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### **Folate alters the expression of DNA methyltransferases-1 and methyl- CpG-binding protein 2 in cervical cancer cells lines**

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Accumulating evidence suggests that aberrant DNA methylation accounts for an important role in the generation and development of many tumors. DNA methyltransferase 1 (DNMT1) plays a critical role in the maintenance and regulation of DNA methylation. Methyl-CpG-binding protein 2 (MeCP2), acts as a bridge between DNA methylation and histone modification, and plays a vital role in the process of tumor formation. Epidemiological studies indicate that folate deficiency was associated with aberrant DNA methylation and cell malignant transformation. In the present study, we brought up the hypothesis that folate may participate in the cervical carcinogenesis through regulating DNMT1 and MeCP2 expression. Experimental study was carried out in human cervical cancer cells, including C33A cell with HPV negative and CaSki cell with HPV16 positive, that were treated with different concentration of folate. Obtained results showed that folate supplement was able to reduce cell proliferation and induced cell apoptosis. The DNMT1 and MeCP2 protein expression decreased gradually with the increase of folate concentrations in both C33A and Caski cells, and the mRNA expression was observed in the same tendency in Caski cells, but in C33A cells. At same folate levels, the expression of DNMT1 protein or mRNA was higher in Caski cells than in C33A cells. The finding indicated that adequate folate is able to effectively inhibit the proliferation and facilitate their apoptosis in cervical cancer cells, and would reverse transcriptional and post-transcriptional aberration expression of DNMT1 and MeCP2. There might be a synergistic action between HPV16 infection and aberrant expression of DNMT1 or MeCP2 in cervical cancer.

#### **Financial Disclosures/Conflicts of Interest**

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#### **Biography**

Wang Jin-tao, PhD, is an Academic Director of Research Board of Non-communicable Disease Epidemiology of Shanxi Medical University, China. She is also one of the members of the China's National Onco-epidemiology Council of Chinese Medical Association. She completed her Medicine Doctor's degree (PhD) from Fudan University, Medical school. She has been honored with "China's National Science and Technology Progress Award", "Beijing Science and Technology Progress Award", "Science and Technology Progress Award of Shanxi Educational Agency", "Science and Technology Contribution Award of Shanxi Province", etc. Her research focuses on the etiological factors and mechanisms involved in cervical cancer. She has published more than 80 papers in reputed journals.

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