and in normal paracancerous tissues of 30 patients and in anti-coagulant cubital vein blood of 128 healthy subjects were examined using immunohistochemical staining and PCR-RFLP, respectively

Results: The positive rate of LEPR expression in breast tumor tissues was 70.5%, significantly higher than that of 56.1% in benign breast tissues and that of 43.3% in normal paracancerous breast tissues (P<0.001 and P<0.005, respectively). The genotype frequencies of GG, GA and AA of LEPR Gln223Arg were 69.15%, 17.02% and 13.83%, respectively, and the allele G and A frequencies were 77.66% and 22.34% in breast tumor tissues, which were significantly different from that of 82.03%, 15.63% and 2.34% of genotype GG, GA and AA (P=0.004) and 89.4% and 10.6% of allele G and A (P=0.001) in anti-coagulant cubital vein blood of healthy subjects. In addition, LPER expression was correlated neither with menopausal status, histological type, tumor size, tumor grade and metastasis status (P>0.05), nor the expression of estrogen receptor (ER) and progesterone receptor(PR) (P>0.05).However, the positive rate (87.8%) of LEPR expression in patients with lymph node metastasis was significantly higher than that of 60.2% in patients with no lymph node metastasis (P=0.02). Non-conditional logistic regression analysis indicated that the high LEPR expression, the LEPR gene Gln223Arg polymorphism and high WHR were correlated with the occurrence of breast cancer (OR=4.87, 95% CI: 1.30~18.22, P=0.019; OR = 1.53, 95%CI: 1.13~2.07, P=0.006; OR = 3.68, 95%CI: 1.34~10.11, P=0.011).

Conclusion: High expression of LEPR, LEPR gene Gln223Arg polymorphism and enhanced WHR are related with the high risk for breast cancer

Key Words: Breast cancer, Leptin receptor gene, Gln223Arg polymorphism

Biography

Professor Cunzhi Han works in the Etiology and Tumor Markers Laboratory, Shanxi Cancer Hospital. She is member of china anticancer association. She takes more efforts in exploring the ralationship between obesity, metabolism syndrome and breast cancer, colorectal cancer. She has published more than 60 papers in reputed jourals, 10 of which was included in SCI. Some of her research work had been presented as poster in “36th and 37th meeting of the international society of oncology and biomarkers” , “21st Asia Pacific Cancer Conference ” and speaker in “13th Asia Pacific Cancer Conference”.

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