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Study of Relation between P53 and Mir-146a Rs2910164 Polymorphism in Cervical Lesion

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Abstract : Background: Cervical cancer is multistep disease that is thought to result from an interaction between genetic background and environmental factors. Human papillomavirus (HPV) infection is the leading risk factor for cervical intraepithelial neoplasia(CIN)and cervical cancer. In other hand, some of p53 and miRNA polymorphism may plays an important role in carcinogenesis. This study attempts to clarify the relation of p53 genotypes and miR-146a rs2910164 polymorphism in cervical lesions. Method: Forty two archival samples with cervical lesion retired from Khatam hospital and 40 sample from healthy persons used as control group. A simple and rapid method was used to detect the simultaneous amplification of the HPV consensus L1 region and HPV-16,-18, -11, -31, 33 and -35 along with the b-globin gene as an internal control. We use Multiplex PCR for detection of P53 and miR-146a rs2910164 genotypes in our lab. Finally, data analysis was performed using the 7 version of the Epi Info(TM) 2012 software and test chi-square(x2) for trend. Results: Cervix lesions were collected from 42 patients with Squamous metaplasia, cervical intraepithelial neoplasia, and cervical carcinoma. Successful DNA extraction was assessed by PCR amplification of b-actin gene (99bp). According to the results, p53 GG genotype and miR-146a rs2910164 CC genotype was significantly associated with increased risk of cervical lesions in the study population. In this study, we detected 13 HPV 18 from 42 cervical cancer. Conclusion: The connection between several SNP polymorphism and human virus papilloma in rare researches were seen. The reason of these differences in researches' findings can result in different kinds of races and geographic situations and also differences in life grooves in every region. The present study provided preliminary evidence that a p53 GG genotype and miR-146a rs2910164 CC genotype may effect cervical cancer risk in the study population, interacting synergistically with HPV 18 genotype. Our results demonstrate that the testing of p53 codon 72 polymorphism genotypes and miR-146a rs2910164 polymorphism genotypes in combination with HPV18 can serve as major risk factors in the early identification of cervical cancers. Furthermore, the results indicate the possibility of primary prevention of cervical cancer by vaccination against HPV18 in Iran.

Keywords : cervical cancer, p53, miR-146a, rs2910164, polymorphism
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